RAssignment

Group7

2024-06-14

```
# Load necessary libraries
library(dplyr)

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union

library(ggplot2)
library(readxl)

# 1. Load the dataset
# Description: Load the dataset from the specified file path.
file_path <- "C:/Users/acer/OneDrive/Desktop/2nd Semester/R
Programming/Assignment/File/dataset.xlsx"
dataset <- read_excel(file_path, sheet = "Worksheet")

# 2. Print the structure of your dataset
# Description: Print the structure of the dataset to understand its format
and variables.
cat("2. Structure of the dataset:\n")

## 2. Structure of the dataset:

str(dataset)

## tibble [980 × 26] (S3: tbl_df/tbl/data.frame)
##  $ brand_name               : chr [1:980] "oneplus" "oneplus" "samsung"
"motorola" ...
##  $ model                    : chr [1:980] "OnePlus 11 5G" "OnePlus Nord CE
2 Lite 5G" "Samsung Galaxy A14 5G" "Motorola Moto G62 5G" ...
##  $ price                    : num [1:980] 54999 19989 16499 14999 24999
...
##  $ rating                   : num [1:980] 89 81 75 81 82 80 81 86 85 84
...
##  $ has_5g                   : chr [1:980] "True" "True" "True" "True" ...
##  $ has_nfc                  : chr [1:980] "True" "False" "False" "False"
```

https://github.com/Manzil325/Group7Rassignment

```
...
##  $ has_ir_blaster           : chr [1:980] "False" "False" "False" "False"
...
##  $ processor_brand          : chr [1:980] "snapdragon" "snapdragon"
"exynos" "snapdragon" ...
##  $ num_cores                : num [1:980] 8 8 8 8 8 8 6 8 8 8 ...
##  $ processor_speed          : num [1:980] 3.2 2.2 2.4 2.2 2.6 2.2 3.22 2.6
2.5 3 ...
##  $ battery_capacity         : num [1:980] 5000 5000 5000 5000 5000 ...
##  $ fast_charging_available  : num [1:980] 1 1 1 1 1 1 1 1 1 1 ...
##  $ fast_charging            : num [1:980] 100 33 15 NA 67 25 NA 120 33 80
...
##  $ ram_capacity             : num [1:980] 12 6 4 6 6 6 6 8 8 8 ...
##  $ internal_memory          : num [1:980] 256 128 64 128 128 128 128 256
128 128 ...
##  $ screen_size              : num [1:980] 6.7 6.59 6.6 6.55 6.7 6.6 6.1
6.67 6.55 6.43 ...
##  $ refresh_rate             : num [1:980] 120 120 90 120 120 120 60 120
120 90 ...
##  $ num_rear_cameras         : num [1:980] 3 3 3 3 3 3 2 3 2 3 ...
##  $ num_front_cameras        : num [1:980] 1 1 1 1 1 1 1 1 1 1 ...
##  $ os                       : chr [1:980] "android" "android" "android"
"android" ...
##  $ primary_camera_rear      : num [1:980] 50 64 50 50 108 50 12 200 50 50
...
##  $ primary_camera_front     : num [1:980] 16 16 13 16 16 8 12 16 16 32 ...
##  $ extended_memory_available: num [1:980] 0 1 1 1 0 1 0 0 0 0 ...
##  $ extended_upto            : num [1:980] NA 1024 1024 1024 NA ...
##  $ resolution_width         : num [1:980] 1440 1080 1080 1080 1080 1080
1170 1080 1080 1080 ...
##  $ resolution_height        : num [1:980] 3216 2412 2408 2400 2412 ...
```

```
# 3. List the variables in your dataset
# Description: List all the variables present in the dataset.
cat("3. Variables in the dataset:\n")
```

```
## 3. Variables in the dataset:
```

```
print(names(dataset))
```

```
##  [1] "brand_name"               "model"
##  [3] "price"                    "rating"
##  [5] "has_5g"                   "has_nfc"
##  [7] "has_ir_blaster"           "processor_brand"
##  [9] "num_cores"                "processor_speed"
## [11] "battery_capacity"         "fast_charging_available"
## [13] "fast_charging"            "ram_capacity"
## [15] "internal_memory"          "screen_size"
## [17] "refresh_rate"             "num_rear_cameras"
## [19] "num_front_cameras"        "os"
## [21] "primary_camera_rear"      "primary_camera_front"
```

```
## [23] "extended_memory_available" "extended_upto"
## [25] "resolution_width"          "resolution_height"

# 4. Print the top 15 rows of your dataset
# Description: Display the top 15 rows of the dataset to get an overview of
the data.
cat("4. Top 15 rows of the dataset:\n")

## 4. Top 15 rows of the dataset:

print(head(dataset, 15))

## # A tibble: 15 × 26
##    brand_name model   price rating has_5g has_nfc has_ir_blaster
processor_brand
##    <chr>      <chr>   <dbl>  <dbl> <chr>  <chr>   <chr>          <chr>
##  1 oneplus    OnePl…  54999     89 True   True    False
snapdragon
##  2 oneplus    OnePl…  19989     81 True   False   False
snapdragon
##  3 samsung    Samsu…  16499     75 True   False   False          exynos
##  4 motorola   Motor…  14999     81 True   False   False
snapdragon
##  5 realme     Realm…  24999     82 True   False   False          dimensity
##  6 samsung    Samsu…  16999     80 True   True    False
snapdragon
##  7 apple      Apple…  65999     81 True   True    False          bionic
##  8 xiaomi     Xiaom…  29999     86 True   False   True           dimensity
##  9 nothing    Nothi…  26749     85 True   True    False
snapdragon
## 10 oneplus    OnePl…  28999     84 True   True    False          dimensity
## 11 realme     Realm…  18999     82 True   False   False
snapdragon
## 12 oppo       Oppo …  18999     79 True   True    False          dimensity
## 13 xiaomi     Xiaom…  24762     79 True   False   True           dimensity
## 14 vivo       Vivo …  16990     80 True   False   False
snapdragon
## 15 samsung    Samsu… 114990     NA True   True    False
snapdragon
## # ℹ 18 more variables: num_cores <dbl>, processor_speed <dbl>,
## #   battery_capacity <dbl>, fast_charging_available <dbl>, fast_charging
<dbl>,
## #   ram_capacity <dbl>, internal_memory <dbl>, screen_size <dbl>,
## #   refresh_rate <dbl>, num_rear_cameras <dbl>, num_front_cameras <dbl>,
## #   os <chr>, primary_camera_rear <dbl>, primary_camera_front <dbl>,
## #   extended_memory_available <dbl>, extended_upto <dbl>,
## #   resolution_width <dbl>, resolution_height <dbl>

# 5. Write a user-defined function using any of the variables from the
dataset
# Description: Define a function to calculate the discounted price of a phone
```

```r
based on a discount rate.
discounted_price <- function(price, discount_rate) {
  return(price - (price * discount_rate / 100))
}

# 6. Use data manipulation techniques and filter rows based on any logical
criteria that exist in your dataset
# Description: Filter the dataset to include only phones with price > 500 and
rating > 75.
filtered_dataset <- dataset %>% filter(price > 500, rating > 75)
cat("6. Filtered dataset (phones with price > 500 and rating > 75):\n")

## 6. Filtered dataset (phones with price > 500 and rating > 75):

print(filtered_dataset)

## # A tibble: 596 × 26
##    brand_name model   price rating has_5g has_nfc has_ir_blaster
processor_brand
##    <chr>      <chr>   <dbl>  <dbl> <chr>  <chr>   <chr>          <chr>
##  1 oneplus    OnePlu… 54999     89 True   True    False
snapdragon
##  2 oneplus    OnePlu… 19989     81 True   False   False
snapdragon
##  3 motorola   Motoro… 14999     81 True   False   False
snapdragon
##  4 realme     Realme… 24999     82 True   False   False          dimensity
##  5 samsung    Samsun… 16999     80 True   True    False
snapdragon
##  6 apple      Apple … 65999     81 True   True    False          bionic
##  7 xiaomi     Xiaomi… 29999     86 True   False   True           dimensity
##  8 nothing    Nothin… 26749     85 True   True    False
snapdragon
##  9 oneplus    OnePlu… 28999     84 True   True    False          dimensity
## 10 realme     Realme… 18999     82 True   False   False
snapdragon
## # ℹ 586 more rows
## # ℹ 18 more variables: num_cores <dbl>, processor_speed <dbl>,
## #   battery_capacity <dbl>, fast_charging_available <dbl>, fast_charging
<dbl>,
## #   ram_capacity <dbl>, internal_memory <dbl>, screen_size <dbl>,
## #   refresh_rate <dbl>, num_rear_cameras <dbl>, num_front_cameras <dbl>,
## #   os <chr>, primary_camera_rear <dbl>, primary_camera_front <dbl>,
## #   extended_memory_available <dbl>, extended_upto <dbl>, …

# 7. Identify the dependent & independent variables and use reshaping
techniques and create a new data frame by joining those variables from your
dataset
# Description: Create a new data frame by separating dependent (price) and
independent variables and then joining them.
independent_vars <- dataset %>% select(-price)
```

https://github.com/Manzil325/Group7Rassignment

```r
dependent_var <- dataset %>% select(price)
new_dataset <- cbind(dependent_var, independent_vars)
cat("7. New data frame with dependent and independent variables:\n")

## 7. New data frame with dependent and independent variables:

print(new_dataset)

##      price brand_name                                              model
rating
## 1    54999    oneplus                                      OnePlus 11 5G
89
## 2    19989    oneplus                          OnePlus Nord CE 2 Lite 5G
81
## 3    16499    samsung                              Samsung Galaxy A14 5G
75
## 4    14999   motorola                               Motorola Moto G62 5G
81
## 5    24999     realme                                 Realme 10 Pro Plus
82
## 6    16999    samsung           Samsung Galaxy F23 5G (6GB RAM + 128GB)
80
## 7    65999      apple                                      Apple iPhone 14
81
## 8    29999     xiaomi                      Xiaomi Redmi Note 12 Pro Plus
86
## 9    26749    nothing                                      Nothing Phone 1
85
## 10   28999    oneplus                                   OnePlus Nord 2T 5G
84
## 11   18999     realme                                     Realme 10 Pro
82
## 12   18999       oppo                                           Oppo A78
79
## 13   24762     xiaomi                        Xiaomi Redmi Note 12 Pro 5G
79
## 14   16990       vivo                       Vivo T1 5G (6GB RAM + 128GB)
80
## 15  114990    samsung                        Samsung Galaxy S23 Ultra 5G
NA
## 16   62999      apple                                      Apple iPhone 13
79
## 17    9999       vivo                                           Vivo Y16
65
## 18   45999       oppo                                  OPPO Reno 9 Pro Plus
86
## 19   32999    oneplus                                     OnePlus 10R 5G
86
## 20   14499       vivo                                           Vivo Y22
72
```

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```
## 21   39999    oneplus                                        OnePlus 11R
85
## 22   35999       vivo                                    Vivo V25 Pro 5G
85
## 23   14999       poco                                     Poco X4 Pro 5G
80
## 24   17859     xiaomi                                Xiaomi Redmi Note 12
76
## 25   42990       vivo                                       Vivo V26 Pro
87
## 26   31239    samsung                           Samsung Galaxy S20 FE 5G
88
## 27   21995    oneplus        OnePlus Nord CE 2 Lite 5G (8GB RAM + 128GB)
84
## 28  129990      apple                            Apple iPhone 14 Pro Max
76
## 29   27999       vivo                                        Vivo V25 5G
83
## 30   69999    oneplus                                     OnePlus 11 Pro
NA
## 31   19999     realme                    Realme 10 Pro (8GB RAM + 128GB)
84
## 32   20999       poco                                        Poco X5 Pro
81
## 33   27990       vivo                                           Vivo V27
83
## 34   38999      apple                                   Apple iPhone 11
73
## 35   23790    samsung                              Samsung Galaxy M53 5G
85
## 36   39999    samsung                           Samsung Galaxy S21 FE 5G
87
## 37   29990       oppo                                       Oppo Reno 8T
87
## 38   91999    samsung                         Samsung Galaxy S22 Ultra 5G
NA
## 39   32999     xiaomi                    Xiaomi Redmi Note 12 Pro Max 5G
83
## 40   28499       oppo                                    OPPO Reno 9 5G
83
## 41   21999    oneplus                                 OnePlus Nord CE 3 5G
83
## 42   19999     xiaomi                   Xiaomi Redmi Note 11 Pro Plus 5G
83
## 43   18999   motorola                          Motorola Edge 20 Fusion 5G
87
## 44   27999     realme                Realme 10 Pro Plus (8GB RAM + 256GB)
85
## 45   18499       vivo                                           Vivo Y35
80
```

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```
## 46   17478    samsung                                Samsung Galaxy M33 5G
81
## 47   11936     xiaomi                                 Xiaomi Redmi Note 11
76
## 48    8950     realme                                             Realme C33
64
## 49   12489       vivo                           Vivo Y16 (4GB RAM + 64GB)
68
## 50   42999    samsung                                Samsung Galaxy A74 5G
NA
## 51   18999    samsung            Samsung Galaxy A14 5G (6GB RAM + 128GB)
79
## 52   29999       iqoo                                          iQOO Neo 7 5G
82
## 53   11990        jio                                       Jio JioPhone 5G
64
## 54   18999   motorola                                Motorola Moto G82 5G
83
## 55   13999     realme                                             Realme 10
74
## 56   14965     realme                                           Realme 9i 5G
75
## 57   74999      apple                                 Apple iPhone 14 Plus
82
## 58   10999     xiaomi                                Xiaomi Redmi Note 10S
78
## 59   84990    samsung                              Samsung Galaxy S23 Plus
89
## 60   10499   motorola                                   Motorola Moto G32
75
## 61   17990     xiaomi                         Xiaomi Redmi Note 13 Pro 5G
78
## 62   29990       vivo                                              Vivo S16
85
## 63   18499    samsung                                  Samsung Galaxy A23
79
## 64   16499       vivo                           Vivo Y22 (6GB RAM + 128GB)
75
## 65   14999       poco                  Poco M4 Pro 5G (6GB RAM + 128GB)
81
## 66   35499       vivo                                          Vivo S16 Pro
86
## 67   60999    oneplus                                   OnePlus 10 Pro 5G
89
## 68   32999     xiaomi   Xiaomi Redmi Note 12 Pro Plus (12GB RAM + 256GB)
87
## 69   15999    samsung                                Samsung Galaxy F23 5G
78
## 70   99990       oppo                                    Oppo Find N Fold
NA
```

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```
## 71    9499       oppo                                          OPPO A17K
62
## 72   27994       vivo                      Vivo V23 5G (12GB RAM + 256GB)
86
## 73   13989       iqoo                                    iQOO Z6 Lite 5G
75
## 74   44999    oneplus                                       OnePlus 10T
85
## 75   13999     xiaomi          Xiaomi Redmi Note 10T 5G (6GB RAM +128GB)
79
## 76    6190     gionee                                    Gionee G13 Pro
NA
## 77  119900      apple                                 Apple iPhone 13 Pro
83
## 78   27660       oppo                                       OPPO F22 Pro
83
## 79   24999    samsung                               Samsung Galaxy A34 5G
75
## 80    8388     xiaomi                  Xiaomi Redmi 10A (4GB RAM + 64GB)
66
## 81   15999   motorola                                Motorola Moto G72 4G
83
## 82   20999    samsung            Samsung Galaxy A14 5G (8GB RAM + 128GB)
82
## 83   13999     realme                                       Realme 9 5G
75
## 84   19990       vivo                     Vivo T1 5G (8GB RAM + 128GB)
83
## 85   13999    samsung                               Samsung Galaxy M13 5G
75
## 86   22999   motorola                                 Motorola Edge 30 5G
83
## 87   22999    samsung                               Samsung Galaxy A23 5G
79
## 88   16999       oppo                                       OPPO K10 5G
79
## 89   14290     xiaomi             Xiaomi Redmi Note 11 (6GB RAM + 128GB)
80
## 90   41999    samsung                               Samsung Galaxy A73 5G
NA
## 91   13489       vivo                                    Vivo Y21 2021
69
## 92   22990    oneplus                    OnePlus Ace Racing Edition 5G
83
## 93   16499   motorola                Motorola Moto G62 (8GB RAM + 128GB)
84
## 94   73999       vivo                                 Vivo X90 Pro Plus 5G
NA
## 95    9999     realme                       Realme C33 (4GB RAM + 64GB)
67
```

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```
## 96   12499     realme                                        Realme 9i
75
## 97   12499       oppo                                       OPPO A17
72
## 98   59999       iqoo                                     iQOO 11 5G
88
## 99  106990       vivo                                  Vivo X Fold 5G
NA
## 100  15990       vivo                                     Vivo T1 5G
78
## 101 119990      apple                               Apple iPhone 14 Pro
75
## 102  19999     xiaomi                  Xiaomi Redmi Note 11 Pro Max 5G
83
## 103  23990   motorola                           Motorola Moto S30 Pro
83
## 104  12999     realme                                       Realme 10s
80
## 105  19990       oppo                            OPPO F19 Pro Plus 5G
82
## 106  58990     xiaomi                                Xiaomi 13 Pro 5G
NA
## 107  43999       vivo                                   Vivo V27 Pro
87
## 108  49999    samsung                           Samsung Galaxy S22 5G
86
## 109  15999       vivo                    Vivo T1 44W (6GB RAM + 128GB)
79
## 110  36999    oneplus                 OnePlus 10R 5G (12GB RAM + 256GB)
87
## 111  39999      tecno                                 Tecno Phantom X2
85
## 112  51999      apple                                  Apple iPhone 12
74
## 113  22999     xiaomi                            Xiaomi Redmi K50i 5G
82
## 114  31999    samsung                           Samsung Galaxy A53 5G
87
## 115   6171     xiaomi                                  Xiaomi Redmi A1
NA
## 116  29340       oppo                                    OPPO Reno8 5G
83
## 117  25289    samsung           Samsung Galaxy M53 5G (8GB RAM + 128GB)
87
## 118  21788       iqoo                                    iQOO Z6 Pro 5G
78
## 119  69999      tesla                                    Tesla Pi Phone
83
## 120  70990    samsung                                 Samsung Galaxy S23
88
```

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```
## 121  34999   motorola                            Motorola Edge 30 Pro 5G
89
## 122  33900    oneplus                  OnePlus Nord 2T (12GB RAM + 256GB)
85
## 123  29999     google                                     Google Pixel 6A
71
## 124  18999    infinix                              Infinix Note 12 Pro 5G
84
## 125  19499    samsung            Samsung Galaxy M33 5G (8GB RAM + 128GB)
84
## 126  24994       vivo                                          Vivo V23 5G
83
## 127  10999   motorola                                  Motorola Moto G42
78
## 128  24999    oneplus        OnePlus Nord CE 2 Lite 5G (8GB RAM + 256GB)
85
## 129  25999    samsung                               Samsung Galaxy A33 5G
82
## 130  34990     google                                     Google Pixel 7A
69
## 131  13466     xiaomi                          Xiaomi Redmi 11 Prime 5G
74
## 132   9999     xiaomi                         Xiaomi Redmi Note 10 Lite
76
## 133   7999   motorola                                  Motorola Moto E40
71
## 134  28249    nothing                  Nothing Phone 1 (8GB RAM + 256GB)
86
## 135  16499       poco                   Poco X4 Pro 5G (6GB RAM + 128GB)
82
## 136  22999     xiaomi Xiaomi Redmi Note 11 Pro Plus 5G (8GB RAM + 256GB)
87
## 137  46999      apple                             Apple iPhone 11 (128GB)
75
## 138  13999     realme                       Realme C35 (6GB RAM + 128GB)
74
## 139  13490       oppo                                          OPPO K10
78
## 140  28999       iqoo                                       iQOO Neo 6 5G
82
## 141  15499       iqoo                                          iQOO Z6 5G
78
## 142  39999       oppo                                  OPPO Reno 9 Pro 5G
86
## 143  12999       poco                                      Poco M4 Pro 5G
76
## 144   4499        jio                                          Jio Phone 3
NA
## 145  14999    oneplus                                       OnePlus Clover
69
```

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```
## 146   8499    samsung                                  Samsung Galaxy F04
68
## 147  24990       iqoo                                              iQOO 7
83
## 148  16999    samsung                             Samsung Galaxy M34 5G
84
## 149   9589     xiaomi                                   Xiaomi Redmi 10
71
## 150  40999      apple                               Apple iPhone 12 Mini
74
## 151  19988     xiaomi            Xiaomi Redmi Note 12 (6GB RAM + 128GB)
79
## 152  11999   motorola                                  Motorola Moto G52
75
## 153 142990      apple                           Apple iPhone 15 Pro Max
79
## 154  30990       oppo                                            Oppo A98
87
## 155  19499    infinix                              Infinix Zero 5G 2023
85
## 156   5299     realme                                          Realme C30
NA
## 157  25969       oppo                                   OPPO F21 Pro 5G
82
## 158  28999     realme                                     Realme 11 Pro
82
## 159  94990       oppo                                   Oppo Find N2 5G
NA
## 160  14999     realme                                         Realme 9 4G
81
## 161  14999       cola                                          Cola Phone
74
## 162 129900      apple                           Apple iPhone 13 Pro Max
84
## 163  58990       oppo                             Oppo Reno 10 Pro Plus
88
## 164  41990       vivo                                          Vivo X90 5G
88
## 165  10999    samsung                                  Samsung Galaxy F13
74
## 166  11999     xiaomi           Xiaomi Redmi Note 10S (6GB RAM + 128GB)
79
## 167  16999     realme                       Realme 10 (8GB RAM + 128GB)
79
## 168  30990       iqoo                                        iQOO 9 SE 5G
83
## 169  17999    infinix                                    Infinix Hot 20
75
## 170   5499       letv                                          Letv Y1 Pro
NA
```

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```
## 171  20499     xiaomi                    Xiaomi Redmi Note 13 Pro Max 5G
83
## 172  20490     realme                            Realme Narzo 50 Pro 5G
81
## 173  15490       oppo                                      OPPO A74 5G
77
## 174  29990      apple                                   Apple iPhone 9
61
## 175  15499       iqoo                    iQOO Z6 Lite (6GB RAM + 128GB)
79
## 176  11999     xiaomi                            Xiaomi Redmi Note 11SE
80
## 177  10999     realme                                  Realme Narzo 50
74
## 178  21990       vivo                                      Vivo Y75 5G
82
## 179  31999       vivo                       Vivo V25 (12GB RAM + 256GB)
85
## 180  11999       poco                                   POCO M4 Pro 4G
77
## 181  36999    infinix                                Infinix Zero Ultra
89
## 182   6999      tecno                               Tecno Spark Go 2023
62
## 183  39999   motorola                                 Motorola Moto X40
89
## 184  14999    samsung                            Samsung Galaxy F24 5G
78
## 185  14499     realme                                     Realme 10 5G
79
## 186  27999    oneplus                                OnePlus Nord 3 5G
84
## 187  20499   motorola                  Motorola Moto G82 (8GB RAM + 128GB)
86
## 188   8099      ikall                                   iKall Z19 Pro
60
## 189  10999      leeco                                    LeEco S1 Pro
65
## 190   3499     realme                                      Realme C2s
63
## 191   9990     duoqin                                   Duoqin F22 Pro
NA
## 192  34999    samsung                            Samsung Galaxy M54 5G
85
## 193  46999      nokia                                     Nokia N73 5G
NA
## 194  39999   motorola                       Motorola Edge 30 Fusion 5G
88
## 195  11828     realme                                     Realme C35
70
```

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```
## 196  45999       oppo             OPPO Reno 8 Pro House of Dragon Edition
86
## 197  18999    oneplus                          OnePlus Nord CE 3 Lite 5G
81
## 198  17999       poco                   Poco X4 Pro 5G (8GB RAM + 128GB)
84
## 199   8499    samsung                                  Samsung Galaxy M04
66
## 200  17999       oppo                                        OPPO A77s
76
## 201  14450    samsung                                  Samsung Galaxy A13
75
## 202  54999   motorola                               Motorola Edge 30 Ultra
NA
## 203  71999     xiaomi                                  Xiaomi 13 Ultra 5G
NA
## 204  12999   motorola                Motorola Moto G52 (6GB RAM + 128GB)
79
## 205  11499       poco                                        Poco M4 5G
75
## 206  35999    nothing                 Nothing Phone 1 (12GB RAM + 256GB)
87
## 207  34999    samsung                               Samsung Galaxy A54 5G
76
## 208  11999      tecno                                       Tecno Pova 4
73
## 209  27994     xiaomi         Xiaomi Redmi Note 12 Pro (8GB RAM + 256GB)
82
## 210 139990      apple                   Apple iPhone 14 Pro Max (256GB)
77
## 211  39999       vivo                   Vivo V25 Pro (12GB RAM + 256GB)
86
## 212  15499     realme                     Realme 9 5G (6GB RAM + 128GB)
79
## 213  18999     realme                                   Realme 9 Pro 5G
80
## 214  10999       lava                                     Lava Blaze 5G
73
## 215  27999      honor                                          Honor X9a
81
## 216  81999     google                               Google Pixel 7 Pro 5G
NA
## 217   9999      tecno                                       Tecno Pova 3
74
## 218  31994       vivo                                   Vivo V23 Pro 5G
85
## 219   9299    samsung                                 Samsung Galaxy A04e
65
## 220  29990     xiaomi                                    Xiaomi Redmi K60
84
```

https://github.com/Manzil325/Group7Rassignment

```
## 221  25900     realme                                Realme 9 Pro Plus 5G
78
## 222  16999     realme                      Realme 9i 5G (6GB RAM + 128GB)
78
## 223  24999   motorola             Motorola Edge 30 5G (8GB RAM + 128GB)
85
## 224  12188     xiaomi             Xiaomi Redmi Note 11 (6GB RAM + 64GB)
79
## 225   8999       vivo                                        Vivo Y02
NA
## 226   7499       poco                        POCO C31 (4GB RAM + 64GB)
68
## 227  17999     realme                               Realme Narzo 50 5G
79
## 228  24999     realme                                 Realme GT Neo 3T
79
## 229  45999       oppo                               OPPO Reno 8 Pro 5G
86
## 230  65499    oneplus              OnePlus 10 Pro 5G (12GB RAM + 256GB)
NA
## 231  58990       iqoo                                   iQOO 11 Pro 5G
89
## 232  11999       vivo                                     Vivo T1x 4G
74
## 233  11999     xiaomi                           Xiaomi Redmi 10 Power
77
## 234  18990       oppo                                        OPPO A58
76
## 235  14499       vivo                                     Vivo T1 44W
77
## 236 106990     xiaomi                            Xiaomi Mix Fold 2 5G
NA
## 237  10499       vivo                        Vivo Y16 (3GB RAM + 64GB)
66
## 238  26990       oppo                                    OPPO Reno 8 Z
86
## 239  19990       vivo                                     Vivo Y75 4G
82
## 240  24999     xiaomi                    Xiaomi Redmi Note 12 Explorer
89
## 241  13969       oppo                    OPPO A57 4G (4GB RAM + 64 GB)
69
## 242  44999    samsung                               Samsung Galaxy A75 5G
83
## 243  24999       vivo                   Vivo T1 Pro 5G (8GB RAM + 128GB)
84
## 244  53100     google                                  Google Pixel 7 5G
86
## 245  16999     xiaomi         Xiaomi Redmi Note 11T 5G (6GB RAM + 128GB)
81
```

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```
## 246  21899       oppo                                  OPPO F21s Pro 4G
82
## 247  75999      apple                             Apple iPhone 14 (256GB)
82
## 248  25999   motorola                                   Motorola Moto G73
85
## 249  46990      nubia                            Nubia Red Magic 8 Pro 5G
84
## 250   9999   motorola                                   Motorola Moto G31
75
## 251  49999      tecno                                Tecno Phantom X2 Pro
89
## 252  17999    infinix                                    Infinix Zero 20
87
## 253  16940       iqoo                        iQOO Z6 5G (6GB RAM + 128GB)
80
## 254  17990     xiaomi                         Xiaomi Redmi Note 11 Pro 5G
81
## 255  20990       oppo                                        OPPO A1 Pro
84
## 256  51999    samsung                            Samsung Galaxy S22 FE 5G
79
## 257  64449    samsung                          Samsung Galaxy S22 Plus 5G
87
## 258   8990       vivo                                           Vivo U3x
71
## 259  19999   motorola                                   Motorola Moto G23
77
## 260  13499       poco                        Poco M4 5G (6GB RAM + 128GB)
79
## 261  15499      tecno                                     Tecno Pova 5G
78
## 262   6499       poco                                         POCO C31
65
## 263  71999      apple                                   Apple iPhone XR2
60
## 264  36499    samsung                 Samsung Galaxy A53 (8GB RAM + 256GB)
89
## 265  15999    infinix                                 Infinix Note 12 5G
78
## 266  31994       oppo                                   OPPO Reno7 Pro 5G
87
## 267  34999    oneplus                                       OnePlus Ace 2
84
## 268  18999      redmi                               Redmi Note 11 Pro 2023
81
## 269  39990    nothing                                     Nothing Phone 2
88
## 270  16499    samsung                 Samsung Galaxy A32 (8GB RAM + 128GB)
82
```

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```
## 271  54300     google                                  Google Pixel 6 Pro
89
## 272   9999    infinix                              Infinix Note 12i (2022)
73
## 273  15990     xiaomi         Xiaomi Redmi 11 Prime 5G (6GB RAM + 128GB)
77
## 274  22700     xiaomi Xiaomi Redmi Note 11 Pro Plus 5G (8GB RAM + 128GB)
86
## 275  50990     xiaomi                                     Xiaomi 12 Pro 5G
89
## 276  64900      apple                                  Apple iPhone 13 Mini
79
## 277  13799      tecno                       Tecno Pova 3 (6GB RAM + 128GB)
77
## 278   8999     realme                          Realme C31 (4GB RAM + 64GB)
65
## 279  89999       asus                              Asus ROG Phone 6 Pro 5G
88
## 280  21994       vivo                                          Vivo V23e 5G
84
## 281  69990      apple                                  Apple iPhone 14 Mini
70
## 282  12999     xiaomi                              Xiaomi Redmi Note 10T 5G
75
## 283  24990       iqoo                                       iQOO Neo 7 SE 5G
83
## 284  19990    samsung               Samsung Galaxy A23 (8GB RAM + 128GB)
82
## 285  26999     xiaomi         Xiaomi Redmi Note 12 Pro (8GB RAM + 128GB)
82
## 286  19999     xiaomi                           Xiaomi Redmi Note 12 Turbo
81
## 287  16900    infinix                                  Infinix Note 12 Pro
83
## 288  19999    infinix                     Infinix Hot 20 (6GB RAM+ 128GB)
78
## 289 182999      apple                       Apple iPhone 14 Pro Max (1TB)
78
## 290  12999    samsung                                    Samsung Galaxy M13
75
## 291  15999       poco                    Poco M4 Pro 5G (8GB RAM + 128GB)
82
## 292  13999     xiaomi            Xiaomi Redmi Note 10S (8GB RAM + 128GB)
82
## 293   7749     realme                    Realme C11 2021 (4GB RAM + 64GB)
61
## 294  24999    samsung            Samsung Galaxy A23 5G (8GB RAM + 128GB)
81
## 295  59999   motorola          Motorola Edge 30 Ultra (12GB RAM + 256GB)
NA
```

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```
## 296  25895       oppo                                      OPPO F21s Pro
82
## 297  46990     xiaomi                                       Xiaomi 13 5G
89
## 298   7499     xiaomi                                  Xiaomi Redmi 10A
64
## 299   7790       vivo                                        Vivo Y01A
60
## 300  25999     xiaomi                 Xiaomi Redmi K50i (8GB RAM + 256GB)
85
## 301   6299     realme                         Realme C30 (3GB RAM + 32GB)
60
## 302  12999   motorola                               Motorola Moto G51 5G
77
## 303  11999     xiaomi                   Xiaomi Redmi 10 (6GB RAM + 128GB)
75
## 304  21890     xiaomi                              Xiaomi Mi 11 Lite NE 5G
83
## 305  69999    samsung                              Samsung Galaxy Z Flip 3
84
## 306  55999      apple                              Apple iPhone 12 (128GB)
75
## 307  55999    oneplus                    OnePlus 10T (16GB RAM + 256GB)
87
## 308  14999    samsung               Samsung Galaxy A13 (4GB RAM + 128GB)
75
## 309  25994       oppo                                      OPPO Reno7 5G
85
## 310  42999    oneplus                                    OnePlus 9RT 5G
85
## 311  33499    samsung            Samsung Galaxy A53 5G (8GB RAM + 128GB)
89
## 312 118999    samsung     Samsung Galaxy S22 Ultra 5G (12GB RAM + 512GB)
NA
## 313  16999   motorola                               Motorola Moto G71 5G
80
## 314   6990       itel                                       itel S16 Pro
NA
## 315  29990       vivo                                         Vivo Y100
82
## 316  12944    samsung             Samsung Galaxy M13 5G (4GB RAM + 64GB)
71
## 317  29990       poco                                        POCO X5 GT
84
## 318  16999      honor                                      Honor X9 5G
80
## 319  64999       iqoo                          iQOO 11 (16GB RAM + 256GB)
89
## 320 154998    samsung                              Samsung Galaxy Z Fold 4
NA
```

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```
## 321 109999     royole                                  Royole FlexPai 2
87
## 322  84999      apple                      Apple iPhone 14 Plus (256GB)
83
## 323  27499    samsung          Samsung Galaxy A33 5G (8GB RAM + 128GB)
85
## 324   8999      tecno                                   Tecno Spark 9
69
## 325  40480     google                                  Google Pixel 6
84
## 326  17999     xiaomi       Xiaomi Redmi Note 10 Pro (6GB RAM + 128GB)
81
## 327 105999    samsung                        Samsung Galaxy S21 Ultra
NA
## 328   8999    infinix                                 Infinix Hot 20 Play
67
## 329  14999       vivo                      Vivo T1x (6GB RAM + 128GB)
77
## 330  19990       oppo                                    OPPO F23 Pro
82
## 331  23399       iqoo                iQOO Z6 Pro 5G (8GB RAM + 128GB)
80
## 332  41990    samsung          Samsung Galaxy A73 5G (8GB RAM + 256GB)
NA
## 333  22998     realme                Realme 9 5G SE (8GB RAM + 128GB)
82
## 334  25999       poco                                    Poco F4 5G
82
## 335  11700    infinix                                 Infinix Note 12
74
## 336   6499    samsung                        Samsung Galaxy A03 Core
NA
## 337  15999   motorola                               Motorola Moto G60
84
## 338  64800    oneplus                                  OnePlus 9 Pro
89
## 339  14590     xiaomi                          Xiaomi Redmi Note 11S
80
## 340   7499     xiaomi                           Xiaomi Redmi 9 Activ
68
## 341  21999      tecno                          Tecno Camon 19 Pro 5G
82
## 342  11999    samsung                              Samsung Galaxy A04
71
## 343  12999       poco                POCO M4 Pro 4G (6GB RAM + 128GB)
79
## 344  20990    oneplus                               OnePlus Nord N20 5G
81
## 345  72999      apple                          Apple iPhone 13 (256GB)
79
```

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```
## 346  77990       oppo                                    Oppo Find X6 Pro
NA
## 347  56999       vivo                                     Vivo X90 Pro 5G
NA
## 348  21999   motorola                                  Motorola Moto G53
79
## 349   9499   motorola                                  Motorola Moto G22
75
## 350   7499     xiaomi                               Xiaomi Redmi 9i Sport
66
## 351   4649        jio                                  Jio JioPhone Next
NA
## 352  18000       vivo                                          Vivo Y93
62
## 353  38999     xiaomi                             Xiaomi Redmi K60 Pro
85
## 354   7145     realme                                       Realme C30s
NA
## 355  14990       vivo                                        Vivo Y22s
77
## 356  15499       oppo                                         OPPO A77
70
## 357   9999     xiaomi                               Xiaomi Redmi 10A Sport
69
## 358  29999       poco                          Poco F4 (12GB RAM + 256GB)
86
## 359  15999     realme                        Realme 9 4G (8GB RAM + 128GB)
84
## 360  59990     xiaomi                                  Xiaomi 12T Pro 5G
89
## 361  34990       iqoo                                         iQOO 9 5G
84
## 362  45999      apple                         Apple iPhone 12 Mini (128GB)
75
## 363 119990    samsung                             Samsung Galaxy S24 Ultra
85
## 364  89990       oppo                                    OPPO Find N Flip
88
## 365  50999    oneplus                       OnePlus 10T (12GB RAM + 256GB)
87
## 366   7999      tecno                       Tecno Spark 9 (4GB RAM + 64GB)
65
## 367  43999    samsung         Samsung Galaxy S21 FE 5G (8GB RAM + 256GB)
88
## 368  18499     xiaomi         Xiaomi Redmi Note 11T 5G (8GB RAM + 128GB)
83
## 369 134999       sony                                    Sony Xperia Pro-I
NA
## 370  32999       vivo                                         Vivo V21 Pro
85
```

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```
## 371  13499       poco                                          Poco X3
80
## 372  35489    samsung                              Samsung Galaxy S20 FE
86
## 373  20120     google                                     Google Pixel 4
78
## 374  42999    samsung                            Samsung Galaxy S10 Plus
81
## 375  24999     realme                                 Realme 11 Pro Plus
78
## 376  20999       oppo                                    OPPO F21 Pro 4G
82
## 377  28994     realme                                     Realme GT 2 5G
84
## 378  48900    samsung                                  Samsung Galaxy S21
88
## 379  22494    samsung                                  Samsung Galaxy A71
86
## 380   8990       vivo                                        Vivo Y02s
61
## 381   6999       letv                                       Letv Y2 Pro
NA
## 382   8890      tecno                     Tecno Spark 8C (4GB RAM + 64GB)
63
## 383  18498       iqoo                        iQOO Z6 5G (8GB RAM + 128GB)
82
## 384  23999       vivo                                        Vivo T1 Pro
81
## 385  22994     realme             Realme 9 Pro Plus 5G (8GB RAM + 128GB)
81
## 386  12990    samsung                                Samsung Galaxy A04s
71
## 387  14999     realme                       Realme 9i (6GB RAM + 128GB)
78
## 388  18499     realme                     Realme 8 5G (8GB RAM + 128GB)
80
## 389  14990       oppo                                          OPPO F19
78
## 390  70990       oppo                                  OPPO Find N2 Flip
88
## 391  12120    samsung                   Samsung Galaxy M32 Prime Edition
75
## 392  29990    oukitel                                       Oukitel WP19
84
## 393  20999     realme                  Realme 9 Pro 5G (8GB RAM + 128GB)
82
## 394  11999     xiaomi        Xiaomi Redmi Note 10 Lite (6GB RAM + 128GB)
80
## 395  17990    samsung                                  Samsung Galaxy A13 5G
73
```

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```
## 396  14990     xiaomi                                Xiaomi Redmi Note 11 5G
77
## 397   6490       itel                                                itel P36
NA
## 398  34999     realme                                   Realme GT Neo 5
83
## 399 149900      apple                               Apple iPhone 15 Ultra
79
## 400   6499       poco                                                Poco C50
NA
## 401 104999    samsung                    Samsung Galaxy Note 30 Ultra 5G
NA
## 402  13999     realme                        Realme 9i (4GB RAM + 128GB)
75
## 403  16999     xiaomi                       Xiaomi Redmi Note 11T 5G
79
## 404  79999       vivo                                   Vivo X80 Pro 5G
NA
## 405  36760       oppo                                OPPO Reno 6 Pro 5G
87
## 406  23499     xiaomi                                  Xiaomi Mi 11i 5G
81
## 407  75990       asus                                  Asus ROG Phone 7
87
## 408  21990       oppo                                       Oppo A77 5G
76
## 409  18999     realme                                   Realme 9 5G SE
80
## 410   7249    samsung                                Samsung Galaxy A03
66
## 411  16990    oneplus                                 OnePlus Nord N200
75
## 412  23890     xiaomi                                      Xiaomi Mi 11X
80
## 413  26380       oppo                                       OPPO Reno 6
83
## 414  27999     realme                Realme X50 Pro 5G (12GB RAM + 256GB)
87
## 415  10850     xiaomi                  Xiaomi Redmi 10A (6GB RAM + 128GB)
70
## 416  19999      redmi                     Redmi Note 12 Pro Speed Edition
81
## 417 129990      apple                          Apple iPhone 14 Pro (256GB)
76
## 418  19990   motorola                                   Motorola Moto G72
81
## 419  41990   motorola                               Motorola Moto X30 Pro
NA
## 420  69990     xiaomi                                      Xiaomi 12S Ultra
NA
```

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```
## 421  39990      honor                                        Honor 70 5G
88
## 422  74999    oneplus               OnePlus 10 Pro 5G (12GB RAM + 512GB)
NA
## 423  36994       vivo                 Vivo V23 Pro 5G (12GB RAM + 256GB)
87
## 424  14700       oppo                      OPPO A55 4G (6GB RAM + 128GB)
76
## 425  34990     xiaomi                                 Xiaomi Mi 11T Pro 5G
86
## 426  34999      nokia                                        Nokia X50 5G
76
## 427  13990     xiaomi                                 Xiaomi Redmi Note 10
75
## 428 650000      vertu                                Vertu Signature Touch
62
## 429  14859    samsung Samsung Galaxy M32 Prime Edition (6GB RAM + 128GB)
79
## 430  17999      tecno                Tecno Camon 19 Pro Mondrian Edition
84
## 431  34990       poco                                           Poco F5
85
## 432  14990        blu                                       BLU F91 5G
85
## 433   8999       oppo                                        OPPO A16e
65
## 434   8999   motorola                                   Motorola Moto E32
71
## 435  15824     xiaomi            Xiaomi Redmi Note 11S (8GB RAM + 128GB)
84
## 436  43900      apple                               Apple iPhone SE 3 2022
NA
## 437  22494    samsung               Samsung Galaxy A52 (8GB RAM + 128GB)
86
## 438  19650       poco                                        Poco X3 Pro
82
## 439   6999     xiaomi                                      Xiaomi Redmi 9A
61
## 440  16499    samsung                                   Samsung Galaxy A32
80
## 441  15999   motorola                                    Motorola Moto G13
75
## 442  72999       asus                     Asus ROG Phone 6 Batman Edition
88
## 443  26999     xiaomi    Xiaomi Redmi Note 12 Pro Plus (6GB RAM + 128GB)
84
## 444   6999    infinix                                   Infinix Smart 6 HD
NA
## 445 130990      apple                                  Apple iPhone 15 Pro
75
```

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```
## 446  12787     realme                          Realme C35 (4GB RAM + 128GB)
71
## 447   9999    infinix                                      Infinix Hot 12
72
## 448  54999       vivo                                         Vivo X80 5G
86
## 449  15490       vivo                                       Vivo Y53s
79
## 450  25999      tecno                                    Tecno Phantom X
84
## 451   9499    samsung               Samsung Galaxy M04 (4GB RAM + 128GB)
68
## 452   7999      redmi                                       Redmi 12C
70
## 453  63990       asus                                    Asus ZenFone 9
86
## 454  15990       sony                                 Sony Xperia L5 5G
73
## 455  34949       iqoo                   iQOO 9 SE 5G (12GB RAM + 256GB)
85
## 456   8799      tecno                                 Tecno Spark 8 Pro
72
## 457  12390     xiaomi                              Xiaomi Redmi 10 Prime
74
## 458  11499    samsung                                 Samsung Galaxy F22
73
## 459 199990     xiaomi                               Xiaomi Mi Mix Alpha
NA
## 460  42990       oppo                                 OPPO Reno 10 Pro
86
## 461  34999      nubia                                       Nubia Z50
82
## 462  11999    samsung               Samsung Galaxy F13 (4GB RAM + 128GB)
75
## 463  10499      nokia                                    Nokia G11 Plus
70
## 464   8910    infinix                                 Infinix Hot 12 Play
66
## 465  24990       vivo                                        Vivo T2 5G
85
## 466  17999       oppo                                   OPPO Reno7 Z 5G
84
## 467  22999     xiaomi          Xiaomi Mi 11 Lite NE 5G (8GB RAM + 128GB)
86
## 468   6490     realme                                   Realme Narzo 50i
NA
## 469  21990    infinix                                  Infinix Zero X Pro
85
## 470  12364    samsung                                 Samsung Galaxy M32
76
```

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```
## 471  39990    samsung                                Samsung Galaxy A82 5G
86
## 472  11999     xiaomi                                     Xiaomi Poco F1
77
## 473   7499       vivo                                         Vivo Y25
NA
## 474   3990        lyf                                      Lyf Earth 1
60
## 475  10499   motorola                                Motorola Moto E13
65
## 476   6299      tecno                                   Tecno Pop 6 Pro
NA
## 477   5990       itel                                      Itel A24 Pro
NA
## 478 113990       vivo                                  Vivo X Fold Plus
NA
## 479 239999     huawei                 Huawei Mate 50 RS Porsche Design
81
## 480  21999    samsung                                Samsung Galaxy F63
84
## 481  15999       iqoo                    iQOO Z6 4G (6GB RAM + 128GB)
80
## 482  69990       sony                                  Sony Xperia 5 II
86
## 483  12990       vivo                    Vivo Y3 (4GB RAM + 128GB)
71
## 484  92980       sony                Sony Xperia 1 IV (12GB RAM + 512GB)
NA
## 485  15999      tecno                                   Tecno Pova 4 Pro
74
## 486  23999     huawei                                  Huawei Nova 10 SE
84
## 487  12999       vivo                    Vivo T1x (4GB RAM + 128GB)
75
## 488  60990      nubia                       Nubia Red Magic 7S Pro
86
## 489   8859   motorola              Motorola Moto E32s (4GB RAM + 64GB)
67
## 490  33749       iqoo                iQOO Neo 6 5G (12GB RAM + 256GB)
84
## 491  15990    samsung                                Samsung Galaxy A15
63
## 492  24990       poco                                    POCO X4 GT 5G
84
## 493  14999     realme              Realme Narzo 50 5G (4GB RAM + 128GB)
76
## 494  17990       vivo                                     Vivo Y77 5G
76
## 495  24990      honor                                   Honor 60 SE 5G
75
```

https://github.com/Manzil325/Group7Rassignment

```
## 496  11600     xiaomi                                Xiaomi Redmi 11 Prime
74
## 497   8299     realme                                             Realme C31
62
## 498  11999   motorola                Motorola Moto G31 (6GB RAM+ 128GB)
78
## 499  89999    samsung                        Samsung Galaxy Z Flip 4 5G
88
## 500  27999    oneplus                       OnePlus 6 (8GB RAM + 128GB)
77
## 501  15990     google                                   Google Pixel 2 XL
69
## 502   7289     xiaomi                                Xiaomi Redmi A1 Plus
60
## 503  30990      honor                     Honor 70 5G (8GB RAM + 256GB)
86
## 504  15499     realme                  Realme Narzo 50 (6GB RAM + 128GB)
77
## 505   8499       vivo                                          Vivo Y15s
66
## 506  14490    samsung               Samsung Galaxy M32 (6GB RAM + 128GB)
80
## 507  15490    samsung                               Samsung Galaxy F42 5G
80
## 508  14990     realme                                        Realme Q5 5G
78
## 509  15999       poco                                      POCO M3 Pro 5G
75
## 510  36000     google                                      Google Pixel 5
82
## 511  69999    oneplus                                      OnePlus 12 Pro
NA
## 512  26990     xiaomi            Xiaomi Redmi Note 12 Discovery Edition
86
## 513  10630    samsung               Samsung Galaxy M13 (4GB RAM + 64GB)
71
## 514  42990       oppo                 Oppo Reno 8 Pro (8GB RAM + 256GB)
85
## 515  24990       vivo                                       Vivo Y78 5G
77
## 516  14489       iqoo                                        iQOO Z6 4G
77
## 517  16490       oppo                                          OPPO A76
73
## 518  24494     realme            Realme 9 Pro Plus 5G (8GB RAM + 256GB)
82
## 519   7999       vivo                                          Vivo Y01
61
## 520  23990   motorola                        Motorola Moto Edge S30 5G
85
```

https://github.com/Manzil325/Group7Rassignment

```
## 521  49959     realme                                  Realme GT 2 Pro 5G
89
## 522 129900      apple                        Apple iPhone 13 Pro (256GB)
83
## 523  19990       vivo                                     Vivo Y73 2021
80
## 524  14990    samsung                                  Samsung Galaxy F14
67
## 525  23269       vivo                                          Vivo V20
85
## 526  13999     xiaomi                          Xiaomi Redmi Note 9 Pro
75
## 527  35389    oneplus                       OnePlus 10R Prime Edition
85
## 528  79700     google             Google Pixel 6 Pro (12GB RAM + 256GB)
NA
## 529   9499      nokia                                        Nokia C31
62
## 530  12340    infinix               Infinix Hot 12 Pro (8GB RAM+ 128GB)
76
## 531  10799       poco                                         Poco M5
74
## 532  14990     xiaomi                Xiaomi Redmi 10C (4GB RAM + 128GB)
73
## 533  61990        zte                             ZTE Axon 40 Ultra 5G
89
## 534  51880     xiaomi               Xiaomi 12 Pro 5G (12GB RAM + 256GB)
NA
## 535  16990       oppo                        OPPO K10 (8GB RAM + 128GB)
80
## 536  19990     huawei                                  Huawei Nova 9 SE
84
## 537  57999    samsung            Samsung Galaxy S22 5G (8GB RAM + 256GB)
87
## 538  46990     lenovo                                 Lenovo Legion Y90
87
## 539  20990       vivo                                       Vivo Y55 5G
77
## 540  17990      nokia                                     Nokia X100 5G
82
## 541  17499     realme                    Realme 8s 5G (8GB RAM + 128GB)
82
## 542  17999     realme                                     Realme 8s 5G
80
## 543  49990      nokia                                   Nokia X60 Pro 5G
NA
## 544  14999       poco                                         Poco X5
74
## 545  19980     xiaomi     Xiaomi Redmi Note 10 Pro Max (6GB RAM + 128GB)
82
```

https://github.com/Manzil325/Group7Rassignment

```
## 546  35990       iqoo                                iQOO 7 (12GB RAM + 256GB)
85
## 547  15999     realme                                              Realme 8
78
## 548  41999    samsung                                    Samsung Galaxy S20
88
## 549  25999     xiaomi                                     Xiaomi Redmi K60E
83
## 550   7990   motorola                                    Motorola Moto E32s
65
## 551  29990    oneplus                                    OnePlus Nord 3T 5G
84
## 552  27990       oppo                                 OPPO F23 Pro Plus 5G
83
## 553  29999       poco                                           Poco F5 Pro
84
## 554   8999       oppo                          OPPO A16e (4GB RAM + 64GB)
68
## 555  13999       poco                  POCO M4 Pro 4G (8GB RAM + 128GB)
81
## 556  11499     realme                                     Realme Narzo 50A
71
## 557  39999       asus                                 Asus ROG Phone 5s 5G
87
## 558  27999     realme                       Realme GT Master Edition 5G
84
## 559  24499    samsung                             Samsung Galaxy A32 5G
79
## 560  60999      nubia                        Nubia Red Magic 8 Pro Plus
86
## 561 110999    samsung                           Samsung Galaxy Z Fold 3
89
## 562  54999         lg                                         LG Wing 5G
89
## 563  16490     xiaomi                       Xiaomi Redmi Note 9 Pro Max
80
## 564  24990    samsung                                    Samsung Galaxy A52
83
## 565  25000       vivo                                              Vivo Y71
NA
## 566   9950    samsung                Samsung Galaxy A04e (3GB RAM + 64GB)
66
## 567  12999       oppo                                          Oppo A56s
75
## 568  19999       oppo                                    Oppo Reno 8T 4G
83
## 569  32999       oppo                                       OPPO Reno 10
84
## 570  28498      nokia                                              Nokia G60
81
```

https://github.com/Manzil325/Group7Rassignment

```
## 571  15998       oppo                          OPPO A77 (4GB RAM + 128 GB)
71
## 572  59990   motorola                             Motorola Edge 40 Pro 5G
89
## 573  16990       oppo                                        Oppo K10x 5G
78
## 574  27999       iqoo                    iQOO Z6 Pro 5G (12GB RAM + 256GB)
82
## 575  13499      nokia                          Nokia G21 (6GB RAM + 128GB)
75
## 576  16499    samsung                  Samsung Galaxy A13 (6GB RAM + 128GB)
78
## 577  10999       oppo                           OPPO A16K (4GB RAM + 64GB)
66
## 578  13990     xiaomi                                     Xiaomi Redmi 10C
71
## 579   9999      tecno                                    Tecno Spark 9 Pro
74
## 580  31994     realme                                  Realme GT Neo 3 5G
83
## 581  24820     xiaomi                           Xiaomi 11i HyperCharge 5G
83
## 582  22990       iqoo                                     iQOO Neo 6 SE 5G
83
## 583  59990       iqoo                                        iQOO 9 Pro 5G
88
## 584   8999     realme                   Realme Narzo 50i (4GB RAM + 64GB)
62
## 585  10499     xiaomi               Xiaomi Redmi 9 Activ (6GB RAM + 128GB)
72
## 586   7499        jio                   Jio JioPhone Next (3GB RAM + 32GB)
NA
## 587   9990     xiaomi                           Xiaomi Redmi Note 8 2021
75
## 588  12490     xiaomi                            Xiaomi Redmi Note 10 5G
76
## 589  13990       vivo                                           Vivo Y20G
69
## 590  17990    samsung                              Samsung Galaxy A22 5G
79
## 591  24999       vivo                                            Vivo V21
83
## 592  21999     realme                       Realme 7 Pro (8GB RAM + 128GB)
85
## 593  19999    oneplus                                   OnePlus Nord Lite
77
## 594  99999    samsung                          Samsung Galaxy S20 Ultra 5G
NA
## 595 109900      apple                              Apple iPhone 11 Pro Max
77
```

https://github.com/Manzil325/Group7Rassignment

```
## 596  52990      apple                                    Apple iPhone 7s
NA
## 597  19990       sony                                  Sony Xperia Ace IV
80
## 598  11499    samsung              Samsung Galaxy A04e (4GB RAM + 128GB)
69
## 599  13999     xiaomi                             Xiaomi Redmi Note 12 4G
75
## 600  22990    oukitel                                       Oukitel WP21
82
## 601  28990       vivo                                          Vivo V28
84
## 602  27999       poco                       Poco F4 5G (8GB RAM + 128GB)
85
## 603  19990     xiaomi                       Xiaomi Redmi Note 11T Pro 5G
82
## 604  22999     realme           Realme Narzo 50 Pro 5G (8GB RAM + 128GB)
83
## 605  17999       vivo                     Vivo T1 44W (8GB RAM + 128GB)
82
## 606  15499     xiaomi            Xiaomi Redmi Note 11S (6GB RAM + 128GB)
81
## 607  17990       lava                                       Lava Agni 5G
84
## 608  13999     realme                       Realme 8i (6GB RAM + 128GB)
77
## 609  13499       oppo                                        OPPO A55 4G
73
## 610  14799       poco                  POCO M3 Pro 5G (6GB RAM + 128GB)
79
## 611   6999     realme                                       Realme C21Y
62
## 612  11999       oppo                                          OPPO A16
69
## 613  23994       vivo                                       Vivo V21 5G
85
## 614 139900      apple                       Apple iPhone 12 Pro (512GB)
80
## 615  69999       sony                                    Sony Xperia 1 II
89
## 616  57999   motorola                                 Motorola Edge Plus
89
## 617  86000    samsung                             Samsung Galaxy Note 20
87
## 618  11999    samsung                                  Samsung Galaxy A12
71
## 619  14999     xiaomi                       Xiaomi Redmi Note 12 Pro 4G
77
## 620  26499     realme                  Realme GT Neo 3T (8GB RAM + 128GB)
81
```

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```
## 621   8990     realme                          Realme C30s (4GB RAM + 64GB)
62
## 622  95999      apple                               Apple iPhone 14 (512GB)
82
## 623  47990       iqoo                                             iQOO 9T 5G
85
## 624  17990      tecno                                    Tecno Camon 19 Pro
81
## 625  22999    oneplus                                 OnePlus Nord 2 Lite 5G
83
## 626  99990    samsung      Samsung Galaxy S22 Ultra 5G (8GB RAM + 128GB)
NA
## 627  39999       poco                                           POCO F4 GT 5G
86
## 628  38999     xiaomi               Xiaomi 11T Pro 5G (12GB RAM + 256GB)
88
## 629  12490       vivo                                               Vivo Y10
63
## 630  39990    samsung                                 Samsung Galaxy A83 5G
86
## 631  16685       vivo                                             Vivo Y33s
80
## 632  69990     huawei                                 Huawei Mate 40 Pro 4G
NA
## 633   6999   micromax                                       Micromax IN 2B
66
## 634  71999       asus                                    Asus ROG Phone 6
86
## 635  26999     realme                                       Realme X7 Max
84
## 636  16499     realme                                         Realme 8 5G
75
## 637  17990       oppo                                           OPPO A55 5G
74
## 638   8999     xiaomi                                       Xiaomi Redmi 9
68
## 639  39900      apple                                 Apple iPhone SE 2020
63
## 640   5999       letv                                    Letv Y1 Pro Plus
60
## 641  34999    oneplus                                       OnePlus Nord 5
76
## 642  16990       vivo                                             Vivo Y73T
77
## 643  22990       oppo                                         OPPO Reno 9 Z
84
## 644  19990       vivo                                             Vivo V25e
84
## 645  10850    infinix                                    Infinix Hot 12 Pro
74
```

https://github.com/Manzil325/Group7Rassignment

```
## 646  13499     realme                Realme Narzo 50 5G (4GB RAM + 64GB)
75
## 647   6699       itel                                  itel Vision 3
61
## 648  17999       oppo                                    OPPO A96 4G
80
## 649  13990     xiaomi                         Xiaomi Redmi Note 11E 5G
69
## 650  94990      honor                       Honor Magic 4 Pro Plus 5G
NA
## 651   8968      tecno                                   Tecno Spark 9T
72
## 652   7320    infinix                                 Infinix Smart 6
60
## 653   8999     realme                      Realme C25Y (4GB RAM + 64GB)
69
## 654  13999    samsung               Samsung Galaxy A12 (6GB RAM + 128GB)
75
## 655  14746      tecno                                   Tecno Camon 19
79
## 656  16999     xiaomi                       Xiaomi Redmi Note 10 Pro 5G
83
## 657  25990     xiaomi                 Xiaomi Mi 11X 5G (8GB RAM + 128GB)
83
## 658  16499     xiaomi             Xiaomi Redmi Note 10 (6GB RAM + 128GB)
78
## 659  19999     xiaomi                      Xiaomi Redmi Note 10 Pro Max
81
## 660  23500     xiaomi                                  Xiaomi Mi 10T 5G
80
## 661  54999         lg                                      LG Velvet 5G
85
## 662  19499   motorola                       Motorola One Fusion Plus
80
## 663  79990         lg                                    LG V60 ThinQ
NA
## 664  39999    samsung                      Samsung Galaxy Note 10 Lite
83
## 665  92999    samsung                   Samsung Galaxy Note 10 Plus 5G
89
## 666  32990       iqoo                        iQOO Neo 7 Racing Edition
84
## 667  14499    samsung               Samsung Galaxy A04s (4GB RAM + 128GB)
72
## 668  13999       vivo                                    Vivo Y35 5G
70
## 669   7999       vivo                         Vivo Y02 (2GB RAM + 32GB)
NA
## 670   5785       itel                      itel Vision 3 (2GB RAM + 32GB)
NA
```

https://github.com/Manzil325/Group7Rassignment

```
## 671  12990     xiaomi                                Xiaomi Redmi Note 11R
73
## 672  19990       poco                                        Poco M6 Pro
84
## 673  23990       oppo                                        OPPO A97 5G
79
## 674  17999    samsung                                  Samsung Galaxy A24
77
## 675  16999    infinix                                 Infinix Note 13 Pro
80
## 676   9999      honor                                       Honor Play 30
68
## 677   8299    infinix                                Infinix Smart 6 Plus
63
## 678  82199       sony                                 Sony Xperia 5 IV 5G
89
## 679  49990      nubia                                    Nubia Z40 Pro 5G
84
## 680  11999      nokia                                           Nokia G21
71
## 681  29990     xiaomi                                  Xiaomi 12 Lite 5G
82
## 682  92249       oppo                                     Oppo Find N 5G
NA
## 683 139900      apple                 Apple iPhone 13 Pro Max (256GB)
84
## 684  14990       vivo                                          Vivo Y21s
74
## 685  15988       oppo                                          OPPO F19s
79
## 686  11725    samsung                            Samsung Galaxy M21 2021
76
## 687  17994       oppo                                       OPPO F19 Pro
80
## 688 134999       oppo                                        OPPO X 2021
86
## 689  25595    oneplus                                 OnePlus Nord N10
81
## 690   7499     gionee                                    Gionee M12 Pro
67
## 691  10890       poco                                          Poco M2
74
## 692  18990       oppo                                       OPPO F17 Pro
83
## 693  19990   motorola                                 Motorola Moto G 5G
82
## 694  15990    samsung                                  Samsung Galaxy A50s
80
## 695  58999    samsung                        Samsung Galaxy Note 10 Plus
89
```

https://github.com/Manzil325/Group7Rassignment

```
## 696  12500       vivo                                        Vivo Y15
71
## 697  29999       vivo                                      Vivo S1 Pro
82
## 698  31990       vivo                                      Vivo T3 Pro
86
## 699  29999       vivo                                       Vivo V21s
86
## 700 107990       asus                      Asus ROG Phone 6D Ultimate
NA
## 701  31990   motorola                       Motorola Moto Edge 30 Neo
84
## 702  48990     xiaomi                                       Xiaomi 12T
87
## 703  99990     huawei                           Huawei Mate 50 Pro 5G
85
## 704   9499     realme                                       Realme C32
65
## 705 162990     huawei                                 Huawei Mate Xs 2
89
## 706  24999       iqoo                                   iQOO Z7 Pro 5G
80
## 707  82990      apple                                  Apple iPhone 15
72
## 708  15999    infinix               Infinix Note 11S (8GB RAM + 128GB)
79
## 709   8999      tecno                   Tecno Spark 8 (4GB RAM + 64GB)
64
## 710  17990       oppo                                      Oppo A56 5G
73
## 711  82990       vivo                             Vivo X80 Pro Plus 5G
NA
## 712  12999     xiaomi           Xiaomi Redmi 10 Prime (6GB RAM + 128GB)
77
## 713  29990     huawei                                    Huawei Nova 9
83
## 714   6999      tecno                                   Tecno Pop 5 Go
NA
## 715  60999     huawei                                 Huawei P50 Pro 4G
NA
## 716  27990     xiaomi                               Xiaomi Redmi K50 5G
83
## 717   5249      nokia                                   Nokia C01 Plus
NA
## 718  14999     realme                                       Realme Q3
80
## 719  44990       oppo                          OPPO Reno 6 Pro Plus 5G
87
## 720  22490   motorola                                  Motorola Edge S
87
```

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```
## 721  50990       oppo                                  Oppo Find X3 Pro
NA
## 722  11499       poco                                       Poco M3
75
## 723   5990       itel                                     itel S16
NA
## 724  27000       vivo                                 Vivo V20 Pro
84
## 725  29999     xiaomi                           Xiaomi Mi 10T Pro 5G
86
## 726  27990       vivo                      Vivo V19 (8GB RAM + 256GB)
84
## 727  74999    samsung                           Samsung Galaxy S20 5G
89
## 728   9990       vivo                                      Vivo U3
72
## 729  19990       oppo                       Oppo K5 (8GB RAM + 128GB)
82
## 730  13279     realme                                    Realme XT
75
## 731  11000       vivo                       Vivo Y12 (3GB RAM + 64GB)
68
## 732  12999     xiaomi                  Xiaomi Poco F1 (6GB RAM + 128GB)
78
## 733   7299       poco                       Poco C50 (3GB RAM + 32GB)
61
## 734   7999      ikall                                    iKall Z19
61
## 735  54990     xiaomi                  Xiaomi Redmi K60 Gaming Edition
86
## 736  49990       vivo                                 Vivo S17 Pro
77
## 737  54990      honor                               Honor 80 Pro Plus
NA
## 738  49990      apple                               Apple iPhone SE 4
60
## 739  15499      tecno                               Tecno Pova Neo 5G
71
## 740 169900      apple                Apple iPhone 14 Pro Max (512GB)
78
## 741  53990     google                                  Google Pixel 8
75
## 742  18990       vivo                                   Vivo T2x 5G
80
## 743  16999   motorola                           Motorola Moto G52 5G
76
## 744  34999   motorola                            Motorola Edge 40 5G
86
## 745  82990       vivo                Vivo X Note 5G (12GB RAM + 512GB)
NA
```

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```
## 746  46999     realme              Realme GT 2 Pro 5G (12GB RAM + 256GB)
89
## 747   8499       vivo                                          Vivo Y15C
66
## 748  16999      honor                                           Honor X8
76
## 749  11499    samsung               Samsung Galaxy A03 (4GB RAM + 64GB)
69
## 750  88999    samsung       Samsung Galaxy S22 Plus 5G (8GB RAM + 256GB)
88
## 751  15990       vivo                                          Vivo Y33T
81
## 752  24990     xiaomi                    Xiaomi 11i 5G (8GB RAM + 128GB)
83
## 753  79990       oppo                                  Oppo Find X5 Pro 5G
NA
## 754   6249      tecno                                  Tecno Spark Go 2022
61
## 755  12499       vivo                                          Vivo Y21e
69
## 756   6499     xiaomi                              Xiaomi Redmi 9A Sport
61
## 757 179900      apple                       Apple iPhone 13 Pro Max (1TB)
86
## 758  11990       vivo                          Vivo Y12G (3GB RAM + 64GB)
68
## 759  26990       vivo                                          Vivo V23e
82
## 760  13499    samsung               Samsung Galaxy F22 (6GB RAM + 128GB)
76
## 761  75999     xiaomi                                   Xiaomi 12 Ultra 5G
NA
## 762   5999   micromax                                       Micromax IN 2C
60
## 763   8499    samsung                                  Samsung Galaxy A03s
67
## 764  11990       oppo                        OPPO A54 (4GB RAM + 128GB)
71
## 765  10990     xiaomi                                     Xiaomi Redmi 20X
77
## 766 109990     xiaomi                                  Xiaomi Mi Mix Fold
NA
## 767  16999     realme                                  Realme Narzo 30 5G
80
## 768  12199       oppo                                          OPPO A54
70
## 769  11490       oppo                          Oppo A15s (4GB RAM + 128GB)
72
## 770   5490       itel                                          itel A56
NA
```

https://github.com/Manzil325/Group7Rassignment

```
## 771  11499     xiaomi                                Xiaomi Redmi 9 Power
74
## 772  59450    samsung                            Samsung Galaxy S21 Plus
88
## 773  12799       poco                                        POCO M2 Pro
76
## 774  83000    samsung                            Samsung Galaxy S20 Plus
88
## 775  14490     realme                                       Realme 6 Pro
80
## 776  82990     huawei                                     Huawei P40 Pro
NA
## 777   9490       vivo                                    Vivo Y11 (2019)
64
## 778  25000       vivo                      Vivo V15 Pro (8GB RAM +128GB)
78
## 779  15000       vivo                                          Vivo Y95
65
## 780  20990       vivo                                        Vivo V11i
70
## 781  34999    samsung                     Samsung Galaxy S9 Plus (128GB)
78
## 782  29999     realme                                  Realme GT Neo 4T
80
## 783  11999       vivo                                        Vivo Y53t
67
## 784  12999    samsung                Samsung Galaxy A04 (4GB RAM + 128GB)
72
## 785 124990      leitz                                    Leitz Phone 2
89
## 786  28999     xiaomi                                 Xiaomi Redmi K60i
85
## 787  12999    infinix                                   Infinix Hot 20S
77
## 788  28499     realme                 Realme GT Neo 3T (8GB RAM + 256GB)
82
## 789 104999      apple                      Apple iPhone 14 Plus (512GB)
83
## 790 172999      apple                         Apple iPhone 14 Pro (1TB)
77
## 791  17990     xiaomi                          Xiaomi Redmi 13 Prime 5G
79
## 792  13774     xiaomi            Xiaomi Redmi 11 Prime (6GB RAM + 128GB)
76
## 793   8999      nokia                     Nokia C21 Plus (4GB RAM + 64GB)
64
## 794  18990    oneplus                                  OnePlus Nord N300
75
## 795  14999      tecno                                 Tecno Camon 19 Neo
77
```

https://github.com/Manzil325/Group7Rassignment

```
## 796   7999     realme                              Realme Narzo 50i Prime
61
## 797  39999     xiaomi                          Xiaomi Redmi K50 Ultra 5G
85
## 798  11990       oppo                                        OPPO A57 4G
67
## 799  12999    infinix                  Infinix Note 12 (6GB RAM + 128GB)
77
## 800  54999    samsung                           Samsung Galaxy S23 FE 5G
77
## 801  24990    samsung                             Samsung Galaxy M51s 5G
72
## 802  59999       vivo                     Vivo X80 5G (12GB RAM + 256GB)
88
## 803  19999       poco                                     Poco X6 Pro 5G
72
## 804  16999    infinix                              Infinix Note 12 (G96)
79
## 805  14999    samsung                                 Samsung Galaxy M14
60
## 806  29990       vivo                                     Vivo T2 Pro 5G
76
## 807  13990     xiaomi                       Xiaomi Redmi 10 Prime Plus 5G
69
## 808  17999     xiaomi                         Xiaomi Redmi Note 11 Pro 4G
81
## 809  11399     realme                              Realme Narzo 50A Prime
73
## 810  19990       vivo                                       Vivo Y55s 5G
79
## 811  15499       vivo                                         Vivo Y21T
74
## 812   6999     gionee                                       Gionee K10
NA
## 813  12499     xiaomi        Xiaomi Redmi Note 10 Lite (4GB RAM + 128GB)
77
## 814  91999      apple                             Apple iPhone 13 (512GB)
80
## 815   9690    infinix                                    Infinix Hot 11S
71
## 816  32990     realme                  Realme GT Explorer Master Edition
85
## 817  42990     xiaomi                                     Xiaomi Mi 12 5G
87
## 818  14999        cat                                       CAT S22 Flip
NA
## 819  18699     xiaomi                Xiaomi Mi 11 Lite (8GB RAM + 128GB)
82
## 820  10990     realme                                       Realme Q3i 5G
76
```

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```
## 821  30990     xiaomi                                  Xiaomi Mi 11X Pro
85
## 822  59999     lenovo                               Lenovo Legion Pro 2
89
## 823  23999    samsung                                Samsung Galaxy M62
83
## 824   9999     realme                                        Realme Q2i
69
## 825 119900      apple                       Apple iPhone 12 Pro (256GB)
80
## 826   9299     xiaomi                  Xiaomi Redmi 9i (4GB RAM + 128GB)
67
## 827  12989     realme                           Realme 6 (6GB RAM + 64GB)
77
## 828   4999    samsung                             Samsung Galaxy A01 Core
NA
## 829  29990       oppo                                         Oppo Reno 5
83
## 830  12490       oppo                    Oppo A31 2020 (6GB RAM + 128GB)
72
## 831  27999       sony                                  Sony Xperia 10 II
75
## 832   8199       vivo                                         Vivo Y91c
NA
## 833  21990     huawei                                    Huawei Nova 7i
81
## 834  20000       vivo                                          Vivo Y19
73
## 835  11990       vivo                          Vivo U3 (6GB RAM + 64GB)
74
## 836  11989     xiaomi                               Xiaomi Redmi Note 9
75
## 837  11490     xiaomi                    Xiaomi Redmi 8 (4GB RAM + 64GB)
66
## 838  11490   motorola                                Motorola One Macro
68
## 839  15999     google                                  Google Pixel 3a XL
67
## 840  17990    samsung                                 Samsung Galaxy A40
69
## 841  78990    samsung                              Samsung Galaxy S10 5G
86
## 842  10949     huawei                                   Huawei Honor 9N
66
## 843  10300     xiaomi                               Xiaomi Redmi Note 4
65
## 844  45999     doogee                                      Doogee V Max
88
## 845  21990     huawei                                   Huawei Nova Y61
63
```

https://github.com/Manzil325/Group7Rassignment

```
## 846  19990       iqoo                                        iQOO Z9
76
## 847  32990       vivo                                       Vivo V29
84
## 848  14499       poco                        Poco M5 (6GB RAM + 128GB)
77
## 849  41990      nokia                                      Nokia X30
85
## 850  13990      tecno                                 Tecno Pova Neo 2
67
## 851  10490       vivo                       Vivo Y15C (3GB RAM + 64GB)
67
## 852  29990     huawei                                  Huawei Nova 10
82
## 853  22990     huawei                                  Huawei Nova Y90
82
## 854  47990    samsung                          Samsung Galaxy A92 5G
80
## 855  19999    infinix                            Infinix Note 12 VIP
84
## 856  29999    oneplus                              OnePlus Nord 4 5G
83
## 857  11879     realme          Realme Narzo 50A Prime (4GB RAM + 128GB)
74
## 858  28990    oneplus                                  OnePlus Ace 5G
84
## 859  39990       iqoo                    iQOO 9 5G (12GB RAM + 256GB)
85
## 860  15999     xiaomi                       Xiaomi Redmi Note 12T 5G
78
## 861  22990       oppo                                     Oppo A96 5G
82
## 862 149999     royole                           Royole FlexPai 3 5G
87
## 863  11499      tecno                                 Tecno Camon 18
75
## 864  22999      tecno                           Tecno Phantom X Pro
84
## 865   7999      tecno                                 Tecno Spark 8T
70
## 866  31999     realme                               Realme GT Neo2 5G
82
## 867  30990       sony                      Sony Xperia 10 III Lite 5G
78
## 868   7999     realme                                      Realme G1
64
## 869  10999      tecno                                   Tecno Pova 2
74
## 870  14990       poco                                       Poco X4
79
```

https://github.com/Manzil325/Group7Rassignment

```
## 871  14499   motorola                            Motorola Moto G40 Fusion
77
## 872  44999    oneplus                                         OnePlus 9T
86
## 873  17999     realme                         Realme 8 (8GB RAM + 128GB)
83
## 874  19999     realme            Realme Narzo 30 Pro 5G (8GB RAM +128GB)
83
## 875   3999       itel                                      Itel A23 Pro
NA
## 876 101999    samsung     Samsung Galaxy S21 Ultra 5G (12GB RAM + 128GB)
NA
## 877  38700       oppo                                  Oppo Reno 5 Pro 5G
84
## 878  19999    oneplus                                    OnePlus Nord SE
73
## 879  10999    samsung                                  Samsung Galaxy M12
72
## 880  16990    oneplus                                   OnePlus Nord N100
68
## 881  55999      apple                       Apple iPhone 12 Mini (256GB)
75
## 882  67999      apple                            Apple iPhone 12 (256GB)
76
## 883   9999       oppo                                          OPPO A15
66
## 884  14439     xiaomi          Xiaomi Redmi Note 9 Pro (4GB RAM + 128GB)
77
## 885   9990       oppo                                          Oppo A12
64
## 886  24999     realme               Realme X50 Pro 5G (8GB RAM + 128GB)
85
## 887  85990    samsung                          Samsung Galaxy S20 Plus 5G
NA
## 888 480000     xiaomi            Xiaomi Redmi K20 Pro Signature Edition
88
## 889  16999     xiaomi                            Xiaomi Redmi Note 8 Pro
78
## 890   8999     realme                                         Realme A1
NA
## 891  15990       oppo                                          OPPO A73
62
## 892   3890        lyf                                       Lyf Earth 2
NA
## 893  84990      apple                                Apple iPhone 15 Plus
75
## 894  21999       vivo                                     Vivo Y55s 2023
78
## 895   8999       lava                                     Lava Blaze NXT
66
```

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```
## 896  20999      tecno                              Tecno Camon 20 Premier
79
## 897  32990       oppo                 OPPO Reno 8 House of Dragon Edition
84
## 898   9022   motorola                                  Motorola Moto E22s
70
## 899   8399     xiaomi               Xiaomi Redmi A1 Plus (3GB RAM + 32GB)
61
## 900   9999    infinix                                     Infinix Hot 20i
64
## 901   8390      tecno                     Tecno Spark 9 (3GB RAM + 64GB)
63
## 902  19999        zte                                         ZTE Axon 30S
82
## 903  13999      honor                                            Honor X6
71
## 904  29999     xiaomi                                       Xiaomi Civi 2
85
## 905   8990        tcl                                           TCL Ion X
60
## 906 163980    samsung            Samsung Galaxy Z Fold 4 (12GB RAM + 1TB)
NA
## 907  24990    nothing                               Nothing Phone 1 Lite
80
## 908  59990   motorola                      Motorola Moto Edge X30 Pro
NA
## 909  47990    oneplus                                    OnePlus Ace Pro
86
## 910  40990     realme                Realme GT 2 Explorer Master Edition
86
## 911  22999    samsung                                   Samsung Galaxy M35
74
## 912  12990    samsung                                   Samsung Galaxy A05
63
## 913  14999    infinix                               Infinix Note 12 Turbo
79
## 914  42999       poco                                       POCO F5 GT 5G
86
## 915  14999       iqoo                                          iQOO Z8 5G
78
## 916  22990       vivo                                        Vivo Y55 4G
83
## 917 118990       vivo                  Vivo X Fold 5G (12GB RAM + 512GB)
NA
## 918  29990       oppo                                      Oppo K10 Pro 5G
81
## 919   7399      tecno                                       Tecno Spark 8C
62
## 920  17999       iqoo                                          iQOO Z7 5G
80
```

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```
## 921  12799    infinix                  Infinix Note 11 (6GB RAM + 128GB)
77
## 922  26999     xiaomi        Xiaomi 11i HyperCharge 5G (8GB RAM + 128GB)
86
## 923  22999    samsung            Samsung Galaxy F42 5G (8GB RAM + 128GB)
82
## 924 147900      apple                          Apple iPhone 13 Pro (1TB)
84
## 925  44999      nubia                              Nubia Red Magic 6S 5G
84
## 926   7790   micromax                   Micromax IN 2B (6GB RAM + 64GB)
68
## 927  39990      nokia                                        Nokia X60 5G
87
## 928   9999       vivo                                          Vivo Y12a
65
## 929  22990       oppo                                        Oppo Reno 5A
80
## 930  32999       poco                                         Poco F3 GT
79
## 931  32990      honor                                          Honor 50
85
## 932  14999       oppo                        OPPO A54 (6GB RAM + 128GB)
74
## 933  12499     realme                                         Realme 8i
74
## 934  39990       iqoo                                      iQOO 7 Legend
84
## 935   6499     realme                                   Realme C11 2021
61
## 936  18499    samsung                                 Samsung Galaxy A22
76
## 937  30994     realme                                       Realme GT 5G
85
## 938  32999     google                                   Google Pixel 5A
78
## 939  10499    samsung                                 Samsung Galaxy F12
73
## 940  19999    samsung             Samsung Galaxy F41 (6GB RAM + 128GB)
82
## 941  17499    samsung            Samsung Galaxy A21s (6GB RAM + 128GB)
75
## 942  10990     xiaomi                Xiaomi Redmi 9A (6GB RAM + 128GB)
69
## 943  19000       vivo                                        Vivo V20 SE
82
## 944  13990       oppo                  OPPO A53 2020 (6GB RAM + 128GB)
70
## 945  10499     realme                                   Realme Narzo 20
72
```

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```
## 946   5890       itel                      itel Vision 1 (3GB RAM + 32GB)
NA
## 947   6490     realme                                    Realme C11
61
## 948  54999     xiaomi                 Xiaomi Mi 10 5G (8GB RAM + 256GB)
88
## 949   9990       vivo                                  Vivo Y21 (2020)
65
## 950  24999    oneplus                                      OnePlus Z
79
## 951  59990      sharp                                   Sharp Aquos R5G
88
## 952 214990     huawei                  Huawei Mate 30 RS Porsche Design
NA
## 953   9990    samsung                               Samsung Galaxy A11
63
## 954   6999     realme                                     Realme C2
NA
## 955 169000     huawei                                   Huawei Mate X
NA
## 956  39990    samsung                     Samsung Galaxy A9 Pro (2019)
78
## 957  21490    samsung                         Samsung Galaxy A7 (2018)
70
## 958  13490       vivo                                      Vivo Y55S
NA
## 959   7999       poco                                       Poco C55
70
## 960   8990  blackview                          Blackview BV5200 Pro
67
## 961  13999      honor                                     Honor X7a
75
## 962  13990       oppo                                     OPPO A58x
72
## 963  14999     doogee                                    Doogee S99
84
## 964   6999       lava                                       Lava X3
NA
## 965  42990   motorola                       Motorola Edge 40 Fusion
87
## 966   6799      ikall                                     iKall Z18
61
## 967  25899    oukitel                                   Oukitel WP9
72
## 968  54999     xiaomi                                     Xiaomi 14
89
## 969  49990   motorola                          Motorola ThinkPhone
89
## 970  32990     xiaomi                                  Xiaomi Civi 3
86
```

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```
## 971   8720     realme            Realme Narzo 50i Prime (4GB RAM + 64GB)
64
## 972  69990       oppo                                       Oppo Find X6
89
## 973   4787       itel                                          itel A23s
NA
## 974  70990     google                                 Google Pixel 8 Pro
80
## 975 119990       vivo                                      Vivo X Fold 2
NA
## 976  34990   motorola                        Motorola Moto Edge S30 Pro
83
## 977  14990      honor                                        Honor X8 5G
75
## 978  28990       poco                    POCO X4 GT 5G (8GB RAM + 256GB)
85
## 979  19990   motorola                             Motorola Moto G91 5G
80
## 980  24990    samsung                           Samsung Galaxy M52s 5G
74
##     has_5g has_nfc has_ir_blaster processor_brand num_cores
processor_speed
## 1     True    True          False      snapdragon         8
3.20
## 2     True   False          False      snapdragon         8
2.20
## 3     True   False          False          exynos         8
2.40
## 4     True   False          False      snapdragon         8
2.20
## 5     True   False          False       dimensity         8
2.60
## 6     True    True          False      snapdragon         8
2.20
## 7     True    True          False          bionic         6
3.22
## 8     True   False           True       dimensity         8
2.60
## 9     True    True          False      snapdragon         8
2.50
## 10    True    True          False       dimensity         8
3.00
## 11    True   False          False      snapdragon         8
2.20
## 12    True    True          False       dimensity         8
2.20
## 13    True   False           True       dimensity         8
2.60
## 14    True   False          False      snapdragon         8
2.20
```

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```
## 15    True    True          False      snapdragon         8
3.20
## 16    True    True          False          bionic         6
3.22
## 17   False   False          False           helio         8
2.30
## 18    True    True          False      snapdragon         8
3.20
## 19    True    True          False       dimensity         8
2.85
## 20   False   False          False           helio         8
2.00
## 21    True    True          False      snapdragon         8
3.20
## 22    True   False          False       dimensity         8
3.00
## 23    True   False           True      snapdragon         8
2.20
## 24    True   False           True      snapdragon         8
2.00
## 25    True    True          False       dimensity         8
3.20
## 26    True    True          False      snapdragon         8
2.84
## 27    True   False          False      snapdragon         8
2.20
## 28    True    True          False          bionic         6
NA
## 29    True   False          False       dimensity         8
2.00
## 30    True    True          False      snapdragon         8
3.20
## 31    True   False          False      snapdragon         8
2.20
## 32    True    True           True      snapdragon         8
2.40
## 33    True   False          False       dimensity         8
2.20
## 34   False    True          False          bionic         6
2.65
## 35    True   False          False       dimensity         8
2.40
## 36    True    True          False          exynos         8
2.90
## 37    True    True          False      snapdragon         8
2.20
## 38    True    True          False      snapdragon         8
3.00
## 39    True   False           True      snapdragon         8
2.36
```

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```
## 40    True    True          False      snapdragon         8
2.40
## 41    True    True          False      snapdragon         8
2.20
## 42    True   False           True      snapdragon         8
2.20
## 43    True    True          False       dimensity         8
2.40
## 44    True   False          False       dimensity         8
2.60
## 45   False   False          False      snapdragon         8
2.40
## 46    True    True          False          exynos         8
2.40
## 47   False   False           True      snapdragon         8
2.40
## 48   False   False          False          unisoc         8
1.80
## 49   False   False          False           helio         8
2.30
## 50    True    True          False      snapdragon         8
2.36
## 51    True   False          False          exynos         8
2.40
## 52    True    True           True       dimensity         8
3.10
## 53    True   False          False      snapdragon         8
2.20
## 54    True    True          False      snapdragon         8
2.20
## 55   False   False          False           helio         8
2.20
## 56    True   False          False       dimensity         8
2.40
## 57    True    True          False          bionic         6
3.22
## 58   False   False           True           helio         8
2.05
## 59    True    True          False      snapdragon         8
3.20
## 60   False   False          False      snapdragon         8
2.40
## 61    True    True           True       dimensity         8
2.00
## 62    True    True          False      snapdragon         8
3.20
## 63   False   False          False      snapdragon         8
2.40
## 64   False   False          False           helio         8
2.00
```

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```
## 65    True   False           True       dimensity         8
2.40
## 66    True    True          False       dimensity         8
3.10
## 67    True    True          False      snapdragon         8
3.00
## 68    True   False           True       dimensity         8
2.60
## 69    True    True          False      snapdragon         8
2.20
## 70    True    True          False      snapdragon         8
3.20
## 71   False   False          False           helio         8
2.30
## 72    True   False          False       dimensity         8
2.50
## 73    True   False          False      snapdragon         8
2.00
## 74    True    True          False      snapdragon         8
3.20
## 75    True   False           True       dimensity         8
2.20
## 76   False   False          False           tiger         4
2.00
## 77    True    True          False          bionic         6
3.22
## 78    True   False          False      snapdragon         8
2.20
## 79    True    True          False          exynos         8
NA
## 80   False   False          False           helio         8
2.00
## 81   False    True          False           helio         8
2.20
## 82    True   False          False          exynos         8
2.40
## 83    True   False          False       dimensity         8
2.40
## 84    True   False          False      snapdragon         8
2.20
## 85    True   False          False       dimensity         8
2.20
## 86    True    True          False      snapdragon         8
2.50
## 87    True   False          False      snapdragon         8
2.20
## 88    True   False          False       dimensity         8
2.40
## 89   False   False           True      snapdragon         8
2.40
```

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```
## 90    True    True          False      snapdragon         8
2.40
## 91   False   False          False           helio         8
2.30
## 92    True    True          False       dimensity         8
2.85
## 93    True   False          False      snapdragon         8
2.20
## 94    True    True           True      snapdragon         8
3.20
## 95   False   False          False          unisoc         8
1.80
## 96   False   False          False      snapdragon         8
2.40
## 97   False   False          False           helio         8
2.30
## 98    True    True          False      snapdragon         8
3.20
## 99    True    True          False      snapdragon         8
3.00
## 100   True   False          False      snapdragon         8
2.20
## 101   True    True          False          bionic         6
NA
## 102   True   False           True      snapdragon         8
2.40
## 103   True   False          False      snapdragon         8
2.90
## 104   True   False          False       dimensity         8
2.40
## 105   True   False          False       dimensity         8
2.40
## 106   True    True           True      snapdragon         8
3.20
## 107   True   False          False       dimensity         8
3.20
## 108   True    True          False      snapdragon         8
3.00
## 109  False   False          False      snapdragon         8
2.40
## 110   True    True          False       dimensity         8
2.85
## 111   True    True          False       dimensity         8
3.05
## 112   True    True          False          bionic         6
3.10
## 113   True   False           True       dimensity         8
2.85
## 114   True    True          False          exynos         8
2.40
```

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```
## 115  False   False          False           helio         4
2.00
## 116   True    True          False       dimensity         8
3.00
## 117   True   False          False       dimensity         8
2.40
## 118   True   False          False      snapdragon         8
2.40
## 119   True    True          False            <NA>         8
NA
## 120   True    True          False      snapdragon         8
3.20
## 121   True    True          False      snapdragon         8
3.00
## 122   True    True          False       dimensity         8
3.00
## 123   True    True          False          google         8
NA
## 124   True   False          False       dimensity         8
2.40
## 125   True    True          False          exynos         8
2.40
## 126   True   False          False       dimensity         8
2.50
## 127  False    True          False      snapdragon         8
2.40
## 128   True   False          False      snapdragon         8
2.20
## 129   True    True          False          exynos         8
2.40
## 130   True    True          False          google         8
NA
## 131   True   False           True       dimensity         8
2.20
## 132  False   False           True      snapdragon         8
2.30
## 133  False   False          False           tiger         8
1.80
## 134   True    True          False      snapdragon         8
2.50
## 135   True   False           True      snapdragon         8
2.20
## 136   True   False           True      snapdragon         8
2.20
## 137  False    True          False          bionic         6
2.65
## 138  False   False          False           tiger         8
1.80
## 139  False   False          False      snapdragon         8
2.40
```

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```
## 140   True   False           True      snapdragon         8
3.20
## 141   True   False          False      snapdragon         8
2.20
## 142   True    True          False       dimensity         8
2.85
## 143   True   False           True       dimensity         8
2.40
## 144  False   False          False            <NA>         4
1.40
## 145  False   False          False      snapdragon         8
1.80
## 146  False   False          False           helio         8
2.30
## 147   True    True          False      snapdragon         8
3.20
## 148   True    True          False          exynos         8
2.40
## 149  False   False          False      snapdragon         8
2.40
## 150   True    True          False          bionic         6
3.10
## 151   True   False           True      snapdragon         8
2.00
## 152  False    True          False      snapdragon         8
2.40
## 153   True    True          False          bionic        NA
NA
## 154   True    True          False      snapdragon         8
3.00
## 155   True   False          False       dimensity         8
2.60
## 156  False   False          False           tiger         8
1.82
## 157   True   False          False      snapdragon         8
2.20
## 158   True   False          False      snapdragon         8
3.00
## 159   True    True          False      snapdragon         8
3.20
## 160  False   False          False      snapdragon         8
2.40
## 161  False   False          False           helio         8
2.20
## 162   True    True          False          bionic         6
3.22
## 163   True    True          False      snapdragon         8
3.20
## 164   True    True           True       dimensity         8
3.05
```

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```
## 165  False    True          False          exynos         8
2.00
## 166  False   False           True           helio         8
2.05
## 167  False   False          False           helio         8
2.20
## 168   True    True          False      snapdragon         8
2.84
## 169   True   False          False       dimensity         8
2.40
## 170  False   False          False           tiger         4
2.00
## 171   True   False           True      snapdragon         8
2.36
## 172   True   False          False       dimensity         8
2.50
## 173   True   False          False      snapdragon         8
2.00
## 174  False    True          False          bionic         6
2.65
## 175   True   False          False      snapdragon         8
2.00
## 176  False   False           True           helio         8
2.05
## 177  False   False          False           helio         8
2.00
## 178   True   False          False       dimensity         8
2.20
## 179   True   False          False       dimensity         8
2.00
## 180  False   False           True           helio         8
2.05
## 181   True   False          False       dimensity         8
2.50
## 182  False   False          False           helio         4
2.00
## 183   True    True          False      snapdragon         8
3.20
## 184   True    True          False      snapdragon         8
2.20
## 185   True   False          False       dimensity         8
2.20
## 186   True    True          False       dimensity         8
3.10
## 187   True    True          False      snapdragon         8
2.20
## 188  False   False          False            <NA>         4
1.60
## 189  False   False          False           tiger         4
1.80
```

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```
## 190  False   False          False           helio         8
2.00
## 191  False   False          False           helio         8
2.00
## 192   True   False          False      snapdragon         8
2.84
## 193   True   False          False      snapdragon         8
3.00
## 194   True    True          False      snapdragon         8
2.90
## 195  False   False          False           tiger         8
1.80
## 196   True    True          False       dimensity         8
2.85
## 197   True   False          False      snapdragon         8
2.20
## 198   True   False           True      snapdragon         8
2.20
## 199  False   False          False           helio         8
2.30
## 200  False   False          False      snapdragon         8
2.40
## 201  False   False          False            <NA>         8
2.00
## 202   True    True          False      snapdragon         8
3.20
## 203   True    True           True      snapdragon         8
3.20
## 204  False    True          False      snapdragon         8
2.40
## 205   True   False           True       dimensity         8
2.20
## 206   True    True          False      snapdragon         8
2.50
## 207   True    True          False          exynos         8
NA
## 208  False   False          False           helio         8
2.20
## 209   True   False           True       dimensity         8
2.60
## 210   True    True          False          bionic         6
NA
## 211   True   False          False       dimensity         8
3.00
## 212   True   False          False       dimensity         8
2.40
## 213   True   False          False      snapdragon         8
2.20
## 214   True   False          False       dimensity         8
2.20
```

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```
## 215   True    True           True      snapdragon         8
2.20
## 216   True    True          False          google         8
2.85
## 217  False   False          False           helio         8
2.00
## 218   True   False          False       dimensity         8
3.00
## 219  False   False          False           helio         8
2.30
## 220   True    True           True      snapdragon         8
3.20
## 221   True   False          False       dimensity         8
2.50
## 222   True   False          False       dimensity         8
2.40
## 223   True    True          False      snapdragon         8
2.50
## 224  False   False           True      snapdragon         8
2.40
## 225  False   False          False           helio         8
NA
## 226  False   False          False           helio         8
2.30
## 227   True   False          False       dimensity         8
2.40
## 228   True   False          False      snapdragon         8
3.20
## 229   True    True          False       dimensity         8
2.85
## 230   True    True          False      snapdragon         8
3.00
## 231   True    True           True      snapdragon         8
3.20
## 232  False   False          False      snapdragon         8
2.40
## 233  False   False           True      snapdragon         8
2.40
## 234   True   False          False       dimensity         8
2.20
## 235  False   False          False      snapdragon         8
2.40
## 236   True    True           True      snapdragon         8
3.20
## 237  False   False          False           helio         8
2.30
## 238   True    True          False      snapdragon         8
2.20
## 239  False   False          False           helio         8
2.05
```

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```
## 240   True    True           True       dimensity         8
2.60
## 241  False   False          False           helio         8
2.30
## 242   True    True          False      snapdragon         8
NA
## 243   True   False          False      snapdragon         8
2.40
## 244   True    True          False          google         8
2.85
## 245   True   False           True       dimensity         8
2.40
## 246  False   False          False      snapdragon         8
2.40
## 247   True    True          False          bionic         6
3.22
## 248   True    True          False       dimensity         8
2.20
## 249   True    True          False      snapdragon         8
3.20
## 250  False   False          False           helio         8
2.00
## 251   True    True          False       dimensity         8
3.05
## 252  False    True          False           helio         8
2.20
## 253   True   False          False      snapdragon         8
2.20
## 254   True   False           True      snapdragon         8
2.20
## 255   True    True          False      snapdragon         8
2.20
## 256   True    True          False          exynos         8
NA
## 257   True    True          False      snapdragon         8
3.00
## 258   True   False          False      snapdragon         8
2.00
## 259  False    True          False           helio         8
2.00
## 260   True   False           True       dimensity         8
2.20
## 261   True   False          False       dimensity         8
2.40
## 262  False   False          False           helio         8
2.30
## 263  False    True          False          bionic        NA
NA
## 264   True    True          False          exynos         8
2.40
```

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```
## 265   True   False          False       dimensity         8
2.40
## 266   True    True          False       dimensity         8
3.00
## 267   True    True          False      snapdragon         8
3.20
## 268  False   False           True      snapdragon         8
2.30
## 269   True    True          False      snapdragon         8
3.20
## 270  False   False          False           helio         8
2.00
## 271   True    True          False          google         8
2.80
## 272  False   False          False           helio         8
2.00
## 273   True   False           True       dimensity         8
2.20
## 274   True   False           True      snapdragon         8
2.20
## 275   True    True           True      snapdragon         8
3.00
## 276   True    True          False          bionic         6
3.22
## 277  False   False          False           helio         8
2.00
## 278  False   False          False           tiger         8
1.82
## 279   True    True          False      snapdragon         8
3.20
## 280   True   False          False       dimensity         8
2.40
## 281  False    True          False          bionic        NA
NA
## 282   True   False           True       dimensity         8
2.20
## 283   True    True          False       dimensity         8
3.10
## 284  False   False          False      snapdragon         8
2.40
## 285   True   False           True       dimensity         8
2.60
## 286   True    True           True      snapdragon         8
2.40
## 287  False   False          False           helio         8
2.20
## 288   True   False          False       dimensity         8
2.40
## 289   True    True          False          bionic         6
NA
```

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```
## 290  False   False          False          exynos         8
2.00
## 291   True   False           True       dimensity         8
2.40
## 292  False   False           True           helio         8
2.05
## 293  False   False          False         sc9863a         8
1.60
## 294   True   False          False      snapdragon         8
2.20
## 295   True    True          False      snapdragon         8
3.20
## 296   True   False          False      snapdragon         8
2.20
## 297   True    True           True      snapdragon         8
3.20
## 298  False   False          False           helio         8
2.00
## 299  False   False          False           helio         8
2.30
## 300   True   False           True       dimensity         8
2.85
## 301  False   False          False           tiger         8
1.82
## 302   True    True          False      snapdragon         8
2.20
## 303  False   False          False      snapdragon         8
2.40
## 304   True    True           True      snapdragon         8
2.40
## 305   True    True          False      snapdragon         8
2.84
## 306   True    True          False          bionic         6
3.10
## 307   True    True          False      snapdragon         8
3.20
## 308  False   False          False            <NA>         8
2.00
## 309   True    True          False       dimensity         8
2.00
## 310   True    True          False      snapdragon         8
2.84
## 311   True    True          False          exynos         8
2.40
## 312   True    True          False      snapdragon         8
3.00
## 313   True    True          False      snapdragon         8
2.20
## 314  False   False          False            <NA>         4
1.30
```

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```
## 315   True   False          False       dimensity         8
2.40
## 316   True   False          False       dimensity         8
2.20
## 317   True    True           True       dimensity         8
3.20
## 318   True    True          False      snapdragon         8
2.20
## 319   True    True          False      snapdragon         8
3.20
## 320   True    True          False      snapdragon         8
3.20
## 321   True   False          False      snapdragon         8
2.84
## 322   True    True          False          bionic         6
3.22
## 323   True    True          False          exynos         8
2.40
## 324  False   False          False           helio         8
2.30
## 325   True    True          False          google         8
2.80
## 326  False   False           True      snapdragon         8
2.30
## 327   True    True          False          exynos         8
2.90
## 328  False   False          False           helio         8
2.30
## 329  False   False          False      snapdragon         8
2.40
## 330   True   False          False      snapdragon         8
2.20
## 331   True   False          False      snapdragon         8
2.40
## 332   True    True          False      snapdragon         8
2.40
## 333   True   False          False      snapdragon         8
2.40
## 334   True    True          False      snapdragon         8
3.20
## 335  False   False          False           helio         8
2.00
## 336  False   False          False          unisoc         4
1.60
## 337  False    True          False      snapdragon         8
2.30
## 338   True    True          False      snapdragon         8
2.84
## 339  False   False           True           helio         8
2.05
```

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```
## 340  False   False          False           helio         8
2.30
## 341   True    True          False       dimensity         8
2.40
## 342  False   False          False           helio         8
2.30
## 343  False   False           True           helio         8
2.05
## 344   True    True          False      snapdragon         8
2.20
## 345   True    True          False          bionic         6
3.22
## 346   True    True          False      snapdragon         8
3.20
## 347   True    True           True       dimensity         8
3.05
## 348   True    True          False      snapdragon         8
2.20
## 349  False   False          False           helio         8
2.30
## 350  False   False          False           helio         8
2.00
## 351  False   False          False      snapdragon         4
1.30
## 352  False   False          False           helio         8
2.00
## 353   True    True           True      snapdragon         8
3.20
## 354  False   False          False          unisoc         8
1.60
## 355  False   False          False      snapdragon         8
2.40
## 356  False   False          False           helio         8
2.30
## 357  False   False           True           helio         8
2.00
## 358   True    True          False      snapdragon         8
3.20
## 359  False   False          False      snapdragon         8
2.40
## 360   True    True           True      snapdragon         8
3.20
## 361   True   False          False      snapdragon         8
2.90
## 362   True    True          False          bionic         6
3.10
## 363   True   False          False      snapdragon         8
NA
## 364   True    True          False       dimensity         8
3.05
```

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```
## 365   True    True          False      snapdragon         8
3.20
## 366  False   False          False           helio         8
2.30
## 367   True    True          False          exynos         8
2.90
## 368   True   False           True       dimensity         8
2.40
## 369   True    True          False      snapdragon         8
2.84
## 370   True   False          False      snapdragon         8
2.40
## 371  False   False           True      snapdragon         8
2.30
## 372  False    True          False          exynos         8
2.73
## 373  False    True          False      snapdragon         8
2.80
## 374  False    True          False          exynos         8
2.70
## 375   True   False          False       dimensity         8
2.20
## 376  False   False          False      snapdragon         8
2.40
## 377   True    True          False      snapdragon         8
2.84
## 378   True    True          False          exynos         8
2.90
## 379  False   False          False      snapdragon         8
2.20
## 380  False   False          False           helio         8
2.30
## 381  False   False          False          unisoc         8
NA
## 382  False   False          False          unisoc         8
2.00
## 383   True   False          False      snapdragon         8
2.20
## 384   True   False          False      snapdragon         8
2.40
## 385   True   False          False       dimensity         8
2.50
## 386  False   False          False          exynos         8
2.00
## 387  False   False          False      snapdragon         8
2.40
## 388   True   False          False       dimensity         8
2.20
## 389  False   False          False      snapdragon         8
2.00
```

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```
## 390   True    True          False       dimensity         8
3.20
## 391  False   False          False           helio         8
2.00
## 392  False    True          False           helio         8
2.00
## 393   True   False          False      snapdragon         8
2.20
## 394  False   False           True      snapdragon         8
2.30
## 395   True    True          False       dimensity         8
2.20
## 396   True   False           True       dimensity         8
2.40
## 397  False   False          False      spreadtrum         4
1.30
## 398   True    True          False      snapdragon         8
3.20
## 399   True    True          False          bionic         8
NA
## 400  False   False          False           helio         4
2.00
## 401   True    True          False      snapdragon         8
3.20
## 402  False   False          False      snapdragon         8
2.40
## 403   True   False           True       dimensity         8
2.40
## 404   True    True          False      snapdragon         8
3.00
## 405   True    True          False       dimensity         8
3.00
## 406   True   False           True       dimensity         8
2.50
## 407   True    True          False      snapdragon         8
3.20
## 408   True   False          False      snapdragon         8
2.40
## 409   True   False          False      snapdragon         8
2.40
## 410  False   False          False          unisoc         8
1.60
## 411   True    True          False      snapdragon         8
2.00
## 412   True   False           True      snapdragon         8
3.20
## 413   True    True          False       dimensity         8
2.00
## 414   True    True          False      snapdragon         8
2.84
```

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```
## 415  False   False          False           helio         8
2.00
## 416   True    True           True      snapdragon         8
2.40
## 417   True    True          False          bionic         6
NA
## 418   True    True          False      snapdragon         8
2.20
## 419   True    True          False      snapdragon         8
3.20
## 420   True    True           True      snapdragon         8
3.20
## 421   True    True          False      snapdragon         8
2.50
## 422   True    True          False      snapdragon         8
3.00
## 423   True   False          False       dimensity         8
3.00
## 424  False   False          False           helio         8
2.30
## 425   True    True           True      snapdragon         8
2.84
## 426   True   False          False      snapdragon        NA
NA
## 427  False   False           True      snapdragon         8
2.20
## 428  False    True          False      snapdragon         8
1.50
## 429  False   False          False           helio         8
2.00
## 430  False    True          False           helio         8
2.05
## 431   True    True          False      snapdragon         8
3.20
## 432   True    True          False       dimensity         8
2.40
## 433  False   False          False           helio         8
2.00
## 434  False   False          False           helio         8
2.30
## 435  False   False           True           helio         8
2.05
## 436   True    True          False          bionic         6
3.22
## 437  False   False          False      snapdragon         8
2.30
## 438  False   False           True      snapdragon         8
2.96
## 439  False   False          False           helio         8
2.00
```

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```
## 440  False   False          False           helio         8
2.00
## 441  False    True          False           helio         8
2.00
## 442   True    True          False       dimensity         8
3.20
## 443   True   False           True       dimensity         8
2.60
## 444  False   False          False           helio         4
2.00
## 445   True    True          False          bionic        NA
NA
## 446  False   False          False           tiger         8
1.80
## 447  False   False          False           helio         8
2.30
## 448   True   False          False       dimensity         8
3.05
## 449  False   False          False           helio         8
2.00
## 450  False   False          False           helio         8
2.05
## 451  False   False          False           helio         8
2.30
## 452  False   False          False           helio         8
2.00
## 453   True    True          False      snapdragon         8
3.20
## 454  False    True          False           helio         8
2.30
## 455   True    True          False      snapdragon         8
2.84
## 456  False   False          False           helio         8
2.00
## 457  False   False           True           helio         8
2.00
## 458  False   False          False           helio         8
2.00
## 459   True   False          False      snapdragon         8
2.96
## 460   True    True          False       dimensity         8
3.05
## 461   True    True          False      snapdragon         8
3.20
## 462  False    True          False          exynos         8
2.00
## 463  False   False          False          unisoc         8
1.60
## 464  False   False          False           tiger         8
1.82
```

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```
## 465   True   False          False      snapdragon         8
3.20
## 466   True    True          False      snapdragon         8
2.20
## 467   True    True           True      snapdragon         8
2.40
## 468  False   False          False          unisoc         8
1.60
## 469   True   False          False           helio         8
2.05
## 470  False   False          False           helio         8
2.00
## 471   True    True          False      snapdragon         8
2.96
## 472  False   False          False      snapdragon         8
2.80
## 473  False   False          False           helio         4
1.30
## 474  False   False          False      snapdragon         8
1.50
## 475  False   False          False           tiger         8
2.00
## 476  False   False          False           helio         4
2.00
## 477  False   False          False          unisoc         4
1.40
## 478   True    True          False      snapdragon         8
3.20
## 479  False    True           True      snapdragon         8
3.20
## 480   True    True          False       dimensity         8
2.00
## 481  False   False          False      snapdragon         8
2.40
## 482   True    True          False      snapdragon         8
2.84
## 483  False   False          False           helio         8
2.30
## 484   True    True          False      snapdragon         8
3.00
## 485  False   False          False           helio         8
2.20
## 486  False    True          False      snapdragon         8
2.40
## 487  False   False          False      snapdragon         8
2.40
## 488   True    True          False      snapdragon         8
3.20
## 489  False   False          False           helio         8
1.80
```

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```
## 490   True   False           True      snapdragon         8
3.20
## 491  False   False          False            <NA>         8
NA
## 492   True    True           True       dimensity         8
2.85
## 493   True   False          False       dimensity         8
2.40
## 494   True   False          False       dimensity         8
2.20
## 495   True   False          False       dimensity         8
2.00
## 496  False   False           True           helio         8
2.20
## 497  False   False          False           tiger         8
1.82
## 498  False   False          False           helio         8
2.00
## 499   True    True          False      snapdragon         8
3.20
## 500  False    True          False      snapdragon         8
2.80
## 501  False    True          False      snapdragon         8
2.35
## 502  False   False          False           helio         4
2.00
## 503   True    True          False      snapdragon         8
2.50
## 504  False   False          False           helio         8
2.00
## 505  False   False          False           helio         8
2.30
## 506  False   False          False           helio         8
2.00
## 507   True   False          False       dimensity         8
2.20
## 508   True   False          False      snapdragon         8
2.20
## 509   True   False           True       dimensity         8
2.20
## 510   True    True          False      snapdragon         8
2.40
## 511   True    True          False      snapdragon         8
3.20
## 512   True    True           True       dimensity         8
2.60
## 513  False   False          False          exynos         8
2.00
## 514   True    True          False       dimensity         8
2.85
```

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```
## 515   True   False          False       dimensity         8
3.00
## 516  False   False          False      snapdragon         8
2.40
## 517  False   False          False      snapdragon         8
2.40
## 518   True   False          False       dimensity         8
2.50
## 519  False   False          False           helio         8
2.30
## 520   True   False          False      snapdragon         8
2.90
## 521   True    True          False      snapdragon         8
3.00
## 522   True    True          False          bionic         6
3.22
## 523  False   False          False           helio         8
2.05
## 524  False    True          False            <NA>         8
NA
## 525  False   False          False      snapdragon         8
2.30
## 526  False   False           True      snapdragon         8
2.30
## 527   True    True          False       dimensity         8
2.85
## 528   True    True          False          google         8
2.80
## 529  False   False          False          unisoc         8
1.60
## 530  False   False          False           tiger         8
2.00
## 531  False   False           True           helio         8
2.20
## 532  False   False          False      snapdragon         8
2.40
## 533   True    True          False      snapdragon         8
3.00
## 534   True    True           True      snapdragon         8
3.00
## 535  False   False          False      snapdragon         8
2.40
## 536  False    True          False      snapdragon         8
2.40
## 537   True    True          False      snapdragon         8
3.00
## 538   True    True          False      snapdragon         8
3.00
## 539   True    True          False       dimensity         8
2.20
```

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```
## 540   True    True          False      snapdragon         8
2.00
## 541   True   False          False       dimensity         8
2.40
## 542   True   False          False       dimensity         8
2.40
## 543   True   False          False      snapdragon         8
3.20
## 544   True   False           True      snapdragon         8
2.20
## 545  False   False           True      snapdragon         8
2.30
## 546   True    True          False      snapdragon         8
3.20
## 547  False   False          False           helio         8
2.00
## 548  False    True          False          exynos         8
2.73
## 549   True    True           True       dimensity         8
3.10
## 550  False   False          False           helio         8
1.80
## 551   True    True          False       dimensity         8
3.00
## 552   True   False          False      snapdragon         8
2.36
## 553   True    True           True      snapdragon         8
3.20
## 554  False   False          False           helio         8
2.00
## 555  False   False           True           helio         8
2.05
## 556  False   False          False           helio         8
2.00
## 557   True    True          False      snapdragon         8
2.90
## 558   True    True          False      snapdragon         8
2.40
## 559   True    True          False       dimensity         8
2.00
## 560   True    True          False      snapdragon         8
3.20
## 561   True    True          False      snapdragon         8
2.84
## 562   True    True          False      snapdragon         8
2.40
## 563  False   False           True      snapdragon         8
2.30
## 564  False   False          False      snapdragon         8
2.30
```

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```
## 565  False   False          False      snapdragon         4
1.40
## 566  False   False          False           helio         8
2.30
## 567   True   False          False       dimensity         8
2.40
## 568  False    True          False           helio         8
2.20
## 569   True    True          False      snapdragon         8
2.50
## 570   True    True          False      snapdragon         8
2.20
## 571  False   False          False           helio         8
2.30
## 572   True    True          False      snapdragon         8
3.20
## 573   True   False          False      snapdragon         8
2.20
## 574   True   False          False      snapdragon         8
2.40
## 575  False   False          False          unisoc         8
1.60
## 576  False   False          False            <NA>         8
2.00
## 577  False   False          False           helio         8
2.30
## 578  False   False          False      snapdragon         8
2.40
## 579  False   False          False           helio         8
2.00
## 580   True    True          False       dimensity         8
2.85
## 581   True   False           True       dimensity         8
2.50
## 582   True   False          False      snapdragon         8
3.20
## 583   True    True          False      snapdragon         8
3.00
## 584  False   False          False          unisoc         8
1.60
## 585  False   False          False           helio         8
2.30
## 586  False   False          False      snapdragon         4
1.30
## 587  False   False           True           helio         8
2.00
## 588   True   False           True       dimensity         8
2.20
## 589  False   False          False           helio         8
2.00
```

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```
## 590   True   False          False       dimensity         8
2.20
## 591  False   False          False       dimensity         8
2.40
## 592  False   False          False      snapdragon         8
2.30
## 593  False   False          False      snapdragon         8
2.00
## 594   True    True          False          exynos         8
2.73
## 595  False    True          False          bionic         6
2.65
## 596  False   False          False          fusion         4
2.37
## 597  False    True          False      snapdragon         8
2.00
## 598  False   False          False           helio         8
2.30
## 599  False   False           True           helio         8
2.20
## 600  False   False          False           helio         8
2.20
## 601   True   False          False      snapdragon         8
2.20
## 602   True    True          False      snapdragon         8
3.20
## 603   True    True           True       dimensity         8
2.85
## 604   True   False          False       dimensity         8
2.50
## 605  False   False          False      snapdragon         8
2.40
## 606  False   False           True           helio         8
2.05
## 607   True   False          False       dimensity         8
2.40
## 608  False   False          False           helio         8
2.05
## 609  False   False          False           helio         8
2.30
## 610   True   False           True       dimensity         8
2.20
## 611  False   False          False          unisoc         8
1.80
## 612  False   False          False           helio         8
2.30
## 613   True   False          False       dimensity         8
2.40
## 614   True    True          False          bionic         6
3.10
```

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```
## 615   True    True          False      snapdragon         8
2.84
## 616   True    True          False      snapdragon         8
2.84
## 617  False    True          False          exynos         8
2.73
## 618  False   False          False           helio         8
2.30
## 619  False    True           True      snapdragon         8
2.30
## 620   True   False          False      snapdragon         8
3.20
## 621  False   False          False          unisoc         8
1.60
## 622   True    True          False          bionic         6
3.22
## 623   True    True           True      snapdragon         8
3.20
## 624  False   False          False           helio         8
2.05
## 625   True    True          False      snapdragon         8
2.20
## 626   True    True          False      snapdragon         8
3.00
## 627   True    True           True      snapdragon         8
3.00
## 628   True    True           True      snapdragon         8
2.84
## 629  False   False          False           helio         8
2.30
## 630   True    True          False      snapdragon         8
3.20
## 631  False   False          False           helio         8
2.00
## 632  False    True           True           kirin         8
3.13
## 633  False   False          False          unisoc         8
1.80
## 634   True    True          False      snapdragon         8
3.20
## 635   True    True          False       dimensity         8
3.00
## 636   True   False          False       dimensity         8
2.20
## 637   True   False          False       dimensity         8
2.20
## 638  False   False          False           helio         8
2.30
## 639  False    True          False          bionic         6
2.65
```

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```
## 640  False   False          False           tiger         4
1.80
## 641   True    True          False       dimensity         8
NA
## 642   True   False          False       dimensity         8
2.00
## 643   True    True          False      snapdragon         8
2.20
## 644  False   False          False           helio         8
2.20
## 645  False   False          False           tiger         8
2.00
## 646   True   False          False       dimensity         8
2.40
## 647  False   False          False          unisoc         8
1.60
## 648  False   False          False      snapdragon         8
2.40
## 649   True   False           True       dimensity         8
2.20
## 650   True    True          False      snapdragon         8
3.00
## 651  False   False          False           helio         8
2.30
## 652  False   False          False           helio         4
2.00
## 653  False   False          False           tiger         8
1.80
## 654  False   False          False           helio         8
2.30
## 655  False    True          False           helio         8
2.00
## 656   True    True           True       dimensity         8
2.60
## 657   True   False           True      snapdragon         8
3.20
## 658  False   False           True      snapdragon         8
2.20
## 659  False   False           True      snapdragon         8
2.30
## 660   True    True          False      snapdragon         8
2.84
## 661   True    True          False      snapdragon         8
2.40
## 662  False   False          False      snapdragon         8
2.20
## 663   True    True          False      snapdragon         8
2.84
## 664  False    True          False          exynos         8
2.70
```

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```
## 665   True    True           True          exynos         8
2.70
## 666   True    True           True      snapdragon         8
3.20
## 667  False   False          False          exynos         8
2.00
## 668   True   False          False       dimensity         8
2.20
## 669  False   False          False           helio         8
NA
## 670  False   False          False          unisoc         8
1.60
## 671   True   False           True       dimensity         8
2.20
## 672   True   False           True       dimensity         8
2.50
## 673   True   False          False       dimensity         8
2.40
## 674  False   False          False          exynos         8
1.80
## 675  False   False          False           helio         8
2.20
## 676   True   False          False      snapdragon         8
2.20
## 677  False   False          False           helio         8
2.00
## 678   True    True          False      snapdragon         8
3.00
## 679   True    True          False      snapdragon         8
3.00
## 680  False   False          False          unisoc         8
1.60
## 681   True    True          False      snapdragon         8
2.40
## 682   True    True          False      snapdragon         8
2.84
## 683   True    True          False          bionic         6
3.22
## 684  False   False          False           helio         8
2.00
## 685  False   False          False      snapdragon         8
2.00
## 686  False   False          False          exynos         8
2.30
## 687  False   False          False           helio         8
2.20
## 688  False   False          False      snapdragon         8
2.84
## 689   True    True          False      snapdragon         8
2.00
```

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```
## 690  False   False          False           helio         8
1.99
## 691  False   False           True           helio         8
2.00
## 692  False   False          False           helio         8
2.20
## 693   True    True          False      snapdragon         8
2.20
## 694  False    True          False          exynos         8
2.30
## 695  False    True          False          exynos         8
2.73
## 696  False   False          False           helio         8
2.00
## 697  False   False          False      snapdragon         8
2.00
## 698   True   False          False      snapdragon         8
2.70
## 699   True    True          False       dimensity         8
2.40
## 700   True    True          False       dimensity         8
3.20
## 701   True    True          False      snapdragon         8
2.20
## 702   True    True           True       dimensity         8
2.85
## 703   True    True          False           kirin         8
3.13
## 704  False   False          False           tiger         8
1.82
## 705  False    True           True      snapdragon         8
2.84
## 706   True   False          False      snapdragon         8
2.36
## 707  False    True          False          bionic        NA
NA
## 708  False   False          False           helio         8
2.05
## 709  False   False          False           helio         8
1.80
## 710   True   False          False       dimensity         8
2.20
## 711   True    True          False      snapdragon         8
3.20
## 712  False   False           True           helio         8
2.00
## 713  False    True          False      snapdragon         8
2.40
## 714  False   False          False      spreadtrum         4
1.30
```

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```
## 715  False    True           True      snapdragon         8
2.84
## 716   True    True           True       dimensity         8
2.85
## 717  False   False          False          unisoc         8
1.60
## 718   True   False          False      snapdragon         8
2.20
## 719   True    True          False      snapdragon         8
3.20
## 720   True    True          False      snapdragon         8
3.20
## 721   True    True          False      snapdragon         8
2.84
## 722  False   False           True      snapdragon         8
2.00
## 723  False   False          False          unisoc         4
1.30
## 724   True   False          False      snapdragon         8
2.40
## 725   True    True           True      snapdragon         8
2.84
## 726  False   False          False      snapdragon         8
2.30
## 727   True    True          False          exynos         8
2.73
## 728  False   False          False      snapdragon         8
2.00
## 729  False   False          False      snapdragon         8
2.20
## 730  False   False          False      snapdragon         8
2.30
## 731  False   False          False           helio         8
2.00
## 732  False   False          False      snapdragon         8
2.80
## 733  False   False          False           helio         4
2.00
## 734  False   False          False            <NA>         4
1.60
## 735   True    True           True      snapdragon         8
3.20
## 736   True    True          False       dimensity         8
NA
## 737   True    True          False      snapdragon         8
3.00
## 738   True    True          False          bionic         6
3.22
## 739  False   False          False       dimensity         8
2.40
```

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```
## 740   True    True          False          bionic         6
NA
## 741   True    True          False          google         8
NA
## 742   True   False          False       dimensity         8
3.00
## 743   True    True          False      snapdragon         8
2.20
## 744   True    True          False      snapdragon         8
2.36
## 745   True    True           True      snapdragon         8
3.00
## 746   True    True          False      snapdragon         8
3.00
## 747  False   False          False           helio         8
2.30
## 748  False   False          False      snapdragon         8
2.40
## 749  False   False          False          unisoc         8
1.60
## 750   True    True          False      snapdragon         8
3.00
## 751  False   False          False      snapdragon         8
2.40
## 752   True   False           True       dimensity         8
2.50
## 753   True    True          False      snapdragon         8
3.00
## 754  False   False          False            <NA>         8
2.20
## 755  False   False          False      snapdragon         8
2.40
## 756  False   False          False           helio         8
2.00
## 757   True    True          False          bionic         6
3.22
## 758  False   False          False      snapdragon         8
2.00
## 759  False   False          False           helio         8
2.05
## 760  False   False          False           helio         8
2.00
## 761   True    True           True      snapdragon         8
3.20
## 762  False   False          False           tiger         8
1.80
## 763  False   False          False           helio         8
2.30
## 764  False   False          False           helio         8
2.30
```

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```
## 765   True   False           True       dimensity         8
2.20
## 766   True    True           True      snapdragon         8
2.84
## 767   True    True          False       dimensity         8
2.20
## 768  False   False          False           helio         8
2.30
## 769  False   False          False           helio         8
2.30
## 770  False   False          False            <NA>         4
1.30
## 771  False   False           True      snapdragon         8
2.00
## 772   True    True          False          exynos         8
2.90
## 773  False   False           True      snapdragon         8
2.30
## 774  False    True          False          exynos         8
2.73
## 775  False   False          False      snapdragon         8
2.30
## 776   True    True          False           kirin         8
2.86
## 777  False   False          False      snapdragon         8
2.00
## 778  False   False          False      snapdragon         8
2.00
## 779  False   False          False      snapdragon         8
1.95
## 780  False   False          False           helio         8
2.00
## 781  False    True          False          exynos         8
2.80
## 782   True   False          False      snapdragon         8
3.00
## 783   True   False          False       dimensity         8
2.00
## 784  False   False          False           helio         8
2.30
## 785   True    True          False      snapdragon         8
3.00
## 786   True   False           True       dimensity         8
3.10
## 787  False   False          False           helio         8
2.05
## 788   True   False          False      snapdragon         8
3.20
## 789   True    True          False          bionic         6
3.22
```

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```
## 790   True    True          False          bionic         6
NA
## 791   True   False           True      snapdragon         8
2.00
## 792  False   False           True           helio         8
2.20
## 793  False   False          False          unisoc         8
1.60
## 794   True    True          False       dimensity         8
2.40
## 795  False    True          False           helio         8
2.00
## 796  False   False          False           tiger         8
1.82
## 797   True    True           True      snapdragon         8
3.20
## 798  False   False          False           helio         8
2.30
## 799  False   False          False           helio         8
2.00
## 800   True    True          False            <NA>         8
NA
## 801   True   False          False            <NA>         8
NA
## 802   True   False          False       dimensity         8
3.05
## 803   True   False          False      snapdragon         8
NA
## 804  False   False          False           helio         8
2.05
## 805  False   False          False          exynos         8
NA
## 806   True   False          False      snapdragon         8
NA
## 807   True   False           True       dimensity         8
2.20
## 808  False   False           True           helio         8
2.05
## 809  False   False          False           tiger         8
1.82
## 810   True   False          False       dimensity         8
2.20
## 811  False   False          False      snapdragon         8
2.40
## 812  False   False          False           tiger         4
2.00
## 813  False   False           True      snapdragon         8
2.30
## 814   True    True          False          bionic         6
3.22
```

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```
## 815  False   False          False           helio         8
2.00
## 816   True    True          False      snapdragon         8
3.20
## 817   True    True           True      snapdragon         8
3.00
## 818  False   False          False      snapdragon         4
1.30
## 819  False   False           True      snapdragon         8
2.30
## 820   True   False          False       dimensity         8
2.20
## 821   True   False           True      snapdragon         8
2.84
## 822   True    True          False      snapdragon         8
2.84
## 823  False    True          False          exynos         8
2.73
## 824   True   False          False       dimensity         8
2.00
## 825   True    True          False          bionic         6
3.10
## 826  False   False          False           helio         8
2.00
## 827  False   False          False           helio         8
2.05
## 828  False   False          False        mediatek         4
1.50
## 829   True   False          False      snapdragon         8
2.40
## 830  False   False          False           helio         8
2.30
## 831  False    True          False      snapdragon         8
2.00
## 832  False   False          False           helio         8
2.00
## 833  False   False          False           kirin         8
2.20
## 834  False   False          False           helio         8
2.00
## 835  False   False          False      snapdragon         8
2.00
## 836  False   False           True           helio         8
2.00
## 837  False   False           True      snapdragon         8
2.00
## 838  False   False          False           helio         8
2.00
## 839  False    True          False      snapdragon         8
2.00
```

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```
## 840  False   False          False          exynos         8
2.20
## 841   True    True          False          exynos         8
2.70
## 842  False   False          False           kirin         8
2.36
## 843  False   False          False      snapdragon         8
2.00
## 844   True   False          False       dimensity         8
2.60
## 845  False   False          False            <NA>         8
NA
## 846   True   False          False      snapdragon         8
NA
## 847   True   False          False      snapdragon         8
2.40
## 848  False   False           True           helio         8
2.20
## 849   True    True          False      snapdragon         8
2.20
## 850  False   False          False           helio         8
2.00
## 851  False   False          False           helio         8
2.30
## 852  False   False          False      snapdragon         8
2.40
## 853  False    True          False      snapdragon         8
2.40
## 854   True   False          False       dimensity         8
3.00
## 855  False   False          False           helio         8
2.05
## 856   True    True          False      snapdragon         8
2.36
## 857  False   False          False           tiger         8
1.82
## 858   True    True          False       dimensity         8
2.85
## 859   True   False          False      snapdragon         8
2.90
## 860   True   False           True       dimensity         8
2.00
## 861   True   False          False      snapdragon         8
2.20
## 862   True   False          False      snapdragon         8
2.84
## 863  False    True          False           helio         8
2.00
## 864  False   False          False           helio         8
2.05
```

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```
## 865  False   False          False           helio         8
2.30
## 866   True    True          False      snapdragon         8
3.20
## 867   True    True          False      snapdragon         8
2.00
## 868  False   False          False           helio         8
2.30
## 869  False   False          False           helio         8
2.00
## 870   True   False          False       dimensity         8
2.20
## 871  False   False          False      snapdragon         8
2.30
## 872   True    True          False      snapdragon         8
2.84
## 873  False   False          False           helio         8
2.00
## 874   True   False          False       dimensity         8
2.40
## 875  False   False          False      spreadtrum         4
1.40
## 876   True    True          False          exynos         8
2.90
## 877   True   False          False       dimensity         8
2.60
## 878  False   False          False      snapdragon         8
2.00
## 879  False   False          False          exynos         8
2.00
## 880  False   False          False      snapdragon         8
1.80
## 881   True    True          False          bionic         6
3.10
## 882   True    True          False          bionic         6
3.10
## 883  False   False          False           helio         8
2.30
## 884  False   False           True      snapdragon         8
2.30
## 885  False   False          False           helio         8
1.80
## 886   True    True          False      snapdragon         8
2.84
## 887   True    True          False          exynos         8
2.73
## 888  False    True          False      snapdragon         8
2.80
## 889  False   False           True           helio         8
2.05
```

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```
## 890  False   False          False           helio         8
2.10
## 891  False   False          False           helio         8
2.50
## 892  False   False          False      snapdragon         8
1.50
## 893   True    True          False          bionic         6
NA
## 894   True    True          False       dimensity         8
2.20
## 895  False   False          False           helio         8
2.30
## 896   True    True          False       dimensity         8
2.20
## 897   True    True          False       dimensity         8
3.00
## 898  False   False          False           helio         8
2.30
## 899  False   False          False           helio         4
2.00
## 900  False   False          False           helio         8
2.00
## 901  False   False          False           helio         8
2.30
## 902   True    True          False      snapdragon         8
3.20
## 903  False   False          False           helio         8
2.00
## 904   True    True           True      snapdragon         8
2.40
## 905  False   False          False           helio         8
2.00
## 906   True    True          False      snapdragon         8
3.20
## 907   True    True          False      snapdragon         8
2.50
## 908   True    True          False      snapdragon         8
3.20
## 909   True    True          False      snapdragon         8
3.20
## 910   True    True          False      snapdragon         8
3.20
## 911  False    True          False            <NA>         8
NA
## 912  False   False          False            <NA>         8
NA
## 913  False   False          False           helio         8
2.00
## 914   True    True           True       dimensity         8
3.00
```

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```
## 915   True   False          False      snapdragon         8
2.20
## 916  False   False          False      snapdragon         8
2.40
## 917   True    True          False      snapdragon         8
3.00
## 918   True   False          False      snapdragon         8
2.84
## 919  False   False          False          unisoc         8
2.00
## 920   True   False          False      snapdragon         8
2.20
## 921  False   False          False           helio         8
2.00
## 922   True   False           True       dimensity         8
2.50
## 923   True   False          False       dimensity         8
2.20
## 924   True    True          False          bionic         6
3.22
## 925   True    True          False      snapdragon         8
2.90
## 926  False   False          False          unisoc         8
1.80
## 927   True   False          False      snapdragon         8
3.20
## 928  False   False          False      snapdragon         8
2.00
## 929   True   False          False      snapdragon         8
2.40
## 930   True   False           True       dimensity         8
3.00
## 931   True    True          False      snapdragon         8
2.40
## 932  False   False          False           helio         8
2.30
## 933  False   False          False           helio         8
2.05
## 934   True    True          False      snapdragon         8
2.84
## 935  False   False          False         sc9863a         8
1.60
## 936  False   False          False           helio         8
2.00
## 937   True    True          False      snapdragon         8
2.84
## 938   True    True          False      snapdragon         8
2.40
## 939  False   False          False          exynos         8
2.00
```

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```
## 940  False   False          False          exynos         8
2.30
## 941  False   False          False          exynos         8
2.00
## 942  False   False          False           helio         8
2.00
## 943  False   False          False      snapdragon         8
2.00
## 944  False   False          False      snapdragon         8
1.80
## 945  False   False          False           helio         8
2.00
## 946  False   False          False          unisoc         8
1.60
## 947  False   False          False           helio         8
2.30
## 948   True    True           True      snapdragon         8
2.84
## 949  False   False          False      snapdragon         8
1.80
## 950  False   False          False      snapdragon         8
2.40
## 951  False    True          False      snapdragon         8
2.84
## 952   True    True           True           kirin         8
2.86
## 953  False   False          False            <NA>         8
1.80
## 954  False   False          False           helio         8
2.00
## 955   True    True           True           kirin         8
2.86
## 956  False    True          False      snapdragon         8
2.20
## 957  False   False          False          exynos         8
2.20
## 958  False   False          False      snapdragon         4
1.20
## 959  False   False          False           helio         8
2.00
## 960   True    True          False           helio         8
2.30
## 961  False   False          False           helio         8
2.30
## 962   True   False          False       dimensity         8
2.20
## 963  False    True          False           helio         8
2.05
## 964  False   False          False           helio         4
2.00
```

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```
## 965   True    True          False      snapdragon         8
3.20
## 966  False   False          False            <NA>         4
1.30
## 967  False    True          False           helio         8
2.00
## 968   True    True           True      snapdragon         8
3.20
## 969   True    True          False      snapdragon         8
3.20
## 970   True    True           True       dimensity         8
3.10
## 971  False   False          False           tiger         8
1.82
## 972   True    True          False      snapdragon         8
3.20
## 973  False   False          False      spreadtrum         4
1.40
## 974   True    True          False          google         8
NA
## 975   True    True          False      snapdragon         8
3.20
## 976   True   False          False      snapdragon         8
3.00
## 977   True   False          False      snapdragon         8
2.20
## 978   True    True           True       dimensity         8
2.85
## 979   True    True          False      snapdragon         8
2.20
## 980   True   False          False            <NA>         8
NA
##     battery_capacity fast_charging_available fast_charging ram_capacity
## 1               5000                       1           100           12
## 2               5000                       1            33            6
## 3               5000                       1            15            4
## 4               5000                       1            NA            6
## 5               5000                       1            67            6
## 6               5000                       1            25            6
## 7               3279                       1            NA            6
## 8               4980                       1           120            8
## 9               4500                       1            33            8
## 10              4500                       1            80            8
## 11              5000                       1            33            6
## 12              5000                       1            33            8
## 13              5000                       1            67            6
## 14              5000                       1            18            6
## 15              5000                       1            45            8
## 16              3240                       1            NA            4
## 17              5000                       1            10            3
```

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```
## 18              4700                1              80              16
## 19              5000                1              80               8
## 20              5000                1              18               4
## 21              5000                1             100               8
## 22              4830                1              66               8
## 23              5000                1              67               6
## 24              5000                1              33               4
## 25              4800                1             100              12
## 26              4500                1              NA               8
## 27              5000                1              33               8
## 28              4323                1              NA               6
## 29              4500                1              44               8
## 30              4500                1             100               8
## 31              5000                1              33               8
## 32              5000                1              67               6
## 33              4700                1              67               8
## 34              3110                0              NA               4
## 35              5000                1              25               6
## 36              4500                1              25               8
## 37              5000                1              66               8
## 38              5000                1              45              12
## 39              5200                1             210               6
## 40              4500                1              67               8
## 41              5000                1              67               6
## 42              5000                1              67               6
## 43              5000                1              30               6
## 44              5000                1              67               8
## 45              5000                1              44               8
## 46              6000                1              25               6
## 47              5000                1              33               4
## 48              5000                0              NA               3
## 49              5000                1              10               4
## 50              5000                1              33               8
## 51              5000                1              15               6
## 52              5000                1             120               8
## 53              5000                1              18               4
## 54              5000                1              30               6
## 55              5000                1              33               4
## 56              5000                1              18               4
## 57              4325                1              NA               6
## 58              5000                1              33               6
## 59              4700                1              45               8
## 60              5000                1              33               4
## 61              5000                1              67               6
## 62              4600                1              66               8
## 63              5000                1              25               6
## 64              5000                1              18               6
## 65              5000                1              33               6
## 66              4600                1              66               8
## 67              5000                1              80               8
```

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```
## 68              4980                1             120              12
## 69              5000                1              25               4
## 70              5000                1              67               8
## 71              5000                0              NA               3
## 72              4200                1              44              12
## 73              5000                1              18               4
## 74              4800                1             150               8
## 75              5000                1              18               6
## 76              3500                0              NA               4
## 77              3095                1              NA               6
## 78              4800                1              67               8
## 79              5000                1              33               6
## 80              5000                0              NA               4
## 81              5000                1              33               6
## 82              5000                1              15               8
## 83              5000                1              18               4
## 84              5000                1              18               8
## 85              5000                1              15               6
## 86              4020                1              33               6
## 87              5000                1              25               6
## 88              5000                1              33               8
## 89              5000                1              33               6
## 90              5000                1              25               8
## 91              5000                1              18               4
## 92              5000                1              NA               8
## 93              5000                1              NA               8
## 94              4700                1              80              12
## 95              5000                0              NA               4
## 96              5000                1              33               4
## 97              5000                1              NA               4
## 98              5000                1             120               8
## 99              4600                1              66              12
## 100             5000                1              18               4
## 101             3200                1              NA               6
## 102             5200                1              33               6
## 103             4400                1              68               8
## 104             5000                1              33               8
## 105             4310                1              50               8
## 106             4820                1             120               8
## 107             5000                1             120              12
## 108             3700                1              25               8
## 109             5000                1              44               6
## 110             5000                1              80              12
## 111             5160                1              45               8
## 112               NA                0              NA               4
## 113             5080                1              67               6
## 114             5000                1              25               6
## 115             5000                1              10               2
## 116             4500                1              80               8
## 117             5000                1              25               8
```

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```
## 118             4700                1          66           6
## 119             5000                1         120          16
## 120             3900                1          25           8
## 121             4800                1          68           8
## 122             4500                1          80          12
## 123             4410                1          NA           6
## 124             5000                1          33           8
## 125             6000                1          25           8
## 126             4200                1          44           8
## 127             5000                1          20           4
## 128             5000                1          33           8
## 129             5000                1          25           6
## 130             4410                1          NA           6
## 131             5000                1          18           4
## 132             5020                1          18           4
## 133             5000                0          NA           4
## 134             4500                1          33           8
## 135             5000                1          67           6
## 136             5000                1          67           8
## 137             3110                0          NA           4
## 138             5000                1          18           6
## 139             5000                1          33           6
## 140             4700                1          80           8
## 141             5000                1          18           4
## 142             4500                1          67          16
## 143             5000                1          33           4
## 144             2800                0          NA           2
## 145             6000                1          18           4
## 146             5000                1          15           4
## 147             4400                1          66           8
## 148             6000                1          25           6
## 149             6000                1          18           4
## 150               NA                0          NA           4
## 151             5000                1          33           6
## 152             5000                1          33           4
## 153             4352                1          25           8
## 154             5000                1          67           8
## 155             5000                1          33           8
## 156             5000                0          NA           2
## 157             4500                1          33           8
## 158             5000                1          65           6
## 159             4520                1          67          12
## 160             5000                1          33           6
## 161             5000                1          33           4
## 162             4352                1          NA           6
## 163             4700                1          80          12
## 164             4810                1         120           8
## 165             6000                1          15           4
## 166             5000                1          33           6
## 167             5000                1          33           8
```

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```
## 168          4500                1          66           8
## 169          5000                1          18           4
## 170          4000                0          NA           4
## 171          5200                1          67           6
## 172          5000                1          33           6
## 173          5000                1          18           6
## 174          2050                1          NA           3
## 175          5000                1          18           6
## 176          5000                1          33           6
## 177          5000                1          33           4
## 178          5000                1          18           8
## 179          4500                1          44          12
## 180          5000                1          33           6
## 181          4500                1         180           8
## 182          5000                1          10           3
## 183          4600                1         125           8
## 184          5000                1          25           4
## 185          5000                1          33           8
## 186          4200                1         120           8
## 187          5000                1          30           8
## 188          5000                0          NA           4
## 189          5000                1          10           8
## 190          4000                0          NA           3
## 191          2150                0          NA           4
## 192          6000                1          25           6
## 193          6000                1          65          12
## 194          4400                1          68           8
## 195          5000                1          18           4
## 196          4500                1          80          12
## 197          5000                1          33           6
## 198          5000                1          67           8
## 199          5000                1          15           4
## 200          5000                1          33           8
## 201          5000                1          25           4
## 202          4610                1         125           8
## 203          5000                1         120          12
## 204          5000                1          33           6
## 205          5000                1          18           4
## 206          4500                1          33          12
## 207          5000                1          25           6
## 208          6000                1          18           8
## 209          5000                1          67           8
## 210          4323                1          NA           6
## 211          4830                1          66          12
## 212          5000                1          18           6
## 213          5000                1          33           6
## 214          5000                0          NA           4
## 215          5100                1          40           8
## 216          5000                1          30          12
## 217          7000                1          33           4
```

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```
## 218            4300                1             44              8
## 219            5000                0             NA              3
## 220            5500                1             67              8
## 221            4500                1             60              6
## 222            5000                1             18              6
## 223            4020                1             33              8
## 224            5000                1             33              6
## 225            5000                1             10              3
## 226            5000                0             NA              4
## 227            5000                1             33              6
## 228            5000                1             80              6
## 229            4500                1             80             12
## 230            5000                1             80             12
## 231            4700                1            200              8
## 232            5000                1             18              4
## 233            6000                1             18              8
## 234            5000                1             33              6
## 235            5000                1             44              4
## 236            4500                1             67             12
## 237            5000                1             10              3
## 238            4500                1             33              8
## 239            4050                1             44              8
## 240            4300                1            120              8
## 241            5000                1             33              4
## 242            5000                1             67              8
## 243            4700                1             66              8
## 244            4355                1             30              8
## 245            5000                1             33              6
## 246            4500                1             33              8
## 247            3279                1             NA              6
## 248            5000                1             30              8
## 249            6000                1             80              8
## 250            5000                1             20              4
## 251            5160                1             45             12
## 252            4500                1             45              8
## 253            5000                1             18              6
## 254            5000                1             67              6
## 255            4800                1             67              8
## 256            4200                1             33              8
## 257            4500                1             45              8
## 258            5000                1             18              6
## 259            5000                1             30              4
## 260            5000                1             18              6
## 261            6000                1             18              8
## 262            5000                0             NA              3
## 263            3060                1             NA              4
## 264            5000                1             25              8
## 265            5000                1             33              6
## 266            4500                1             65             12
## 267            5000                1            100              8
```

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```
## 268          5000                1          67           6
## 269          4700                1          66           8
## 270          5000                1          15           8
## 271          5003                1          30          12
## 272          5000                1          33           4
## 273          5000                1          18           6
## 274          5000                1          67           8
## 275          4600                1         120           8
## 276          2438                1          NA           4
## 277          7000                1          33           6
## 278          5000                0          NA           4
## 279          6000                1          65          18
## 280          4050                1          44           8
## 281          3500                1          NA           6
## 282          5000                1          18           4
## 283          5000                1         120           8
## 284          5000                1          25           8
## 285          5000                1          67           8
## 286          5000                1          67           8
## 287          5000                1          33           8
## 288          5000                1          18           6
## 289          4323                1          NA           6
## 290          6000                1          15           6
## 291          5000                1          33           8
## 292          5000                1          33           8
## 293          5000                0          NA           4
## 294          5000                1          25           8
## 295          4610                1         125          12
## 296          4500                1          33           8
## 297          4500                1          67           8
## 298          5000                0          NA           3
## 299          5000                1          10           2
## 300          5080                1          67           8
## 301          5000                0          NA           3
## 302          5000                0          NA           4
## 303          6000                1          18           6
## 304          4250                1          33           6
## 305          3300                1          15           8
## 306            NA                0          NA           4
## 307          4800                1         150          16
## 308          5000                1          25           4
## 309          4500                1          65           8
## 310          4500                1          NA           8
## 311          5000                1          25           8
## 312          5000                1          45          12
## 313          5000                1          33           6
## 314          4000                0          NA           2
## 315          5000                1          66           8
## 316          5000                1          15           4
## 317          5000                1          80           8
```

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```
## 318            4800                1            66             8
## 319            5000                1           120            16
## 320            4400                1            25            12
## 321            4450                0            NA             8
## 322            4325                1            NA             6
## 323            5000                1            25             8
## 324            5000                0            NA             6
## 325            4614                1            30             8
## 326            5020                1            33             6
## 327            5000                1            25            12
## 328            6000                1            18             4
## 329            5000                1            18             6
## 330            4500                1            33             8
## 331            4700                1            66             8
## 332            5000                1            25             8
## 333            5000                1            30             8
## 334            4500                1            67             6
## 335            5000                1            33             4
## 336            5000                0            NA             2
## 337            6000                1            20             6
## 338            4500                1            65             8
## 339            5000                1            33             6
## 340            5000                0            NA             4
## 341            5000                1            33             8
## 342            5000                1            NA             4
## 343            5000                1            33             6
## 344            4500                1            33             6
## 345            3240                1            NA             4
## 346            4700                1           120            12
## 347            4870                1           120             8
## 348            5000                1            10             4
## 349            5000                1            20             4
## 350            5000                1            10             4
## 351            3500                0            NA             2
## 352            4030                0            NA             4
## 353            5000                1           120             8
## 354            5000                1            10             2
## 355            5000                1            18             8
## 356            5000                1            33             4
## 357            5000                0            NA             6
## 358            4500                1            67            12
## 359            5000                1            33             8
## 360            5000                1           120             8
## 361            4350                1           120             8
## 362              NA                0            NA             4
## 363            5100                1            45            12
## 364            4300                1            44             8
## 365            4800                1           150            12
## 366            5000                0            NA             4
## 367            4500                1            25             8
```

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```
## 368             5000                1             33              8
## 369             4500                1             30             12
## 370             4300                1             33              8
## 371             6000                1             33              6
## 372             4500                1             25              8
## 373             2800                1             NA              6
## 374             4100                1             15              8
## 375             4200                1             66              6
## 376             4500                1             33              8
## 377             5000                1             65              8
## 378             4000                1             25              8
## 379             4500                1             25              8
## 380             5000                1             10              3
## 381             4000                0             NA              4
## 382             5000                0             NA              4
## 383             5000                1             18              8
## 384             4700                1             66              6
## 385             4500                1             60              8
## 386             5000                1             15              4
## 387             5000                1             33              6
## 388             5000                1             18              8
## 389             5000                1             33              6
## 390             4300                1             44              8
## 391             6000                1             15              4
## 392            21000                1             33              8
## 393             5000                1             33              8
## 394             5020                1             18              6
## 395             5000                1             15              4
## 396             5000                1             33              4
## 397             5000                0             NA              1
## 398             4600                1            240              8
## 399             4700                1             NA              8
## 400             5000                1             10              2
## 401             4500                1             67             12
## 402             5000                1             33              4
## 403             5000                1             33              6
## 404             4700                1             80             12
## 405             4500                1             65             12
## 406             5160                1             67              6
## 407             6000                1            120             18
## 408             5000                1             33              6
## 409             5000                1             30              6
## 410             5000                1             15              3
## 411             5000                1             18              4
## 412             4520                1             33              6
## 413             4300                1             65              8
## 414             4200                1             65             12
## 415             5000                0             NA              6
## 416             5000                1             67              6
## 417             3200                1             NA              6
```

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```
## 418            5000                1            33             6
## 419            4450                1           125             8
## 420            4860                1            67             8
## 421            4800                1            66            12
## 422            5000                1            80            12
## 423            4300                1            44            12
## 424            5000                1            18             6
## 425            5000                1           120             8
## 426            6000                1            33             6
## 427            5000                1            33             4
## 428            2275                0            NA             2
## 429            6000                1            15             6
## 430            5000                1            33             8
## 431            4700                1            67             8
## 432            5000                1            NA             8
## 433            4230                0            NA             3
## 434            5000                1            10             4
## 435            5000                1            33             8
## 436              NA                0            NA             4
## 437            4500                1            25             8
## 438            5160                1            33             6
## 439            5000                0            NA             2
## 440            5000                1            15             6
## 441            5000                1            10             4
## 442            6000                1            65            16
## 443            4980                1           120             6
## 444            5000                0            NA             2
## 445              NA                0            NA             8
## 446            5000                1            18             4
## 447            6000                1            18             4
## 448            4500                1            80             8
## 449            5000                1            19             8
## 450            4700                1            33             8
## 451            5000                1            15             4
## 452            5000                0            NA             4
## 453            4300                1            30             8
## 454            4000                1            NA             4
## 455            4500                1            66            12
## 456            5000                1            33             4
## 457            6000                1            18             4
## 458            6000                0            NA             4
## 459            4050                1            40            12
## 460            5000                1           120            16
## 461            5000                1            80             8
## 462            6000                1            15             4
## 463            5000                1            10             4
## 464            6000                1            18             4
## 465            4700                1            80             8
## 466            4500                1            33             8
## 467            4250                1            33             8
```

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```
## 468          5000                0          NA           2
## 469          4500                1          45           8
## 470          6000                1          15           4
## 471          4500                1          25           6
## 472          4000                1          NA           6
## 473          1900                0          NA           1
## 474          3500                0          NA           3
## 475          5000                1          10           2
## 476          5000                0          NA           2
## 477          3020                0          NA           2
## 478          4730                1          80          12
## 479          4700                1          66          12
## 480          7000                1          33           6
## 481          5000                1          44           6
## 482          4000                1          21           8
## 483          5000                1          NA           4
## 484          5000                1          30          12
## 485          6000                1          45           8
## 486          4500                1          66           8
## 487          5000                1          18           4
## 488          5000                1         135          12
## 489          5000                1          18           4
## 490          4700                1          80          12
## 491          5000                1          NA           6
## 492          5080                1          67           8
## 493          5000                1          33           4
## 494          4500                1          80           6
## 495          4300                1          66           8
## 496          5000                1          18           4
## 497          5000                0          NA           3
## 498          5000                1          20           6
## 499          3700                1          25           8
## 500          3300                0          NA           8
## 501          3520                1          NA           4
## 502          5000                1          10           2
## 503          4800                1          66           8
## 504          5000                1          33           6
## 505          5000                0          NA           3
## 506          6000                1          15           6
## 507          5000                1          15           6
## 508          5000                1          60           6
## 509          5000                1          18           4
## 510          4080                1          18           8
## 511          4800                1         150          12
## 512          4300                1         210           8
## 513          6000                1          15           4
## 514          4500                1          80           8
## 515          4500                1          NA           8
## 516          5000                1          44           4
## 517          5000                1          33           6
```

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```
## 518            4500                1            60             8
## 519            5000                0            NA             2
## 520            5000                1            33             6
## 521            5000                1            65             8
## 522            3095                1            NA             6
## 523            4000                1            33             8
## 524            5000                1            25             4
## 525            4000                1            33             8
## 526            5020                1            18             4
## 527            5000                1            80             8
## 528            5003                1            30            12
## 529            5050                1            10             3
## 530            5000                1            18             8
## 531            5000                1            18             4
## 532            6000                1            18             4
## 533            5000                1            65             8
## 534            4600                1           120            12
## 535            5000                1            33             8
## 536            4000                1            66             8
## 537            3700                1            25             8
## 538            5600                1            68            12
## 539            5000                1            18             4
## 540            4470                1            18             6
## 541            5000                1            33             8
## 542            5000                1            33             6
## 543            6000                1            44             8
## 544            5000                1            33             4
## 545            5020                1            33             6
## 546            4400                1            66            12
## 547            5000                1            30             4
## 548            4000                1            25             8
## 549            5500                1            67             8
## 550            5000                1            18             3
## 551            4500                1            80             8
## 552            4500                1            65             8
## 553            5500                1            67             8
## 554            4230                0            NA             4
## 555            5000                1            33             8
## 556            6000                1            18             4
## 557            6000                1            65             8
## 558            4300                1            65             8
## 559            5000                1            15             6
## 560            5000                1           165            12
## 561            4400                1            25            12
## 562            4000                1            NA             8
## 563            5020                1            33             6
## 564            4500                1            25             6
## 565            3360                0            NA             3
## 566            5000                0            NA             3
## 567            5000                0            NA             8
```

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```
## 568            5000                1            66             8
## 569            5000                1           120             8
## 570            4500                1            20             6
## 571            5000                1            33             4
## 572            4800                1           125             8
## 573            5000                1            67             6
## 574            4700                1            66            12
## 575            5050                1            18             6
## 576            5000                1            25             6
## 577            4230                0            NA             4
## 578            6000                1            18             4
## 579            5000                1            18             4
## 580            5000                1            80             8
## 581            4500                1           120             6
## 582            4700                1            80             8
## 583            4700                1           120             8
## 584            5000                0            NA             4
## 585            5000                0            NA             6
## 586            3000                0            NA             3
## 587            4000                1            18             4
## 588            5000                1            18             4
## 589            5000                1            18             4
## 590            5000                1            15             6
## 591            4000                1            33             8
## 592            4500                1            65             8
## 593            4300                1            30             8
## 594            5000                1            45            12
## 595            3500                1            18             4
## 596            2230                0            NA             3
## 597            5000                1            33             8
## 598            5000                0            NA             4
## 599            5000                1            33             4
## 600            9800                1            66            12
## 601            5000                1            80             8
## 602            4500                1            67             8
## 603            5080                1            67             6
## 604            5000                1            33             8
## 605            5000                1            44             8
## 606            5000                1            33             6
## 607            5000                1            30             8
## 608            5000                1            18             6
## 609            5000                1            18             4
## 610            5000                1            18             6
## 611            5000                0            NA             3
## 612            5000                0            NA             4
## 613            4000                1            33             8
## 614              NA                0            NA             6
## 615            4000                1            21             8
## 616            5000                1            18            12
## 617            4300                1            25             8
```

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```
## 618            5000                1             15              4
## 619            5000                1             67              6
## 620            5000                1             80              8
## 621            5000                1             10              4
## 622            3279                1             NA              6
## 623            4700                1            120              8
## 624            5000                1             33              8
## 625            5000                1             33              8
## 626            5000                1             45              8
## 627            4700                1            120              8
## 628            5000                1            120             12
## 629            5000                0             NA              4
## 630            4500                1             25              6
## 631            5000                1             18              8
## 632            4400                1             66              8
## 633            5000                0             NA              4
## 634            6000                1             65             12
## 635            4500                1             50              8
## 636            5000                1             18              4
## 637            5000                0             NA              6
## 638            5000                0             NA              4
## 639            1821                1             18              3
## 640            4000                1             10              6
## 641            5000                1            120              8
## 642            6000                1             44              8
## 643            4800                1             33              8
## 644            4500                1             44              8
## 645            5000                1             18              6
## 646            5000                1             33              4
## 647            5000                1             18              3
## 648            5000                1             33              8
## 649            5000                1             18              4
## 650            4600                1            120             12
## 651            5000                1             18              4
## 652            5000                0             NA              2
## 653            5000                1             18              4
## 654            5000                1             15              6
## 655            5000                1             18              6
## 656            5000                1             67              6
## 657            4520                1             33              8
## 658            5000                1             33              6
## 659            5020                1             33              6
## 660            5000                1             33              6
## 661            4300                1             25              6
## 662            5000                1             18              6
## 663            5000                1             NA              8
## 664            4500                1             25              6
## 665            4300                1             NA             12
## 666            5000                1            120              8
## 667            5000                1             15              4
```

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```
## 668            5000                1            15             4
## 669            5000                1            10             2
## 670            5000                1            18             2
## 671            5000                1            18             4
## 672            5100                1           120             8
## 673            5000                1            33            12
## 674            4000                1            15             6
## 675            5000                1           120             6
## 676            5000                0            NA             4
## 677            5000                0            NA             3
## 678            5000                1            30             8
## 679            5000                1            80             8
## 680            5050                1            18             4
## 681            4300                1            67             6
## 682            4500                1            33             8
## 683            4352                1            NA             6
## 684            5000                1            18             4
## 685            5000                1            33             6
## 686            6000                1            15             4
## 687            4310                1            30             8
## 688            4000                1            45             8
## 689            4300                1            30             6
## 690            4000                0            NA             6
## 691            5000                1            18             6
## 692            4015                1            30             8
## 693            5000                1            20             6
## 694            4000                1            15             4
## 695            4300                1            45            12
## 696            5000                0            NA             4
## 697            4500                1            18             8
## 698            4700                1            80             8
## 699            4000                1            33             8
## 700            6000                1            65            16
## 701            4020                1            68             8
## 702            5000                1           120             8
## 703            4500                1            66             8
## 704            5000                0            NA             4
## 705            4600                1            66             8
## 706            5000                1            67             6
## 707            3285                1            NA             6
## 708            5000                1            33             8
## 709            5000                0            NA             4
## 710            5000                0            NA             6
## 711            4500                1           120            12
## 712            6000                1            18             6
## 713            4300                1            66             8
## 714            4000                0            NA             1
## 715            4360                1            66             8
## 716            5500                1            67             8
## 717            3000                0            NA             2
```

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```
## 718            5000                1            30             6
## 719            4500                1            65             8
## 720            5000                1            20             6
## 721            4500                1            65            12
## 722            6000                1            18             6
## 723            4000                0            NA             1
## 724            4000                1            33             8
## 725            5000                1            33             8
## 726            4500                1            33             8
## 727            4000                1            25             8
## 728            5000                1            18             4
## 729            4000                1            30             8
## 730            4000                1            20             4
## 731            5000                0            NA             3
## 732            4000                1            NA             6
## 733            5000                1            10             3
## 734            5000                0            NA             4
## 735            5000                1            67             8
## 736            5000                1           120            12
## 737            4500                1           100            12
## 738              NA                0            NA             4
## 739            6000                1            18             4
## 740            4323                1            NA             6
## 741            4830                1            67             8
## 742            6000                1            44             8
## 743            5000                1            33             4
## 744            4200                1            67             8
## 745            5000                1            80            12
## 746            5000                1            65            12
## 747            5000                0            NA             3
## 748            4000                1            22             6
## 749            5000                1            15             4
## 750            4500                1            45             8
## 751            5000                1            18             8
## 752            5160                1            67             8
## 753            5000                1            80             8
## 754            5000                0            NA             2
## 755            5000                1            18             3
## 756            5000                0            NA             2
## 757            4352                1            NA             6
## 758            5000                0            NA             3
## 759            4050                1            44             8
## 760            6000                0            NA             6
## 761            4800                1            67            12
## 762            5000                0            NA             3
## 763            5000                1            15             3
## 764            5000                1            NA             4
## 765            5000                1            18             4
## 766            5020                1            67            12
## 767            5000                1            18             6
```

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```
## 768            5000                1          NA           4
## 769            4230                0          NA           4
## 770            4000                0          NA           1
## 771            6000                1          18           4
## 772            4800                1          25           8
## 773            5000                1          33           4
## 774            4500                1          25           8
## 775            4300                1          30           6
## 776            4200                1          40           8
## 777            5000                0          NA           3
## 778            3700                1          NA           8
## 779            4030                0          NA           4
## 780            3315                0          NA           4
## 781            3500                1          NA           6
## 782            5000                1         120           8
## 783            6000                1          15           4
## 784            5000                1          NA           4
## 785            5000                1          NA          12
## 786            5080                1         120           8
## 787            5000                1          18           8
## 788            5000                1          80           8
## 789            4325                1          NA           6
## 790            3200                1          NA           6
## 791            5100                1          18           6
## 792            5000                1          18           6
## 793            5050                0          NA           4
## 794            5000                1          33           4
## 795            5000                1          18           6
## 796            5000                1          10           3
## 797            5000                1         120           8
## 798            5000                1          33           3
## 799            5000                1          33           6
## 800            4500                1          NA           8
## 801            6000                1          NA           6
## 802            4500                1          80          12
## 803            5000                1          NA           6
## 804            5000                1          33           8
## 805            6000                0          NA           4
## 806            4500                1          67           8
## 807            5000                1          18           4
## 808            5000                1          67           6
## 809            5000                1          18           4
## 810            6000                1          18           8
## 811            5000                1          18           4
## 812            4800                0          NA           3
## 813            5020                1          18           4
## 814            3240                1          NA           4
## 815            5000                0          NA           4
## 816            4500                1          65           8
## 817            4500                1          67           8
```

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```
## 818             2000                    0             NA              2
## 819             4250                    1             33              8
## 820             5000                    1             18              4
## 821             4520                    1             33              8
## 822             5000                    1            120             16
## 823             7000                    1             NA              6
## 824             5000                    1             18              4
## 825               NA                    0             NA              6
## 826             5000                    1             10              4
## 827             4300                    1             30              6
## 828             3000                    0             NA              1
## 829             4300                    1             65              8
## 830             4230                    0             NA              6
## 831             3600                    1             18              4
## 832             4030                    0             NA              2
## 833             4200                    1             40              8
## 834             5000                    1             18              4
## 835             5000                    1             18              6
## 836             5020                    1             22              4
## 837             5000                    1             18              4
## 838             4000                    1             10              4
## 839             3700                    1             18              4
## 840             3100                    1             15              4
## 841             4500                    1             25              8
## 842             3000                    0             NA              4
## 843             4100                    0             NA              4
## 844            22000                    1             33             12
## 845             5000                    1             22              4
## 846             5000                    1             45              8
## 847             5000                    1             80              8
## 848             5000                    1             18              6
## 849             4200                    1             33              6
## 850             7000                    0             NA              6
## 851             5000                    0             NA              3
## 852             4000                    1             66              8
## 853             5000                    1             40              8
## 854             5000                    1             NA              8
## 855             4500                    1            120              8
## 856             4500                    1             80              8
## 857             5000                    1             18              4
## 858             4500                    1            150              8
## 859             4350                    1            120             12
## 860             5000                    1             33              6
## 861             4500                    1             33              8
## 862             3360                    0             NA              8
## 863             5000                    1             18              4
## 864             5000                    1             44              8
## 865             5000                    0             NA              4
## 866             5000                    1             65              8
## 867             4500                    1             30              6
```

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```
## 868            6000                  0            NA             3
## 869            7000                  1            18             4
## 870            5000                  1            67             6
## 871            6000                  1            20             4
## 872            4500                  1            65             8
## 873            5000                  1            30             8
## 874            5000                  1            30             8
## 875            2400                  0            NA             1
## 876            5000                  1            25            12
## 877            4350                  1            65             8
## 878            4500                  1            65             4
## 879            6000                  1            15             4
## 880            5000                  1            18             4
## 881              NA                  0            NA             4
## 882              NA                  0            NA             4
## 883            4230                  0            NA             3
## 884            5020                  1            18             4
## 885            4230                  0            NA             3
## 886            4200                  1            65             8
## 887            4500                  1            25             8
## 888            4000                  1            27             8
## 889            4500                  1            18             6
## 890            4000                  0            NA             2
## 891            3200                  0            NA             3
## 892            2500                  0            NA             3
## 893            4532                  1            NA             8
## 894            5000                  1            18             4
## 895            5000                  0            NA             4
## 896            5000                  1            33             6
## 897            4500                  1            80             8
## 898            5000                  1            10             4
## 899            5000                  1            10             3
## 900            5000                  0            NA             3
## 901            5000                  0            NA             3
## 902            4200                  1            55             6
## 903            5000                  1            10             4
## 904            4500                  1            67             8
## 905            3000                  1            10             3
## 906            4400                  1            25            12
## 907            5000                  1            33             6
## 908            4450                  1           125             8
## 909            4800                  1           150            12
## 910            5000                  1           100             8
## 911            6000                  1            NA             8
## 912            5000                  1            18             4
## 913            5000                  1            33             8
## 914            4500                  1           150             8
## 915            5000                  1            18             4
## 916            5000                  1            44             8
## 917            4600                  1            66            12
```

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```
## 918            5000                1            80             8
## 919            5000                0            NA             3
## 920            4200                1            55             8
## 921            5000                1            33             6
## 922            4500                1           120             8
## 923            5000                1            15             8
## 924            3095                1            NA             6
## 925            5050                1            30             8
## 926            5000                0            NA             6
## 927            6000                1            33             6
## 928            5000                0            NA             3
## 929            4000                1            18             6
## 930            5065                1            67             6
## 931            4300                1            66             6
## 932            5000                1            NA             6
## 933            5000                1            18             4
## 934            4000                1            66             8
## 935            5000                0            NA             2
## 936            5000                1            15             6
## 937            4500                1            65             8
## 938            4620                1            18             6
## 939            6000                1            15             4
## 940            6000                1            15             6
## 941            5000                0            NA             6
## 942            5000                0            NA             6
## 943            4100                1            33             8
## 944            5000                1            18             6
## 945            6000                1            18             4
## 946            4000                0            NA             3
## 947            5000                0            NA             2
## 948            4780                1            30             8
## 949            5000                0            NA             4
## 950            4300                1            30             8
## 951            3730                1            NA            12
## 952            4500                1            NA            12
## 953            4000                1            15             2
## 954            4000                0            NA             2
## 955            4500                1            55             8
## 956            3400                1            NA             6
## 957            3300                0            NA             4
## 958            2730                0            NA             3
## 959            5000                0            NA             4
## 960            5180                1            10             4
## 961            5000                1            22             6
## 962            5000                1            10             6
## 963            6000                1            33             8
## 964            4000                0            NA             3
## 965            4500                1            68             8
## 966            5000                0            NA             4
## 967            8000                0            NA             6
```

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```
## 968              5000                        1             67            12
## 969              5000                        1             68             8
## 970              5000                        1             80             8
## 971              5000                        1             10             4
## 972              4700                        1            120             8
## 973              3020                        0             NA             2
## 974              5000                        1             67            12
## 975              4800                        1             66            12
## 976              5000                        1             68             8
## 977              5000                        1             22             6
## 978              5080                        1             67             8
## 979              5000                        1             NA             6
## 980              5000                        1             NA             8
##     internal_memory screen_size refresh_rate num_rear_cameras
num_front_cameras
## 1               256        6.70          120                3
1
## 2               128        6.59          120                3
1
## 3                64        6.60           90                3
1
## 4               128        6.55          120                3
1
## 5               128        6.70          120                3
1
## 6               128        6.60          120                3
1
## 7               128        6.10           60                2
1
## 8               256        6.67          120                3
1
## 9               128        6.55          120                2
1
## 10              128        6.43           90                3
1
## 11              128        6.72          120                2
1
## 12              128        6.56           90                2
1
## 13              128        6.67          120                3
1
## 14              128        6.58          120                3
1
## 15              256        6.80          120                4
1
## 16              128        6.10           60                2
1
## 17               32        6.51           60                2
1
## 18              256        6.70          120                3
```

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```
1
## 19              128        6.70          120                3
1
## 20               64        6.55           60                2
1
## 21              128        6.70          120                3
1
## 22              128        6.56          120                3
1
## 23               64        6.67          120                3
1
## 24              128        6.67          120                3
1
## 25              256        6.70          120                3
1
## 26              128        6.50          120                3
1
## 27              128        6.59          120                3
1
## 28              128        6.70          120                3
1
## 29              128        6.44           90                3
1
## 30              128        6.70          120                3
1
## 31              128        6.72          120                2
1
## 32              128        6.67          120                3
1
## 33              256        6.56          120                3
1
## 34               64        6.10           60                2
1
## 35              128        6.70          120                4
1
## 36              128        6.40          120                3
1
## 37              256        6.67          120                3
1
## 38              256        6.80          120                4
1
## 39              128        6.67          120                4
1
## 40              256        6.70          120                2
1
## 41              128        6.70          120                3
1
## 42              128        6.67          120                3
1
## 43              128        6.67           90                3
```

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```
1
## 44              256        6.70          120                3
1
## 45              128        6.58           90                3
1
## 46              128        6.60          120                4
1
## 47               64        6.43           90                4
1
## 48               32        6.50           60                2
1
## 49               64        6.51           60                2
1
## 50              128        6.70          120                4
1
## 51              128        6.60           90                3
1
## 52              128        6.78          120                3
1
## 53               32        6.50           90                1
1
## 54              128        6.60          120                3
1
## 55               64        6.40           90                2
1
## 56               64        6.60           90                3
1
## 57              128        6.70           60                2
1
## 58               64        6.43           60                4
1
## 59              256        6.60          120                3
1
## 60               64        6.55           90                3
1
## 61              128        6.67          120                3
1
## 62              128        6.78          120                3
1
## 63              128        6.60           60                4
1
## 64              128        6.55           60                2
1
## 65              128        6.60           90                2
1
## 66              256        6.78          120                3
1
## 67              128        6.70          120                3
1
## 68              256        6.67          120                3
```

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```
1
## 69              128        6.60          120                3
1
## 70              256        7.10          120                2
NA
## 71               64        6.56           60                1
1
## 72              256        6.44           90                3
2
## 73               64        6.58          120                2
1
## 74              128        6.70          120                3
1
## 75              128        6.50           90                3
1
## 76               32        6.26           60                2
1
## 77              128        6.10          120                3
1
## 78              128        6.58          120                3
1
## 79              128        6.50           90                4
1
## 80               64        6.53           60                1
1
## 81              128        6.55          120                3
1
## 82              128        6.60           90                3
1
## 83               64        6.50           90                3
1
## 84              128        6.58          120                3
1
## 85              128        6.50           90                2
1
## 86              128        6.50          144                3
1
## 87              128        6.60          120                4
1
## 88              128        6.56           90                2
1
## 89              128        6.43           90                4
1
## 90              128        6.70          120                4
1
## 91               64        6.51           60                2
1
## 92              128        6.59          120                3
1
## 93              128        6.55          120                3
```

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```
1
## 94              256        6.78          120                4
1
## 95               64        6.50           60                2
1
## 96               64        6.60           90                3
1
## 97               64        6.56           60                2
1
## 98              256        6.78          144                3
1
## 99              256        8.03          120                4
1
## 100             128        6.58          120                3
1
## 101             128        6.10          120                3
1
## 102             128        6.67          120                4
1
## 103             128        6.55          144                3
1
## 104             128        6.60           90                2
1
## 105             128        6.43           60                4
1
## 106             128        6.73          120                3
1
## 107             256        6.73          144                3
1
## 108             128        6.10          120                3
1
## 109             128        6.44           60                3
1
## 110             256        6.70          120                3
1
## 111             256        6.80          120                3
1
## 112              64        6.10           60                2
1
## 113             128        6.60          144                3
1
## 114             128        6.50          120                4
1
## 115              32        6.52           60                2
1
## 116             128        6.43           90                3
1
## 117             128        6.70          120                4
1
## 118             128        6.44           90                3
```

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```
1
## 119             512        6.73          165                3
1
## 120             128        6.10          120                3
1
## 121             128        6.70          144                3
1
## 122             256        6.43           90                3
1
## 123             128        6.14           60                2
1
## 124             128        6.70           60                3
1
## 125             128        6.60          120                4
1
## 126             128        6.44           90                3
2
## 127              64        6.47           60                3
1
## 128             256        6.59          120                3
1
## 129             128        6.40           90                4
1
## 130             128        6.10           90                2
1
## 131              64        6.58           90                2
1
## 132              64        6.67           60                4
1
## 133              64        6.50           90                3
1
## 134             256        6.55          120                2
1
## 135             128        6.67          120                3
1
## 136             256        6.67          120                3
1
## 137             128        6.10           60                2
1
## 138             128        6.60           90                3
1
## 139             128        6.59           90                3
1
## 140             128        6.62          120                3
1
## 141             128        6.58          120                3
1
## 142             256        6.70          120                2
1
## 143              64        6.60           90                2
```

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```
1
## 144              64        5.00           60                1
1
## 145              64        6.52           60                3
1
## 146              64        6.50           60                2
1
## 147             128        6.62          120                3
1
## 148             128        6.50          120                4
1
## 149              64        6.70           60                2
1
## 150              64        5.40           60                2
1
## 151             128        6.67          120                3
1
## 152              64        6.60           90                3
1
## 153             256        6.68          120                3
1
## 154             128        6.70          120                2
1
## 155             256        6.78          120                3
1
## 156              32        6.50           60                1
1
## 157             128        6.43           60                3
1
## 158             128        6.40          120                3
1
## 159             256        7.10          120                3
2
## 160             128        6.40           90                3
1
## 161              64        6.40           90                2
1
## 162             128        6.70          120                3
1
## 163             256        6.73          120                4
1
## 164             128        6.78          120                3
1
## 165              64        6.60           60                3
1
## 166             128        6.43           60                4
1
## 167             128        6.40           90                2
1
## 168             128        6.62          120                3
```

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```
1
## 169              64        6.60          120                2
1
## 170              32        6.54           60                2
1
## 171             128        6.67          120                4
1
## 172             128        6.40           90                3
1
## 173             128        6.50           90                3
1
## 174              64        4.70           60                1
1
## 175             128        6.58          120                2
1
## 176              64        6.43           60                4
1
## 177              64        6.60          120                3
1
## 178             128        6.58           60                3
1
## 179             256        6.44           90                3
1
## 180              64        6.43           90                3
1
## 181             256        6.80          120                3
1
## 182              32        6.56           60                2
1
## 183             128        6.70          165                3
1
## 184             128        6.60          120                3
1
## 185             128        6.60           90                3
1
## 186             128        6.43           90                3
1
## 187             128        6.60          120                3
1
## 188              64        6.50           60                1
1
## 189             128        6.50           60                2
1
## 190              32        6.10           60                2
1
## 191              64        3.54           60                1
1
## 192             128        6.67           90                3
1
## 193             256        6.90          120                1
```

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```
1
## 194              128        6.55          144                3
1
## 195               64        6.60           60                3
1
## 196              256        6.70          120                3
1
## 197              128        6.59          120                3
1
## 198              128        6.67          120                3
1
## 199               64        6.50           60                2
1
## 200              128        6.56           90                2
1
## 201               64        6.60           60                4
1
## 202              128        6.67          144                3
1
## 203              256        6.60          120                4
1
## 204              128        6.60           90                3
1
## 205               64        6.58           90                2
1
## 206              256        6.55          120                2
1
## 207              128        6.40          120                3
1
## 208              128        6.82           90                2
1
## 209              256        6.67          120                3
1
## 210              256        6.70          120                3
1
## 211              256        6.56          120                3
1
## 212              128        6.50           90                3
1
## 213              128        6.60          120                3
1
## 214              128        6.50           90                3
1
## 215              256        6.67          120                3
1
## 216              128        6.70          120                3
1
## 217               64        6.95           90                3
1
## 218              128        6.56           90                3
```

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```
2
## 219              32        6.50           60                 2
1
## 220             128        6.67          120                 3
1
## 221             128        6.40           90                 3
1
## 222             128        6.60           90                 3
1
## 223             128        6.50          144                 3
1
## 224              64        6.43           90                 4
1
## 225              32        6.51           60                 1
1
## 226              64        6.53           60                 3
1
## 227             128        6.60           90                 3
1
## 228             128        6.62          120                 3
1
## 229             256        6.70          120                 3
1
## 230             256        6.70          120                 3
1
## 231             256        6.78          144                 3
1
## 232              64        6.58           90                 2
1
## 233             128        6.70           60                 2
1
## 234             128        6.56           90                 2
1
## 235             128        6.44           60                 3
1
## 236             256        8.02          120                 3
1
## 237              64        6.51           60                 2
1
## 238             256        6.43           60                 3
1
## 239             128        6.44           60                 3
1
## 240             256        6.67          120                 3
1
## 241              64        6.56           60                 2
1
## 242             128        6.70          120                 4
1
## 243             128        6.44           90                 3
```

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```
1
## 244              128        6.30           90                2
1
## 245              128        6.60           90                2
1
## 246              128        6.43           90                3
1
## 247              256        6.10           60                2
1
## 248              256        6.50          120                2
1
## 249              128        6.80          120                3
1
## 250               64        6.47           60                3
1
## 251              256        6.80          120                3
1
## 252              128        6.70           90                3
1
## 253              128        6.58          120                3
1
## 254               64        6.67          120                3
1
## 255              128        6.70          120                2
1
## 256              128        6.40          120                3
1
## 257              128        6.60          120                3
1
## 258               64        6.58           90                2
1
## 259              128        6.50           90                3
1
## 260              128        6.58           90                2
1
## 261              128        6.90          120                3
1
## 262               32        6.53           60                3
1
## 263               64        6.10           60                2
1
## 264              256        6.50          120                4
1
## 265               64        6.70           60                3
1
## 266              256        6.55           90                3
1
## 267              128        6.70          120                3
1
## 268              128        6.67          120                4
```

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```
1
## 269              128        6.67          120                3
1
## 270              128        6.40           90                4
1
## 271              128        6.71          120                3
1
## 272               64        6.70           60                3
1
## 273              128        6.58           90                2
1
## 274              128        6.67          120                3
1
## 275              256        6.73          120                3
1
## 276              128        5.40           60                2
1
## 277              128        6.90           90                3
1
## 278               64        6.52           60                3
1
## 279              512        6.78          165                3
1
## 280              128        6.44           60                3
1
## 281              128        5.42           60                2
1
## 282               64        6.50           90                3
1
## 283              128        6.78          120                3
1
## 284              128        6.60           60                4
1
## 285              128        6.67          120                3
1
## 286              128        6.67          120                3
1
## 287              256        6.70           60                3
1
## 288              128        6.60          120                2
1
## 289             1024        6.70          120                3
1
## 290              128        6.60           60                3
1
## 291              128        6.60           90                2
1
## 292              128        6.43           60                4
1
## 293               64        6.52           60                1
```

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```
1
## 294              128        6.60          120                4
1
## 295              256        6.67          144                3
1
## 296              128        6.43           60                3
1
## 297              128        6.36          120                3
1
## 298               32        6.53           60                1
1
## 299               32        6.51           60                1
1
## 300              256        6.60          144                3
1
## 301               32        6.50           60                1
1
## 302               64        6.80          120                3
1
## 303              128        6.70           60                2
1
## 304              128        6.55           90                3
1
## 305              128        6.70          120                2
1
## 306              128        6.10           60                2
1
## 307              256        6.70          120                3
1
## 308              128        6.60           60                4
1
## 309              256        6.43           90                3
1
## 310              128        6.62          120                3
1
## 311              128        6.50          120                4
1
## 312              512        6.80          120                4
1
## 313              128        6.40           60                3
1
## 314               32        6.60           60                3
1
## 315              128        6.00          120                3
2
## 316               64        6.50           90                2
1
## 317              128        6.70          144                3
1
## 318              128        6.81           60                3
```

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```
1
## 319             256        6.78          144                3
1
## 320             256        7.60          120                3
2
## 321             128        7.80           60                3
1
## 322             256        6.70           60                2
1
## 323             128        6.40           90                4
1
## 324             128        6.60           90                2
1
## 325             128        6.40           90                2
1
## 326             128        6.67          120                4
1
## 327             256        6.80          120                4
1
## 328              64        6.82           90                2
1
## 329             128        6.58           90                2
1
## 330             128        6.50           90                3
1
## 331             128        6.44           90                3
1
## 332             256        6.70          120                4
1
## 333             128        6.60          144                3
1
## 334             128        6.67          120                3
1
## 335              64        6.70           60                3
1
## 336              32        6.50           60                1
1
## 337             128        6.78          120                3
1
## 338             128        6.70          120                4
1
## 339              64        6.43           90                4
1
## 340              64        6.53           60                2
1
## 341             128        6.80          120                3
1
## 342              64        6.50           60                2
1
## 343             128        6.43           90                3
```

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```
1
## 344             128        6.43           60                3
1
## 345             256        6.10           60                2
1
## 346             256        6.78          120                3
1
## 347             256        6.78          120                3
1
## 348             128        6.50          120                2
1
## 349              64        6.53           90                4
1
## 350              64        6.53           60                1
1
## 351              32        5.45           60                1
1
## 352              32        6.20           60                2
1
## 353             128        6.67          120                3
1
## 354              32        6.50           60                1
1
## 355             128        6.55           90                2
1
## 356              64        6.56           60                2
1
## 357             128        6.53           60                1
1
## 358             256        6.67          120                3
1
## 359             128        6.40           90                3
1
## 360             128        6.67          120                3
1
## 361             128        6.56          120                3
1
## 362             128        5.40           60                2
1
## 363             256        6.83          144                4
1
## 364             128        6.80          120                2
1
## 365             256        6.70          120                3
1
## 366              64        6.60           90                2
1
## 367             256        6.40          120                3
1
## 368             128        6.60           90                2
```

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```
1
## 369             512        6.50          120                3
1
## 370             128        6.44           60                4
2
## 371              64        6.67          120                4
1
## 372             128        6.50          120                3
1
## 373              64        5.70           60                2
2
## 374             128        6.40           60                3
2
## 375             128        6.40           90                3
1
## 376             128        6.50           90                3
1
## 377             128        6.62          120                3
1
## 378             128        6.20          120                3
1
## 379             128        6.70           60                4
1
## 380              32        6.51           60                1
1
## 381              32        6.50           60                3
1
## 382              64        6.60           90                2
1
## 383             128        6.58          120                3
1
## 384             128        6.44           90                3
1
## 385             128        6.40           90                3
1
## 386              64        6.50           90                3
1
## 387             128        6.60           90                3
1
## 388             128        6.50           90                3
1
## 389             128        6.40           60                3
1
## 390             256        6.80          120                2
1
## 391              64        6.40           90                4
1
## 392             256        6.78           60                3
1
## 393             128        6.60          120                3
```

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```
1
## 394              128        6.67           60                 4
1
## 395               64        6.50           90                 3
1
## 396              128        6.60           90                 2
1
## 397               16        6.50           60                 2
1
## 398              128        6.70          120                 3
1
## 399              128        6.73          120                 3
1
## 400               32        6.52           60                 2
1
## 401              256        6.71          120                 3
1
## 402              128        6.60           90                 3
1
## 403               64        6.60           90                 2
1
## 404              256        6.78          120                 4
1
## 405              256        6.55           90                 4
1
## 406              128        6.67          120                 3
1
## 407              256        6.80          165                 3
1
## 408              128        6.56           90                 2
1
## 409              128        6.60          144                 3
1
## 410               32        6.50           60                 2
1
## 411               64        6.49           90                 3
1
## 412              128        6.67          120                 3
1
## 413              128        6.43           90                 3
1
## 414              256        6.44           90                 4
2
## 415              128        6.53           60                 1
1
## 416              128        6.67          120                 3
1
## 417              256        6.10          120                 3
1
## 418              128        6.50          120                 3
```

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```
1
## 419             128        6.67          144                3
1
## 420             256        6.73          120                3
1
## 421             512        6.67          120                3
1
## 422             512        6.70          120                3
1
## 423             256        6.56           90                3
2
## 424             128        6.51           60                3
1
## 425             128        6.67          120                3
1
## 426              64        6.81           60                4
1
## 427              64        6.43           60                4
1
## 428              64        4.70           60                1
1
## 429             128        6.40           90                4
1
## 430             128        6.80          120                3
1
## 431             128        6.70          120                3
1
## 432             128        6.80           60                4
1
## 433              32        6.52           60                1
1
## 434              64        6.50           90                2
1
## 435             128        6.43           90                4
1
## 436              64        4.70           60                1
1
## 437             128        6.50           90                4
1
## 438             128        6.67          120                4
1
## 439              32        6.53           60                1
1
## 440             128        6.40           90                4
1
## 441             128        6.50           90                3
1
## 442             256        6.78          165                3
1
## 443             128        6.67          120                3
```

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```
1
## 444              32        6.60           60                2
1
## 445             128        6.06          120                3
1
## 446             128        6.60           90                3
1
## 447              64        6.82           90                3
1
## 448             128        6.78          120                3
1
## 449             128        6.58           60                3
1
## 450             256        6.70           90                3
2
## 451             128        6.50           60                2
1
## 452              64        6.71           60                2
1
## 453             128        5.90          120                2
1
## 454              64        6.20           60                3
1
## 455             256        6.62          120                3
1
## 456              64        6.80           60                3
1
## 457              64        6.50           90                4
1
## 458              64        6.40           90                4
1
## 459             512        7.92           60                3
NA
## 460             256        6.73          120                2
1
## 461             128        6.67          144                3
1
## 462             128        6.60           60                3
1
## 463              64        6.52           90                2
1
## 464              64        6.82           90                2
1
## 465             128        6.62          120                3
1
## 466             128        6.43           60                3
1
## 467             128        6.55           90                3
1
## 468              32        6.50           60                1
```

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```
1
## 469              128        6.67          120                3
1
## 470               64        6.40           90                4
1
## 471              128        6.71          120                3
1
## 472               64        6.18           60                2
1
## 473               16        4.50           60                1
1
## 474               32        5.50           60                2
1
## 475               64        6.50           60                1
1
## 476               32        6.56           60                2
1
## 477               32        5.00           60                1
1
## 478              256        8.03          120                4
2
## 479              512        6.74          120                3
1
## 480              128        6.70           60                4
1
## 481              128        6.44          120                3
1
## 482              128        6.10          120                3
1
## 483              128        6.35           60                3
1
## 484              512        6.50          120                4
1
## 485              256        6.66           90                2
1
## 486              256        6.67           90                3
1
## 487              128        6.58           90                2
1
## 488              256        6.80          120                3
1
## 489               64        6.50           90                3
1
## 490              256        6.62          120                3
1
## 491               64        6.50           60                3
1
## 492              128        6.60          144                3
1
## 493              128        6.60           90                3
```

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```
1
## 494              128        6.64          120                2
1
## 495              128        6.67          120                3
1
## 496               64        6.58           90                3
1
## 497               32        6.52           60                3
1
## 498              128        6.47           60                3
1
## 499              128        6.70          120                2
1
## 500              128        6.28           60                2
1
## 501              128        6.00           60                1
1
## 502               32        6.52           60                2
1
## 503              256        6.67          120                3
1
## 504              128        6.60          120                3
1
## 505               32        6.51           60                2
1
## 506              128        6.40           90                4
1
## 507              128        6.60           90                3
1
## 508              128        6.60          120                3
1
## 509               64        6.50           90                3
1
## 510              128        6.00           90                2
1
## 511              256        6.73          144                3
1
## 512              256        6.67          120                3
1
## 513               64        6.60           60                3
1
## 514              256        6.70          120                3
1
## 515              128        6.58           90                3
1
## 516              128        6.44          120                3
1
## 517              128        6.56           90                2
1
## 518              256        6.40           90                3
```

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```
1
## 519              32        6.51           60                 1
1
## 520             128        6.80          144                 3
1
## 521             128        6.70          120                 3
1
## 522             256        6.10          120                 3
1
## 523             128        6.44           60                 3
1
## 524              64        6.62           60                 3
1
## 525             128        6.44           60                 3
1
## 526              64        6.67           60                 4
1
## 527             128        6.70          120                 3
1
## 528             256        6.71          120                 3
1
## 529              32        6.74           60                 3
1
## 530             128        6.60           90                 2
1
## 531              64        6.58           90                 3
1
## 532             128        6.70           60                 2
1
## 533             128        6.80          120                 3
1
## 534             256        6.73          120                 3
1
## 535             128        6.59           90                 3
1
## 536             128        6.78           90                 4
1
## 537             256        6.10          120                 3
1
## 538             256        6.92          144                 2
1
## 539             128        6.58           60                 3
1
## 540             128        6.67           60                 4
1
## 541             128        6.50           90                 3
1
## 542             128        6.50           90                 3
1
## 543             128        6.51          144                 4
```

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```
1
## 544             128        6.67          120                3
1
## 545             128        6.67          120                4
1
## 546             256        6.62          120                3
1
## 547             128        6.40           60                4
1
## 548             128        6.20          120                3
1
## 549             128        6.67          120                3
1
## 550              32        6.50           90                3
1
## 551             128        6.43           90                3
1
## 552             128        6.43           90                4
1
## 553             128        6.67          120                3
1
## 554              64        6.52           60                1
1
## 555             128        6.43           90                3
1
## 556              64        6.50           60                3
1
## 557             128        6.78          144                3
1
## 558             128        6.43          120                3
1
## 559             128        6.50           90                4
1
## 560             256        6.80          120                3
1
## 561             256        7.60          120                3
2
## 562             128        6.80           60                3
1
## 563              64        6.67           60                4
1
## 564             128        6.50           90                4
1
## 565              16        6.00           60                1
1
## 566              64        6.50           60                2
1
## 567             128        6.56           60                2
1
## 568             256        6.67          120                3
```

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```
1
## 569             256        6.73          120                3
1
## 570             128        6.58          120                3
1
## 571             128        6.56           60                2
1
## 572             128        6.70          165                3
1
## 573             128        6.59          120                3
1
## 574             256        6.44           90                3
1
## 575             128        6.50           90                3
1
## 576             128        6.60           60                4
1
## 577              64        6.52           60                1
1
## 578              64        6.70           60                2
1
## 579              64        6.60           90                3
1
## 580             128        6.70          120                3
1
## 581             128        6.67          120                3
1
## 582             128        6.62          120                3
1
## 583             256        6.78          120                3
1
## 584              64        6.50           60                1
1
## 585             128        6.53           60                2
1
## 586              32        5.50           60                1
1
## 587              64        6.30           60                4
1
## 588             128        6.50           90                3
1
## 589              64        6.51           60                3
1
## 590             128        6.60           90                3
1
## 591             128        6.44           90                3
1
## 592             128        6.40           60                4
1
## 593             128        6.55           90                3
```

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```
1
## 594             128        6.90           60                4
1
## 595              64        6.50           60                3
1
## 596              32        4.70           60                1
1
## 597             128        6.50          120                2
1
## 598             128        6.50           60                2
1
## 599              64        6.67          120                3
1
## 600             256        6.78          120                3
1
## 601             256        6.70          120                3
1
## 602             128        6.67          120                3
1
## 603             128        6.60          144                3
1
## 604             128        6.40           90                3
1
## 605             128        6.44           60                3
1
## 606             128        6.43           90                4
1
## 607             128        6.78           90                4
1
## 608             128        6.60          120                3
1
## 609              64        6.51           60                3
1
## 610             128        6.50           90                3
1
## 611              32        6.50           60                3
1
## 612              64        6.52           60                3
1
## 613             128        6.44           90                3
1
## 614             512        6.10           60                3
1
## 615             256        6.50           60                4
1
## 616             256        6.70           90                3
1
## 617             256        6.70           60                3
1
## 618              64        6.50           60                4
```

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```
1
## 619             128        6.67          120                3
1
## 620             128        6.62          120                3
1
## 621              64        6.50           60                1
1
## 622             512        6.10           60                2
1
## 623             128        6.78          120                3
1
## 624             128        6.80          120                3
1
## 625             128        6.59          120                3
1
## 626             128        6.80          120                4
1
## 627             128        6.67          120                3
1
## 628             256        6.67          120                3
1
## 629             128        6.51           60                2
1
## 630             128        6.71          120                3
1
## 631             128        6.58           60                3
1
## 632             128        6.76           90                3
2
## 633              64        6.52           60                2
1
## 634             256        6.78          165                3
1
## 635             128        6.43          120                3
1
## 636             128        6.50           90                3
1
## 637             128        6.50           60                3
1
## 638              64        6.53           60                2
1
## 639              64        4.70           60                1
1
## 640              64        6.50           60                2
1
## 641             128        6.57          120                3
1
## 642             128        6.58           60                2
1
## 643             128        6.58          120                3
```

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```
1
## 644              256        6.44           90                3
1
## 645               64        6.60           90                2
1
## 646               64        6.60           90                3
1
## 647               64        6.60           60                2
1
## 648              128        6.59           90                2
1
## 649              128        6.58           90                2
1
## 650              512        6.76          120                4
2
## 651               64        6.60           60                3
1
## 652               64        6.60           60                2
1
## 653               64        6.50           60                3
1
## 654              128        6.50           60                4
1
## 655              128        6.80           60                3
1
## 656              128        6.60          120                3
1
## 657              128        6.67          120                3
1
## 658              128        6.43           60                4
1
## 659               64        6.67          120                4
1
## 660              128        6.67          144                3
1
## 661              128        6.80           60                3
1
## 662              128        6.50           60                4
1
## 663              128        6.80           60                3
1
## 664              128        6.70           60                3
1
## 665              256        6.80           60                4
1
## 666              256        6.78          120                3
1
## 667              128        6.50           90                3
1
## 668              128        6.51           60                2
```

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```
1
## 669              32        6.51           60                 1
1
## 670              32        6.60           60                 2
1
## 671             128        6.58           90                 2
1
## 672             128        6.73          120                 3
1
## 673             256        6.56           90                 2
1
## 674              64        6.40           60                 3
1
## 675             128        6.91           60                 4
1
## 676             128        6.50           60                 1
1
## 677              64        6.82           60                 2
1
## 678             256        6.10          120                 3
1
## 679             128        6.67          144                 3
1
## 680              64        6.50           90                 3
1
## 681             128        6.55          120                 3
1
## 682             256        7.10          120                 3
1
## 683             256        6.70          120                 3
1
## 684             128        6.51           60                 3
1
## 685             128        6.43           60                 3
1
## 686              64        6.40           60                 3
1
## 687             128        6.43           60                 4
1
## 688             256        7.40           60                 3
1
## 689             128        6.49           90                 4
1
## 690             128        6.20           60                 1
1
## 691              64        6.53           60                 4
1
## 692             128        6.43           60                 4
2
## 693             128        6.67           60                 3
```

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```
1
## 694              128        6.40           60                3
1
## 695              256        6.80           60                4
1
## 696               64        6.35           60                3
1
## 697              128        6.38           60                4
1
## 698              256        6.67          120                3
1
## 699              128        6.44           90                3
1
## 700              512        6.78          165                3
1
## 701              128        6.28          120                2
1
## 702              128        6.67          120                3
1
## 703              256        6.76          120                3
1
## 704               64        6.52           60                3
1
## 705              512        7.80          120                3
1
## 706              128        6.62          144                3
1
## 707              128        6.06           60                2
1
## 708              128        6.95          120                3
1
## 709               64        6.52           60                2
1
## 710              128        6.50           60                2
1
## 711              256        6.78          120                4
1
## 712              128        6.50           90                4
1
## 713              128        6.57          120                4
1
## 714               16        6.10           60                2
1
## 715              256        6.60          120                4
1
## 716              128        6.67          120                3
1
## 717               16        5.45           60                1
1
## 718              128        6.50          120                3
```

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```
1
## 719              128        6.55            90                 4
1
## 720              128        6.70            90                 4
2
## 721              256        6.70           120                 4
1
## 722               64        6.53            60                 3
1
## 723               16        6.50            60                 3
1
## 724              128        6.44            60                 3
2
## 725              128        6.67           144                 3
1
## 726              256        6.44            60                 4
2
## 727              128        6.20            60                 3
1
## 728               64        6.53            60                 3
1
## 729              128        6.40            60                 4
1
## 730               64        6.40            60                 4
1
## 731               64        6.35            60                 3
1
## 732              128        6.18            60                 2
1
## 733               32        6.52            60                 2
1
## 734               32        6.50            60                 1
1
## 735              128        6.73           120                 3
1
## 736              256        6.67           120                 3
1
## 737              256        6.78           120                 3
1
## 738               64        6.10            60                 1
1
## 739              128        6.80           120                 2
1
## 740              512        6.70           120                 3
1
## 741              128        6.60           120                 2
1
## 742              128        6.58           120                 2
1
## 743               64        6.60            90                 3
```

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```
1
## 744              128        6.50          144                3
1
## 745              512        7.00          120                4
1
## 746              256        6.70          120                3
1
## 747               32        6.51           60                2
1
## 748              128        6.70           90                4
1
## 749               64        6.50           60                2
1
## 750              256        6.60          120                3
1
## 751              128        6.58           90                3
1
## 752              128        6.67          120                3
1
## 753              256        6.70          120                3
1
## 754               32        6.51           60                2
1
## 755               64        6.51           60                2
1
## 756               32        6.53           60                1
1
## 757             1024        6.70          120                3
1
## 758               64        6.51           60                3
1
## 759              128        6.44           60                3
1
## 760              128        6.40           90                4
1
## 761              256        6.73          120                3
1
## 762               32        6.52           60                1
1
## 763               32        6.50           60                3
1
## 764              128        6.51           60                3
1
## 765              128        6.43           90                4
1
## 766              256        8.01           90                3
1
## 767              128        6.50           90                3
1
## 768               64        6.51           60                3
```

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```
1
## 769              128        6.52           60                3
1
## 770               16        6.00           60                2
1
## 771               64        6.53           60                4
1
## 772              128        6.70          120                3
1
## 773               64        6.67           60                4
1
## 774              128        6.70          120                4
1
## 775               64        6.60           90                4
2
## 776              256        6.58           90                4
2
## 777               32        6.35           60                2
1
## 778              128        6.39           60                3
1
## 779               64        6.22           60                2
1
## 780              128        6.30           60                2
1
## 781              128        6.20           60                2
1
## 782              128        6.73          144                3
1
## 783              128        6.51           60                2
1
## 784              128        6.50           60                2
1
## 785              256        6.60          240                2
1
## 786              128        6.67          120                3
1
## 787              128        6.78           60                2
1
## 788              256        6.62          120                3
1
## 789              512        6.70           60                2
1
## 790             1024        6.10          120                3
1
## 791              128        6.73          120                2
1
## 792              128        6.58           90                3
1
## 793               64        6.52           60                2
```

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```
1
## 794              64        6.56           90                2
1
## 795             128        6.80           90                3
1
## 796              32        6.50           60                1
1
## 797             128        6.67          144                3
1
## 798              64        6.56           60                2
1
## 799             128        6.70           60                3
1
## 800             128        6.50           60                4
1
## 801             128        6.70           60                3
1
## 802             256        6.78          120                3
1
## 803             128        6.67          120                4
1
## 804             128        6.70           60                3
1
## 805              64        6.50           60                3
1
## 806             128        6.44           90                3
1
## 807             128        6.58           90                2
1
## 808             128        6.67          120                4
1
## 809              64        6.60           60                3
1
## 810             128        6.58           60                2
1
## 811             128        6.51           90                3
1
## 812              32        6.80           60                1
1
## 813             128        6.67           60                4
1
## 814             512        6.10           60                2
1
## 815              64        6.78           90                3
1
## 816             128        6.55          120                3
1
## 817             128        6.28          120                3
1
## 818              16        4.00           60                1
```

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```
1
## 819             128        6.55           90                3
1
## 820             128        6.50           60                3
1
## 821             128        6.67          120                3
1
## 822             512        6.50          144                2
1
## 823             128        6.71           60                4
1
## 824             128        6.50           60                3
1
## 825             256        6.10           60                3
1
## 826             128        6.53           60                1
1
## 827              64        6.50           90                4
1
## 828              16        5.30           60                1
1
## 829             128        6.43           60                4
1
## 830             128        6.50           60                3
1
## 831             128        6.00           90                3
1
## 832              32        6.22           60                1
1
## 833             128        6.40           60                4
1
## 834             128        6.53           60                3
1
## 835              64        6.53           60                3
1
## 836              64        6.53           60                4
1
## 837              64        6.22           60                2
1
## 838              64        6.20           60                3
1
## 839              64        6.00           60                1
1
## 840              64        5.90           60                2
1
## 841             256        6.70           60                3
1
## 842              64        5.84           60                2
1
## 843              64        5.50           60                1
```

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```
1
## 844              256        6.58          120                3
1
## 845               64        6.52           60                3
1
## 846              128        6.67          120                3
1
## 847              256        6.67          120                3
1
## 848              128        6.58           90                3
1
## 849              128        6.43           90                2
1
## 850              128        6.82           90                2
1
## 851               64        6.51           60                2
1
## 852              128        6.67          120                3
1
## 853              128        6.70           90                4
1
## 854              128        6.70           60                3
1
## 855              128        6.70          120                3
1
## 856              128        6.43          120                3
1
## 857              128        6.60           60                3
1
## 858              128        6.70          120                3
1
## 859              256        6.56          120                3
1
## 860               64        6.52           90                3
1
## 861              256        6.43           60                2
1
## 862              128        7.20           60                3
1
## 863              128        6.80           90                3
1
## 864              256        6.70          120                4
2
## 865               64        6.60           60                2
1
## 866              128        6.62          120                3
1
## 867               64        6.00           60                3
1
## 868               32        6.52           60                3
```

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```
1
## 869              64        6.95           60                 4
1
## 870             128        6.67          120                 3
1
## 871              64        6.78          120                 3
1
## 872             128        6.55          120                 4
1
## 873             128        6.40           60                 4
1
## 874             128        6.50          120                 3
1
## 875               8        5.00           60                 1
1
## 876             128        6.80          120                 4
1
## 877             128        6.53           90                 4
1
## 878              64        6.30           60                 4
1
## 879              64        6.50           90                 4
1
## 880              64        6.52           90                 3
1
## 881             256        5.40           60                 2
1
## 882             256        6.10           60                 2
1
## 883              32        6.52           60                 3
1
## 884             128        6.67           60                 4
1
## 885              32        6.22           60                 2
1
## 886             128        6.44           90                 4
2
## 887             128        6.70           60                 4
1
## 888             256        6.39           60                 3
1
## 889              64        6.53           60                 4
1
## 890              16        6.20           60                 2
1
## 891              32        6.00           60                 1
1
## 892              32        5.00           60                 1
1
## 893             128        6.71          120                 2
```

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```
1
## 894              128        6.58           60                3
1
## 895               64        6.50           60                3
1
## 896              128        6.83          120                3
1
## 897              128        6.43           90                3
1
## 898               64        6.50           90                2
1
## 899               32        6.52           60                2
1
## 900               64        6.60           60                2
1
## 901               64        6.60           90                2
1
## 902              128        6.90          120                4
1
## 903               64        6.50           60                3
1
## 904              128        6.55          120                3
2
## 905               32        6.00           60                1
1
## 906             1024        7.60          120                3
2
## 907              128        6.55          120                2
1
## 908              128        6.67          144                3
1
## 909              256        6.70          120                3
1
## 910              128        6.70          120                3
1
## 911              128        6.50           60                3
1
## 912               64        6.50           60                2
1
## 913              128        6.70           60                3
1
## 914              128        6.67          120                3
1
## 915              128        6.58          120                3
1
## 916              128        6.44          120                3
1
## 917              512        8.03          120                4
1
## 918              128        6.62          120                3
```

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```
1
## 919              64        6.60           90                2
1
## 920             128        6.67          120                3
1
## 921             128        6.70           60                3
1
## 922             128        6.67          120                3
1
## 923             128        6.60           90                3
1
## 924            1024        6.10          120                3
1
## 925             128        6.80          165                3
1
## 926              64        6.52           60                2
1
## 927             128        6.51          144                4
1
## 928              32        6.51           60                2
1
## 929             128        6.50           90                4
1
## 930             128        6.67          120                3
1
## 931             128        6.57          120                4
1
## 932             128        6.51           60                3
1
## 933              64        6.60          120                3
1
## 934             128        6.62          120                3
1
## 935              32        6.52           60                1
1
## 936             128        6.40           60                4
1
## 937             128        6.43          120                3
1
## 938             128        6.34           60                2
1
## 939              64        6.50           90                4
1
## 940             128        6.40           60                3
1
## 941             128        6.50           60                4
1
## 942             128        6.53           60                1
1
## 943             128        6.44           60                3
```

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```
1
## 944              128        6.50           90                3
1
## 945               64        6.50           60                3
1
## 946               32        6.09           60                2
1
## 947               32        6.50           60                2
1
## 948              256        6.67           90                4
1
## 949               64        6.50           60                2
1
## 950              128        6.55           90                3
1
## 951              256        6.50           60                3
1
## 952              512        6.53           60                4
2
## 953               32        6.40           60                3
1
## 954               16        6.10           60                2
1
## 955              512        8.00           60                4
NA
## 956              128        6.40           60                3
1
## 957               64        6.00           60                3
1
## 958               16        5.20           60                1
1
## 959               64        6.71           60                2
1
## 960               64        6.10           60                2
1
## 961              128        6.75           90                4
1
## 962              128        6.56           90                2
1
## 963              128        6.30           60                3
1
## 964               32        6.50           60                2
1
## 965              128        6.67          144                3
1
## 966               64        6.82           60                1
1
## 967              128        5.86           60                3
1
## 968              256        6.43          120                3
```

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```
1
## 969             128        6.60          144                3
2
## 970             256        6.70          120                3
2
## 971              64        6.50           60                1
1
## 972             256        6.73          120                3
1
## 973              32        5.00           60                1
NA
## 974             256        6.73          120                3
1
## 975             256        8.03          120                3
1
## 976             128        6.67          120                3
1
## 977             128        6.50           60                3
1
## 978             256        6.60          144                3
1
## 979             128        6.80           60                3
1
## 980             128        6.50           60                3
1
##          os primary_camera_rear primary_camera_front
extended_memory_available
## 1   android               50.0                16.0
0
## 2   android               64.0                16.0
1
## 3   android               50.0                13.0
1
## 4   android               50.0                16.0
1
## 5   android              108.0                16.0
0
## 6   android               50.0                 8.0
1
## 7       ios               12.0                12.0
0
## 8   android              200.0                16.0
0
## 9   android               50.0                16.0
0
## 10  android               50.0                32.0
0
## 11  android              108.0                16.0
1
## 12  android               50.0                 8.0
```

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```
1
## 13  android                50.0                16.0
0
## 14  android                50.0                16.0
1
## 15  android               200.0                12.0
0
## 16      ios                12.0                12.0
0
## 17  android                13.0                 5.0
1
## 18  android                50.0                32.0
0
## 19  android                50.0                16.0
0
## 20  android                50.0                 8.0
1
## 21  android                50.0                16.0
0
## 22  android                64.0                32.0
0
## 23  android                64.0                16.0
1
## 24  android                48.0                13.0
1
## 25  android                64.0                32.0
0
## 26  android                12.0                32.0
1
## 27  android                64.0                16.0
1
## 28      ios                48.0                12.0
0
## 29  android                64.0                50.0
1
## 30  android                50.0                16.0
0
## 31  android               108.0                16.0
1
## 32  android               108.0                16.0
0
## 33  android                64.0                50.0
1
## 34      ios                12.0                12.0
0
## 35  android               108.0                32.0
1
## 36  android                12.0                32.0
0
## 37  android               108.0                16.0
```

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```
1
## 38  android               108.0                40.0
0
## 39  android               108.0                32.0
1
## 40  android                64.0                32.0
0
## 41  android               108.0                16.0
1
## 42  android               108.0                16.0
1
## 43  android               108.0                32.0
1
## 44  android               108.0                16.0
0
## 45  android                50.0                16.0
1
## 46  android                50.0                 8.0
1
## 47  android                50.0                13.0
1
## 48  android                50.0                 5.0
1
## 49  android                13.0                 5.0
1
## 50  android               108.0                32.0
1
## 51  android                50.0                13.0
1
## 52  android                64.0                16.0
0
## 53  android                13.0                 8.0
1
## 54  android                50.0                16.0
1
## 55  android                50.0                16.0
1
## 56  android                50.0                 8.0
1
## 57      ios                12.0                12.0
0
## 58  android                64.0                13.0
1
## 59  android                50.0                12.0
0
## 60  android                50.0                16.0
1
## 61  android               108.0                16.0
0
## 62  android                64.0                50.0
```

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```
0
## 63  android                50.0                  8.0
1
## 64  android                50.0                  8.0
1
## 65  android                50.0                 16.0
1
## 66  android                50.0                 50.0
0
## 67  android                50.0                 32.0
0
## 68  android               200.0                 16.0
0
## 69  android                50.0                  8.0
1
## 70    other                50.0                   NA
0
## 71  android                 8.0                  5.0
1
## 72  android                64.0                 50.0
1
## 73  android                50.0                  8.0
1
## 74  android                50.0                 16.0
0
## 75  android                48.0                  8.0
1
## 76    other                13.0                  5.0
1
## 77      ios                12.0                 12.0
0
## 78  android                64.0                 32.0
1
## 79  android                48.0                 13.0
1
## 80  android                13.0                  5.0
1
## 81  android               108.0                 16.0
1
## 82  android                50.0                 13.0
1
## 83  android                48.0                 16.0
1
## 84  android                50.0                 16.0
1
## 85  android                50.0                  5.0
1
## 86  android                50.0                 32.0
0
## 87  android                50.0                  8.0
```

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```
1
## 88  android                48.0                 8.0
1
## 89  android                50.0                13.0
1
## 90  android               108.0                32.0
1
## 91  android                13.0                 8.0
1
## 92  android                64.0                16.0
0
## 93  android                50.0                16.0
1
## 94  android                50.3                32.0
0
## 95  android                50.0                 5.0
1
## 96  android                50.0                16.0
1
## 97  android                50.0                 5.0
1
## 98  android                50.0                16.0
0
## 99  android                50.0                16.0
0
## 100 android                50.0                16.0
1
## 101     ios                48.0                12.0
0
## 102 android               108.0                32.0
1
## 103 android                50.0                32.0
0
## 104 android                50.0                 8.0
1
## 105 android                48.0                16.0
1
## 106 android                50.3                32.0
0
## 107 android               108.0                32.0
0
## 108 android                50.0                10.0
0
## 109 android                50.0                16.0
1
## 110 android                50.0                16.0
0
## 111 android                64.0                32.0
0
## 112     ios                12.0                12.0
```

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```
0
## 113 android                64.0                16.0
0
## 114 android                64.0                32.0
1
## 115 android                 8.0                 5.0
1
## 116 android                50.0                32.0
0
## 117 android               108.0                32.0
1
## 118 android                64.0                16.0
0
## 119 android                50.0                32.0
0
## 120 android                50.0                12.0
0
## 121 android                50.0                60.0
0
## 122 android                50.0                32.0
0
## 123 android                12.2                 8.0
0
## 124 android               108.0                16.0
1
## 125 android                50.0                 8.0
1
## 126 android                64.0                50.0
0
## 127 android                50.0                16.0
1
## 128 android                64.0                16.0
1
## 129 android                48.0                13.0
1
## 130 android                12.2                 8.0
0
## 131 android                50.0                 5.0
1
## 132 android                48.0                16.0
1
## 133 android                48.0                 8.0
1
## 134 android                50.0                16.0
0
## 135 android                64.0                16.0
1
## 136 android               108.0                16.0
1
## 137     ios                12.0                12.0
```

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```
0
## 138 android                50.0                 8.0
1
## 139 android                50.0                16.0
1
## 140 android                64.0                16.0
0
## 141 android                50.0                16.0
1
## 142 android                50.0                32.0
0
## 143 android                50.0                16.0
1
## 144 android                 5.0                 2.0
1
## 145 android                13.0                 8.0
1
## 146 android                13.0                 5.0
1
## 147 android                48.0                16.0
0
## 148 android                64.0                32.0
1
## 149 android                50.0                 5.0
1
## 150     ios                12.0                12.0
0
## 151 android                48.0                13.0
1
## 152 android                50.0                16.0
1
## 153     ios                50.0                12.0
0
## 154 android               108.0                16.0
1
## 155 android                50.0                16.0
1
## 156 android                 8.0                 5.0
1
## 157 android                64.0                16.0
1
## 158 android                64.0                32.0
1
## 159    <NA>                50.0                32.0
0
## 160 android               108.0                16.0
1
## 161 android                50.0                16.0
1
## 162     ios                12.0                12.0
```

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```
0
## 163 android                64.0                32.0
0
## 164 android                50.0                32.0
0
## 165 android                50.0                 8.0
1
## 166 android                64.0                13.0
1
## 167 android                50.0                16.0
1
## 168 android                48.0                16.0
0
## 169 android                50.0                 8.0
1
## 170 android                 8.0                 5.0
0
## 171 android               108.0                32.0
1
## 172 android                48.0                16.0
1
## 173 android                48.0                 8.0
1
## 174     ios                12.0                 7.0
0
## 175 android                50.0                 8.0
1
## 176 android                64.0                13.0
1
## 177 android                50.0                16.0
1
## 178 android                50.0                16.0
1
## 179 android                64.0                50.0
1
## 180 android                64.0                16.0
1
## 181 android               200.0                32.0
1
## 182 android                13.0                 5.0
1
## 183 android                50.0                60.0
0
## 184 android                50.0                 8.0
1
## 185 android                50.0                 8.0
1
## 186 android                50.0                32.0
0
## 187 android                50.0                16.0
```

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```
1
## 188 android                13.0                 8.0
1
## 189 android                13.0                 5.0
0
## 190 android                13.0                 5.0
1
## 191 android                 8.0                 2.0
1
## 192 android                64.0                32.0
1
## 193 android               200.0                32.0
1
## 194 android                50.0                32.0
0
## 195 android                50.0                 8.0
1
## 196 android                50.0                32.0
0
## 197 android                50.0                16.0
1
## 198 android                64.0                16.0
1
## 199 android                13.0                 5.0
1
## 200 android                50.0                 8.0
1
## 201 android                50.0                 8.0
1
## 202 android               200.0                60.0
0
## 203 android               108.0                32.0
0
## 204 android                50.0                16.0
1
## 205 android                50.0                 8.0
1
## 206 android                50.0                16.0
0
## 207 android                50.0                32.0
1
## 208 android                50.0                 8.0
1
## 209 android                50.0                16.0
0
## 210     ios                48.0                12.0
0
## 211 android                64.0                32.0
0
## 212 android                48.0                16.0
```

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```
1
## 213 android                64.0                16.0
1
## 214 android                50.0                 8.0
1
## 215 android                64.0                16.0
0
## 216 android                50.0                10.8
0
## 217 android                50.0                 8.0
1
## 218 android               108.0                50.0
0
## 219 android                13.0                 5.0
1
## 220 android                64.0                16.0
0
## 221 android                50.0                16.0
0
## 222 android                50.0                 8.0
1
## 223 android                50.0                32.0
0
## 224 android                50.0                13.0
1
## 225 android                 8.0                 5.0
1
## 226 android                13.0                 5.0
1
## 227 android                48.0                16.0
1
## 228 android                64.0                16.0
0
## 229 android                50.0                32.0
0
## 230 android                50.0                32.0
0
## 231 android                50.0                16.0
0
## 232 android                50.0                 8.0
1
## 233 android                50.0                 5.0
1
## 234 android                50.0                 8.0
1
## 235 android                50.0                16.0
1
## 236 android                50.0                20.0
0
## 237 android                13.0                 5.0
```

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```
1
## 238 android                64.0                16.0
1
## 239 android                50.0                44.0
1
## 240 android               200.0                16.0
1
## 241 android                13.0                 8.0
1
## 242 android               108.0                32.0
1
## 243 android                64.0                16.0
1
## 244 android                50.0                10.8
0
## 245 android                50.0                16.0
1
## 246 android                64.0                32.0
1
## 247     ios                12.0                12.0
0
## 248 android                50.0                16.0
1
## 249 android                50.0                16.0
0
## 250 android                50.0                13.0
1
## 251 android                50.0                32.0
0
## 252 android               108.0                60.0
1
## 253 android                50.0                16.0
1
## 254 android               108.0                16.0
1
## 255 android               108.0                16.0
1
## 256 android                12.0                32.0
0
## 257 android                50.0                10.0
0
## 258 android                13.0                 8.0
0
## 259 android                50.0                16.0
1
## 260 android                50.0                 8.0
1
## 261 android                50.0                16.0
1
## 262 android                13.0                 5.0
```

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```
1
## 263     ios                12.0                 7.0
0
## 264 android                64.0                32.0
1
## 265 android                50.0                16.0
1
## 266 android                50.0                32.0
1
## 267 android                50.0                16.0
0
## 268 android               108.0                16.0
1
## 269 android                50.0                32.0
0
## 270 android                64.0                20.0
1
## 271 android                50.0                11.1
0
## 272 android                50.0                 8.0
1
## 273 android                50.0                 5.0
1
## 274 android               108.0                16.0
1
## 275 android                50.0                32.0
0
## 276     ios                12.0                12.0
0
## 277 android                50.0                 8.0
1
## 278 android                13.0                 5.0
1
## 279 android                50.0                12.0
0
## 280 android                50.0                44.0
1
## 281     ios                12.0                12.0
0
## 282 android                48.0                 8.0
1
## 283 android                64.0                16.0
0
## 284 android                50.0                 8.0
1
## 285 android                50.0                16.0
0
## 286 android                50.0                16.0
0
## 287 android               108.0                16.0
```

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```
1
## 288 android                50.0                  8.0
1
## 289     ios                48.0                 12.0
0
## 290 android                50.0                  8.0
1
## 291 android                50.0                 16.0
1
## 292 android                64.0                 13.0
1
## 293 android                 8.0                  5.0
1
## 294 android                50.0                  8.0
1
## 295 android               200.0                 60.0
0
## 296 android                64.0                 16.0
1
## 297 android                50.0                 32.0
0
## 298 android                13.0                  5.0
1
## 299 android                 8.0                  5.0
1
## 300 android                64.0                 16.0
0
## 301 android                 8.0                  5.0
1
## 302 android                50.0                 13.0
1
## 303 android                50.0                  5.0
1
## 304 android                64.0                 20.0
1
## 305    <NA>                12.0                 10.0
0
## 306     ios                12.0                 12.0
0
## 307 android                50.0                 16.0
0
## 308 android                50.0                  8.0
1
## 309 android                64.0                 32.0
1
## 310 android                50.0                 16.0
0
## 311 android                64.0                 32.0
1
## 312 android               108.0                 40.0
```

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```
0
## 313 android                50.0                16.0
0
## 314 android                 8.0                 8.0
1
## 315 android                50.0                50.0
0
## 316 android                50.0                 5.0
1
## 317 android                64.0                32.0
0
## 318 android                48.0                16.0
0
## 319 android                50.0                16.0
0
## 320 android                50.0                10.0
0
## 321    <NA>                64.0                32.0
0
## 322     ios                12.0                12.0
0
## 323 android                48.0                13.0
1
## 324 android                13.0                 8.0
1
## 325 android                50.0                 8.0
0
## 326 android                64.0                16.0
1
## 327 android               108.0                40.0
0
## 328 android                13.0                 8.0
1
## 329 android                50.0                 8.0
1
## 330 android                64.0                32.0
1
## 331 android                64.0                16.0
0
## 332 android               108.0                32.0
1
## 333 android                48.0                16.0
1
## 334 android                64.0                20.0
0
## 335 android                50.0                16.0
1
## 336 android                 8.0                 5.0
1
## 337 android               108.0                32.0
```

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```
1
## 338 android                48.0                16.0
0
## 339 android               108.0                16.0
1
## 340 android                13.0                 5.0
1
## 341 android                64.0                16.0
0
## 342 android                50.0                 5.0
1
## 343 android                64.0                16.0
1
## 344 android                64.0                16.0
1
## 345     ios                12.0                12.0
0
## 346 android                50.0                32.0
0
## 347 android                50.3                32.0
0
## 348 android                50.0                16.0
1
## 349 android                50.0                16.0
1
## 350 android                13.0                 5.0
1
## 351 android                13.0                 8.0
1
## 352 android                13.0                 8.0
1
## 353 android                54.0                16.0
0
## 354 android                 8.0                 5.0
1
## 355 android                50.0                 8.0
1
## 356 android                50.0                 8.0
1
## 357 android                13.0                 5.0
1
## 358 android                64.0                20.0
0
## 359 android               108.0                16.0
1
## 360 android               200.0                20.0
0
## 361 android                48.0                16.0
0
## 362     ios                12.0                12.0
```

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```
0
## 363 android               200.0                 60.0
0
## 364    <NA>                50.0                 32.0
0
## 365 android                50.0                 16.0
0
## 366 android                13.0                  8.0
1
## 367 android                12.0                 32.0
0
## 368 android                50.0                 16.0
1
## 369 android                12.0                  8.0
1
## 370 android                64.0                 44.0
0
## 371 android                64.0                 20.0
1
## 372 android                12.0                 32.0
1
## 373 android                16.0                  8.0
0
## 374 android                16.0                 10.0
1
## 375 android                50.0                 16.0
0
## 376 android                64.0                 32.0
1
## 377 android                50.0                 16.0
0
## 378 android                64.0                 10.0
0
## 379 android                64.0                 32.0
1
## 380 android                 8.0                  5.0
1
## 381 android                13.0                  8.0
0
## 382 android                13.0                  8.0
1
## 383 android                50.0                 16.0
1
## 384 android                64.0                 16.0
1
## 385 android                50.0                 16.0
0
## 386 android                50.0                  5.0
1
## 387 android                50.0                 16.0
```

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```
1
## 388 android                48.0                16.0
1
## 389 android                48.0                16.0
1
## 390    <NA>                50.0                32.0
0
## 391 android                64.0                20.0
1
## 392 android                64.0                16.0
1
## 393 android                64.0                16.0
1
## 394 android                48.0                16.0
1
## 395 android                50.0                 5.0
1
## 396 android                50.0                16.0
1
## 397 android                 8.0                 8.0
0
## 398 android                50.0                16.0
0
## 399     ios                48.0                12.0
0
## 400 android                 8.0                 5.0
1
## 401 android               200.0                10.0
1
## 402 android                50.0                16.0
1
## 403 android                50.0                16.0
1
## 404 android                50.0                32.0
0
## 405 android                64.0                32.0
0
## 406 android               108.0                16.0
1
## 407 android                64.0                32.0
0
## 408 android                48.0                 8.0
1
## 409 android                48.0                16.0
1
## 410 android                48.0                 5.0
1
## 411 android                13.0                16.0
1
## 412 android                48.0                20.0
```

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```
0
## 413 android                64.0                32.0
0
## 414 android                64.0                32.0
0
## 415 android                13.0                 5.0
1
## 416 android               108.0                16.0
0
## 417     ios                48.0                12.0
0
## 418 android               108.0                16.0
0
## 419 android               200.0                60.0
0
## 420 android                50.0                32.0
0
## 421 android                54.0                32.0
0
## 422 android                50.0                32.0
0
## 423 android               108.0                50.0
0
## 424 android                50.0                16.0
1
## 425 android               108.0                16.0
0
## 426 android               108.0                32.0
1
## 427 android                48.0                13.0
1
## 428 android                13.0                 2.1
0
## 429 android                64.0                20.0
1
## 430 android                64.0                32.0
1
## 431 android                64.0                32.0
0
## 432 android                48.0                16.0
1
## 433 android                13.0                 5.0
1
## 434 android                50.0                 8.0
1
## 435 android               108.0                16.0
1
## 436     ios                12.0                 7.0
0
## 437 android                64.0                32.0
```

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```
1
## 438 android                48.0                20.0
1
## 439 android                13.0                 5.0
1
## 440 android                64.0                20.0
1
## 441 android                50.0                 8.0
1
## 442 android                50.0                12.0
0
## 443 android               200.0                16.0
0
## 444 android                 8.0                 5.0
1
## 445     ios                50.0                12.0
0
## 446 android                50.0                 8.0
1
## 447 android                50.0                 8.0
1
## 448 android                50.0                32.0
0
## 449 android                64.0                16.0
1
## 450 android                50.0                48.0
0
## 451 android                13.0                 5.0
1
## 452 android                50.0                 5.0
1
## 453 android                50.0                12.0
0
## 454 android                13.0                 8.0
1
## 455 android                48.0                16.0
0
## 456 android                48.0                 8.0
1
## 457 android                50.0                 8.0
1
## 458 android                48.0                13.0
1
## 459 android               108.0                  NA
0
## 460 android                50.0                32.0
0
## 461 android                64.0                16.0
0
## 462 android                50.0                 8.0
```

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```
1
## 463 android                50.0                 8.0
1
## 464 android                13.0                 8.0
1
## 465 android                64.0                16.0
1
## 466 android                64.0                16.0
1
## 467 android                64.0                20.0
1
## 468 android                 8.0                 5.0
1
## 469 android               108.0                16.0
1
## 470 android                64.0                20.0
1
## 471 android                64.0                10.0
1
## 472 android                12.0                20.0
1
## 473 android                 5.0                 2.0
1
## 474 android                13.0                 5.0
1
## 475 android                13.0                 5.0
1
## 476 android                 8.0                 5.0
1
## 477 android                 2.0                 0.3
1
## 478 android                50.0                16.0
0
## 479   other                50.0                13.0
1
## 480 android                64.0                32.0
1
## 481 android                50.0                16.0
1
## 482 android                12.0                 8.0
1
## 483 android                13.0                16.0
1
## 484 android                12.0                12.0
1
## 485 android                50.0                 8.0
1
## 486 android               108.0                16.0
1
## 487 android                50.0                 8.0
```

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```
1
## 488 android                64.0                 8.0
0
## 489 android                16.0                 8.0
1
## 490 android                64.0                16.0
0
## 491 android                48.0                 8.0
1
## 492 android                64.0                16.0
0
## 493 android                48.0                16.0
1
## 494 android                50.0                 8.0
1
## 495 android                64.0                16.0
0
## 496 android                50.0                 8.0
1
## 497 android                13.0                 5.0
1
## 498 android                50.0                13.0
1
## 499    <NA>                12.0                10.0
0
## 500 android                20.0                16.0
0
## 501 android                12.2                 8.0
0
## 502 android                 8.0                 5.0
1
## 503 android                54.0                32.0
0
## 504 android                50.0                16.0
1
## 505 android                13.0                 8.0
1
## 506 android                64.0                20.0
1
## 507 android                64.0                 8.0
1
## 508 android                50.0                16.0
1
## 509 android                48.0                 8.0
1
## 510 android                16.0                 8.0
0
## 511 android               108.0                32.0
0
## 512 android               200.0                16.0
```

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```
0
## 513 android                50.0                  8.0
1
## 514 android                50.0                 32.0
0
## 515 android                50.0                 16.0
0
## 516 android                50.0                 16.0
1
## 517 android                13.0                  8.0
1
## 518 android                50.0                 16.0
0
## 519 android                 8.0                  5.0
1
## 520 android               108.0                 16.0
0
## 521 android                50.0                 32.0
0
## 522     ios                12.0                 12.0
0
## 523 android                64.0                 16.0
1
## 524 android                50.0                 16.0
1
## 525 android                64.0                 44.0
1
## 526 android                48.0                 16.0
1
## 527 android                50.0                 16.0
0
## 528 android                50.0                 11.1
0
## 529 android                13.0                  5.0
1
## 530 android                50.0                  8.0
1
## 531 android                50.0                  8.0
1
## 532 android                50.0                  5.0
1
## 533 android                64.0                 16.0
0
## 534 android                50.0                 32.0
0
## 535 android                50.0                 16.0
1
## 536 android               108.0                 16.0
1
## 537 android                50.0                 10.0
```

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```
0
## 538 android                64.0                16.0
0
## 539 android                50.0                 8.0
1
## 540 android                48.0                16.0
1
## 541 android                64.0                16.0
1
## 542 android                64.0                16.0
1
## 543 android               200.0                32.0
1
## 544 android                48.0                 8.0
0
## 545 android               108.0                16.0
1
## 546 android                48.0                16.0
0
## 547 android                64.0                16.0
1
## 548 android                64.0                10.0
1
## 549 android                48.0                20.0
0
## 550 android                16.0                 8.0
1
## 551 android                50.0                32.0
0
## 552 android                50.0                16.0
1
## 553 android                64.0                16.0
0
## 554 android                13.0                 5.0
1
## 555 android                64.0                16.0
1
## 556 android                50.0                 8.0
1
## 557 android                64.0                24.0
0
## 558 android                64.0                32.0
0
## 559 android                48.0                13.0
1
## 560 android                50.0                16.0
0
## 561 android                12.0                10.0
0
## 562    <NA>                64.0                32.0
```

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```
0
## 563 android                64.0                32.0
1
## 564 android                64.0                32.0
1
## 565 android                13.0                 5.0
1
## 566 android                13.0                 5.0
1
## 567 android                13.0                 8.0
1
## 568 android                50.0                16.0
1
## 569 android                50.0                32.0
0
## 570 android                50.0                 8.0
1
## 571 android                50.0                 8.0
1
## 572 android                50.0                60.0
0
## 573 android                64.0                16.0
0
## 574 android                64.0                16.0
0
## 575 android                50.0                 8.0
1
## 576 android                50.0                 8.0
1
## 577 android                13.0                 5.0
1
## 578 android                50.0                 5.0
1
## 579 android                48.0                32.0
1
## 580 android                50.0                16.0
0
## 581 android               108.0                16.0
1
## 582 android                64.0                16.0
0
## 583 android                50.0                16.0
0
## 584 android                 8.0                 5.0
1
## 585 android                13.0                 5.0
1
## 586 android                13.0                 8.0
1
## 587 android                48.0                13.0
```

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```
1
## 588 android                48.0                 8.0
1
## 589 android                13.0                 8.0
1
## 590 android                48.0                 8.0
1
## 591 android                64.0                44.0
1
## 592 android                64.0                32.0
1
## 593 android                48.0                16.0
0
## 594 android               108.0                40.0
1
## 595     ios                12.0                12.0
0
## 596     ios                13.0                 7.0
0
## 597 android                50.0                16.0
1
## 598 android                13.0                 5.0
1
## 599 android                48.0                13.0
1
## 600    <NA>                64.0                  NA
0
## 601 android               108.0                32.0
1
## 602 android                64.0                20.0
0
## 603 android                64.0                16.0
1
## 604 android                48.0                16.0
1
## 605 android                50.0                16.0
1
## 606 android               108.0                16.0
1
## 607 android                64.0                16.0
1
## 608 android                50.0                16.0
1
## 609 android                50.0                16.0
1
## 610 android                48.0                 8.0
1
## 611 android                13.0                 5.0
1
## 612 android                13.0                 8.0
```

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```
1
## 613 android                64.0                44.0
1
## 614     ios                12.0                12.0
0
## 615 android                12.0                 8.0
1
## 616 android               108.0                25.0
0
## 617 android                64.0                10.0
0
## 618 android                48.0                 8.0
1
## 619 android                50.0                16.0
0
## 620 android                64.0                16.0
0
## 621 android                 8.0                 5.0
1
## 622     ios                12.0                12.0
0
## 623 android                50.0                16.0
0
## 624 android                64.0                32.0
0
## 625 android                64.0                16.0
1
## 626 android               108.0                40.0
0
## 627 android                64.0                20.0
0
## 628 android               108.0                16.0
0
## 629 android                13.0                 8.0
0
## 630 android                64.0                10.0
1
## 631 android                50.0                16.0
1
## 632   other                50.0                13.0
1
## 633 android                13.0                 5.0
1
## 634 android                50.0                12.0
0
## 635 android                64.0                16.0
0
## 636 android                48.0                16.0
1
## 637 android                13.0                 8.0
```

https://github.com/Manzil325/Group7Rassignment

```
1
## 638 android                13.0                 5.0
1
## 639     ios                12.0                 7.0
0
## 640 android                 8.0                 5.0
0
## 641 android                64.0                32.0
0
## 642 android                50.0                 8.0
0
## 643 android                50.0                32.0
1
## 644 android                64.0                32.0
1
## 645 android                50.0                 8.0
1
## 646 android                48.0                16.0
1
## 647 android                 8.0                 5.0
1
## 648 android                50.0                16.0
1
## 649 android                50.0                 5.0
0
## 650 android                50.0                13.0
0
## 651 android                50.0                 8.0
1
## 652 android                 8.0                 5.0
1
## 653 android                50.0                 8.0
1
## 654 android                48.0                 8.0
1
## 655 android                64.0                16.0
1
## 656 android                64.0                16.0
1
## 657 android                48.0                20.0
0
## 658 android                48.0                13.0
1
## 659 android               108.0                16.0
1
## 660 android                64.0                20.0
0
## 661 android                48.0                16.0
1
## 662 android                64.0                16.0
```

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```
1
## 663    <NA>                64.0                10.0
0
## 664 android                12.0                32.0
1
## 665 android                12.0                10.0
1
## 666 android                50.0                16.0
0
## 667 android                50.0                 5.0
1
## 668 android                13.0                 5.0
1
## 669 android                 8.0                 5.0
1
## 670 android                 8.0                 5.0
1
## 671 android                13.0                 5.0
1
## 672 android               108.0                32.0
1
## 673 android                48.0                 8.0
1
## 674 android                48.0                16.0
1
## 675 android               108.0                16.0
1
## 676 android                13.0                 5.0
1
## 677 android                 8.0                 5.0
1
## 678 android                12.0                12.0
1
## 679 android                64.0                16.0
0
## 680 android                50.0                 8.0
1
## 681 android               108.0                32.0
0
## 682 android                50.0                32.0
0
## 683     ios                12.0                12.0
0
## 684 android                50.0                 8.0
1
## 685 android                48.0                16.0
1
## 686 android                48.0                20.0
1
## 687 android                48.0                16.0
```

https://github.com/Manzil325/Group7Rassignment

```
1
## 688 android                64.0                16.0
0
## 689 android                64.0                16.0
1
## 690 android                16.0                13.0
1
## 691 android                13.0                 8.0
1
## 692 android                48.0                16.0
1
## 693 android                48.0                16.0
1
## 694 android                48.0                32.0
1
## 695 android                12.0                10.0
1
## 696 android                13.0                16.0
1
## 697 android                48.0                32.0
1
## 698 android                64.0                32.0
1
## 699 android                64.0                44.0
1
## 700    <NA>                50.0                12.0
0
## 701 android                64.0                32.0
0
## 702 android               108.0                20.0
0
## 703   other                64.0                13.0
0
## 704 android                13.0                 5.0
1
## 705    <NA>                50.0                10.7
0
## 706 android                50.0                16.0
1
## 707     ios                50.0                13.0
0
## 708 android                50.0                16.0
1
## 709 android                16.0                 8.0
1
## 710 android                13.0                 8.0
1
## 711 android                50.0                32.0
0
## 712 android                50.0                 8.0
```

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```
1
## 713   other                50.0                32.0
0
## 714 android                 5.0                 5.0
1
## 715   other                50.0                13.0
1
## 716 android                48.0                20.0
0
## 717 android                 5.0                 5.0
1
## 718 android                48.0                16.0
1
## 719 android                50.0                32.0
0
## 720 android                64.0                16.0
1
## 721 android                50.0                32.0
0
## 722 android                48.0                 8.0
1
## 723 android                 8.0                 8.0
1
## 724 android                64.0                44.0
0
## 725 android               108.0                20.0
0
## 726 android                48.0                32.0
1
## 727 android                64.0                10.0
1
## 728 android                16.0                16.0
1
## 729 android                64.0                32.0
1
## 730 android                64.0                16.0
1
## 731 android                13.0                 8.0
1
## 732 android                12.0                20.0
1
## 733 android                 8.0                 5.0
1
## 734 android                20.0                13.0
1
## 735 android                50.0                20.0
0
## 736 android                50.0                32.0
0
## 737 android               200.0                50.0
```

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```
0
## 738     ios                12.0                10.8
0
## 739 android                50.0                 8.0
1
## 740     ios                48.0                12.0
0
## 741 android                50.0                10.1
0
## 742 android                50.0                16.0
0
## 743 android                50.0                16.0
1
## 744 android                50.0                32.0
0
## 745 android                50.0                16.0
0
## 746 android                50.0                32.0
0
## 747 android                13.0                 8.0
1
## 748 android                64.0                16.0
0
## 749 android                48.0                 5.0
1
## 750 android                50.0                10.0
0
## 751 android                50.0                16.0
1
## 752 android               108.0                16.0
1
## 753 android                50.0                32.0
0
## 754 android                13.0                 8.0
1
## 755 android                13.0                 8.0
1
## 756 android                13.0                 5.0
1
## 757     ios                12.0                12.0
0
## 758 android                13.0                 8.0
1
## 759 android                64.0                50.0
0
## 760 android                48.0                13.0
1
## 761 android                50.0                20.0
0
## 762 android                 8.0                 5.0
```

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```
1
## 763 android                13.0                 5.0
1
## 764 android                13.0                16.0
1
## 765 android                48.0                13.0
1
## 766 android               108.0                20.0
0
## 767 android                48.0                16.0
1
## 768 android                13.0                16.0
1
## 769 android                13.0                 8.0
1
## 770 android                 8.0                 5.0
1
## 771 android                48.0                 8.0
1
## 772 android                64.0                10.0
0
## 773 android                48.0                16.0
1
## 774 android                64.0                10.0
1
## 775 android                64.0                16.0
1
## 776 android                50.0                32.0
1
## 777 android                13.0                 8.0
1
## 778 android                48.0                32.0
1
## 779 android                13.0                20.0
1
## 780 android                16.0                25.0
1
## 781 android                12.0                 8.0
1
## 782 android                50.0                16.0
0
## 783 android                13.0                 5.0
0
## 784 android                50.0                 5.0
1
## 785 android                47.2                12.6
1
## 786 android                50.0                32.0
0
## 787 android                50.0                 8.0
```

https://github.com/Manzil325/Group7Rassignment

```
1
## 788 android                64.0                16.0
0
## 789     ios                12.0                12.0
0
## 790     ios                48.0                12.0
0
## 791 android                64.0                16.0
1
## 792 android                50.0                 8.0
1
## 793 android                13.0                 5.0
1
## 794 android                48.0                16.0
1
## 795 android                48.0                32.0
0
## 796 android                 8.0                 5.0
1
## 797 android               108.0                20.0
0
## 798 android                13.0                 8.0
1
## 799 android                50.0                16.0
1
## 800 android                64.0                32.0
0
## 801 android                64.0                32.0
1
## 802 android                50.0                32.0
0
## 803 android                64.0                32.0
1
## 804 android                50.0                16.0
1
## 805 android                48.0                 8.0
1
## 806 android                50.0                16.0
1
## 807 android                50.0                 5.0
0
## 808 android               108.0                16.0
1
## 809 android                50.0                 8.0
1
## 810 android                50.0                 8.0
0
## 811 android                50.0                 8.0
1
## 812 android                13.0                 5.0
```

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```
1
## 813 android                48.0                16.0
1
## 814     ios                12.0                12.0
0
## 815 android                50.0                 8.0
1
## 816 android                50.0                32.0
0
## 817 android                50.0                32.0
0
## 818    <NA>                 5.0                 2.0
0
## 819 android                64.0                16.0
1
## 820 android                48.0                16.0
1
## 821 android               108.0                20.0
0
## 822 android                64.0                20.0
0
## 823 android                64.0                32.0
1
## 824 android                13.0                 8.0
0
## 825     ios                12.0                12.0
0
## 826 android                13.0                 5.0
1
## 827 android                64.0                16.0
1
## 828 android                 8.0                 5.0
1
## 829 android                64.0                32.0
0
## 830 android                12.0                 8.0
1
## 831 android                12.0                 8.0
1
## 832 android                13.0                 5.0
1
## 833 android                48.0                16.0
1
## 834 android                16.0                16.0
1
## 835 android                16.0                16.0
1
## 836 android                48.0                13.0
1
## 837 android                12.0                 8.0
```

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```
1
## 838 android                13.0                 8.0
1
## 839 android                12.2                 8.0
0
## 840 android                16.0                25.0
1
## 841 android                16.0                10.0
1
## 842 android                13.0                16.0
1
## 843 android                13.0                 5.0
1
## 844 android               108.0                32.0
1
## 845   other                 50.0                 5.0
1
## 846 android                64.0                16.0
1
## 847 android                64.0                32.0
1
## 848 android                50.0                 8.0
1
## 849 android                50.0                16.0
1
## 850 android                16.0                 8.0
1
## 851 android                13.0                 8.0
1
## 852   other                 50.0                60.0
0
## 853   other                 50.0                 8.0
1
## 854 android                48.0                16.0
0
## 855 android               108.0                16.0
1
## 856 android                50.0                32.0
0
## 857 android                50.0                 8.0
1
## 858 android                50.0                16.0
0
## 859 android                48.0                16.0
0
## 860 android                64.0                16.0
1
## 861 android                48.0                16.0
1
## 862    <NA>                64.0                32.0
```

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```
0
## 863 android                48.0                16.0
0
## 864 android                50.0                48.0
0
## 865 android                50.0                 8.0
1
## 866 android                64.0                16.0
0
## 867 android                12.0                 8.0
1
## 868 android                13.0                 5.0
1
## 869 android                48.0                 8.0
1
## 870 android                50.0                16.0
1
## 871 android                64.0                16.0
1
## 872 android               108.0                16.0
0
## 873 android                64.0                16.0
1
## 874 android                48.0                16.0
1
## 875 android                 5.0                 2.0
0
## 876 android               108.0                40.0
0
## 877 android                64.0                32.0
0
## 878 android                48.0                13.0
1
## 879 android                48.0                 8.0
1
## 880 android                13.0                 8.0
1
## 881     ios                12.0                12.0
0
## 882     ios                12.0                12.0
0
## 883 android                13.0                 5.0
1
## 884 android                48.0                16.0
1
## 885 android                13.0                 5.0
1
## 886 android                64.0                32.0
0
## 887 android                64.0                10.0
```

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```
1
## 888 android                48.0                20.0
0
## 889 android                64.0                20.0
1
## 890 android                13.0                 8.0
1
## 891 android                13.0                16.0
1
## 892 android                13.0                13.0
1
## 893     ios                12.0                12.0
0
## 894 android                50.0                 8.0
1
## 895 android                13.0                 8.0
1
## 896 android                50.0                16.0
0
## 897 android                50.0                32.0
0
## 898 android                16.0                 8.0
1
## 899 android                 8.0                 5.0
1
## 900 android                13.0                 8.0
1
## 901 android                13.0                 8.0
1
## 902 android                50.0                16.0
1
## 903 android                50.0                 5.0
1
## 904 android                50.0                32.0
0
## 905 android                13.0                 5.0
1
## 906 android                50.0                10.0
0
## 907 android                50.0                16.0
0
## 908 android               200.0                60.0
0
## 909 android                50.0                16.0
0
## 910 android                50.0                16.0
0
## 911 android                64.0                32.0
1
## 912 android                48.0                 5.0
```

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```
1
## 913 android                50.0                16.0
1
## 914 android                64.0                20.0
0
## 915 android                50.0                16.0
1
## 916 android                50.0                16.0
1
## 917 android                50.0                16.0
0
## 918 android                50.0                16.0
0
## 919 android                13.0                 8.0
1
## 920 android                50.0                16.0
0
## 921 android                50.0                16.0
1
## 922 android               108.0                16.0
1
## 923 android                64.0                 8.0
1
## 924     ios                12.0                12.0
0
## 925 android                64.0                 8.0
0
## 926 android                13.0                 5.0
1
## 927   other               200.0                16.0
1
## 928 android                13.0                 8.0
1
## 929 android                64.0                16.0
1
## 930 android                64.0                16.0
0
## 931 android               108.0                32.0
0
## 932 android                13.0                16.0
1
## 933 android                50.0                16.0
1
## 934 android                48.0                16.0
0
## 935 android                 8.0                 5.0
1
## 936 android                48.0                13.0
1
## 937 android                64.0                16.0
```

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```
0
## 938 android                16.0                 8.0
0
## 939 android                48.0                 8.0
1
## 940 android                64.0                32.0
1
## 941 android                48.0                13.0
1
## 942 android                13.0                 5.0
1
## 943 android                48.0                32.0
1
## 944 android                13.0                16.0
1
## 945 android                48.0                 8.0
1
## 946 android                 8.0                 5.0
1
## 947 android                13.0                 5.0
1
## 948 android               108.0                20.0
0
## 949 android                13.0                13.0
1
## 950 android                64.0                16.0
0
## 951 android                48.0                16.0
1
## 952 android                40.0                32.0
1
## 953 android                13.0                 8.0
1
## 954 android                13.0                 5.0
1
## 955    <NA>                48.0                  NA
0
## 956 android                24.0                24.0
1
## 957 android                24.0                24.0
1
## 958 android                13.0                 5.0
1
## 959 android                50.0                 5.0
1
## 960 android                13.0                 8.0
1
## 961 android                50.0                 8.0
1
## 962 android                13.0                 8.0
```

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```
1
## 963 android               108.0                  32.0
1
## 964 android                 8.0                   5.0
1
## 965 android                50.0                  32.0
0
## 966 android                20.0                  13.0
1
## 967 android                16.0                   8.0
1
## 968 android                50.0                  32.0
0
## 969 android                50.0                  32.0
0
## 970 android                64.0                  32.0
0
## 971 android                 8.0                   5.0
1
## 972 android                50.0                  32.0
0
## 973 android                 2.0                    NA
0
## 974 android                50.0                  12.0
0
## 975 android                50.0                  32.0
0
## 976 android                64.0                  16.0
0
## 977 android                48.0                   8.0
1
## 978 android                64.0                  16.0
0
## 979 android               108.0                  32.0
1
## 980 android                64.0                  32.0
1
##     extended_upto resolution_width resolution_height
## 1              NA              1440               3216
## 2            1024              1080               2412
## 3            1024              1080               2408
## 4            1024              1080               2400
## 5              NA              1080               2412
## 6            1024              1080               2408
## 7              NA              1170               2532
## 8              NA              1080               2400
## 9              NA              1080               2400
## 10             NA              1080               2400
## 11           1024              1080               2400
## 12             NA               720               1612
```

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```
## 13              NA             1080             2400
## 14            1024             1080             2408
## 15              NA             1440             3088
## 16              NA             1170             2532
## 17              NA              720             1600
## 18              NA             1080             2412
## 19              NA             1080             2412
## 20            1024              720             1612
## 21              NA             1080             2412
## 22              NA             1080             2376
## 23            1024             1080             2400
## 24            1024             1080             2400
## 25              NA             1080             2400
## 26              NA             1080             2400
## 27            1024             1080             2412
## 28              NA             1290             2796
## 29            1024             1080             2408
## 30              NA             1440             3216
## 31            1024             1080             2400
## 32              NA             1080             2400
## 33              NA             1080             2400
## 34              NA              828             1792
## 35            1024             1080             2400
## 36              NA             1080             2340
## 37            1024             1080             2400
## 38              NA             1440             3080
## 39             512             1080             2460
## 40              NA             1080             2412
## 41            1024             1080             2412
## 42            1024             1080             2400
## 43            1024             1080             2400
## 44              NA             1080             2412
## 45            1024             1080             2408
## 46            1024             1080             2400
## 47             512             1080             2400
## 48            1024              720             1600
## 49              NA              720             1600
## 50            1024             1080             2412
## 51            1024             1080             2408
## 52              NA             1080             2400
## 53             512              720             1600
## 54            1024             1080             2400
## 55            1024             1080             2400
## 56            1024             1080             2408
## 57              NA             1284             2778
## 58             512             1080             2400
## 59              NA             1080             2340
## 60            1024             1080             2400
## 61              NA             1080             2460
## 62              NA             1080             2400
```

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```
## 63           1024            1080            2408
## 64           1024             720            1612
## 65           1024            1080            2400
## 66             NA            1080            2400
## 67             NA            1440            3216
## 68             NA            1080            2400
## 69           1024            1080            2408
## 70             NA            1792            1920
## 71           1024             720            1612
## 72             NA            1080            2400
## 73           1024            1080            2408
## 74             NA            1080            2412
## 75           1024            1080            2400
## 76             NA             720            1600
## 77             NA            1170            2532
## 78           1024            1080            2400
## 79           1024            1080            2400
## 80            512             720            1600
## 81             NA            1080            2400
## 82           1024            1080            2408
## 83           1024            1080            2400
## 84           1024            1080            2408
## 85           1024             720            1600
## 86             NA            1080            2400
## 87           1024            1080            2408
## 88           1024             720            1612
## 89            512            1080            2400
## 90           1024            1080            2400
## 91           1024             720            1600
## 92             NA            1080            2412
## 93           1024            1080            2400
## 94             NA            1440            3200
## 95           1024             720            1600
## 96           1024            1080            2412
## 97           1024             720            1612
## 98             NA            1440            3200
## 99             NA            1916            2160
## 100          1024            1080            2408
## 101            NA            1179            2556
## 102           512            1080            2400
## 103            NA            1080            2460
## 104          1024            1080            2408
## 105           256            1080            2400
## 106            NA            1440            3200
## 107            NA            1080            2400
## 108            NA            1080            2340
## 109          1024            1080            2408
## 110            NA            1080            2412
## 111            NA            1080            2400
## 112            NA            1170            2532
```

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```
## 113            NA             1080             2460
## 114          1024             1080             2400
## 115           512              720             1600
## 116            NA             1080             2400
## 117          1024             1080             2400
## 118            NA             1080             2404
## 119            NA             1080             2448
## 120            NA             1080             2340
## 121            NA             1080             2400
## 122            NA             1080             2400
## 123            NA             1080             2400
## 124          2048             1080             2400
## 125          1024             1080             2400
## 126            NA             1080             2400
## 127          1024             1080             2400
## 128          1024             1080             2412
## 129          1024             1080             2400
## 130            NA             1080             2400
## 131           512             1080             2408
## 132           512             1080             2400
## 133          1024              720             1600
## 134            NA             1080             2400
## 135          1024             1080             2400
## 136          1024             1080             2400
## 137            NA              828             1792
## 138          1024             1080             2408
## 139          1024             1080             2412
## 140            NA             1080             2400
## 141          1024             1080             2408
## 142            NA             1080             2412
## 143          1024             1080             2400
## 144           128              720             1280
## 145            NA              720             1560
## 146          1024              720             1600
## 147            NA             1080             2400
## 148            NA             1080             2400
## 149           512              720             1600
## 150            NA             1080             2340
## 151          1024             1080             2400
## 152            NA             2460             1080
## 153            NA             1284             2778
## 154          1024             1080             2412
## 155           256             1080             2460
## 156          1024              720             1600
## 157          1024             1080             2400
## 158           256             1080             2400
## 159            NA             1792             1920
## 160           256             1080             2400
## 161          1024             1080             2400
## 162            NA             1284             2778
```

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```
## 163           NA             1080             2412
## 164           NA             1260             2800
## 165         1024             2408             1080
## 166          512             1080             2400
## 167         1024             1080             2400
## 168           NA             1080             2400
## 169         1024             1080             2408
## 170           NA              720             1560
## 171          512             1080             2460
## 172          256             1080             2400
## 173           NA             1080             2400
## 174           NA              750             1334
## 175         1024             1080             2408
## 176          512             1080             2400
## 177          256             1080             2412
## 178           NA             1080             2408
## 179         1024             1080             2408
## 180         1024             1080             2400
## 181           NA             1080             2400
## 182          256              720             1600
## 183           NA             1080             2400
## 184         1024             1080             2408
## 185         1024             1080             2408
## 186           NA             1080             2400
## 187         1024             1080             2400
## 188          128              720             1600
## 189           NA              720             1600
## 190          128              720             1560
## 191           NA              640              960
## 192         1024             1080             2412
## 193           NA             1400             3200
## 194           NA             1080             2400
## 195         1024             1080             2408
## 196           NA             1080             2412
## 197         1024             1080             2412
## 198         1024             1080             2400
## 199         1024              720             1600
## 200           NA              720             1600
## 201         1024             1080             2408
## 202           NA             1080             2400
## 203           NA             1440             3200
## 204           NA             2460             1080
## 205          512             1080             2400
## 206           NA             1080             2400
## 207         1024             1080             2400
## 208          512              720             1600
## 209           NA             1080             2400
## 210           NA             1290             2796
## 211           NA             1080             2376
## 212         1024             1080             2400
```

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```
## 213           256             1080             2412
## 214          1024             1600              720
## 215            NA             1080             2400
## 216            NA             1440             3120
## 217           256             1080             2460
## 218            NA             1080             2376
## 219          1024              720             1600
## 220            NA             1440             3200
## 221            NA             1080             2400
## 222          1024             1080             2408
## 223            NA             1080             2400
## 224           512             1080             2400
## 225          1024              720             1600
## 226           512              720             1600
## 227          1024             1080             2400
## 228            NA             1080             2400
## 229            NA             1080             2412
## 230            NA             1440             3216
## 231            NA             1440             3200
## 232            NA             1080             2408
## 233            NA              720             1650
## 234          1024              720             1612
## 235          1024             1080             2408
## 236            NA             1914             2160
## 237            NA              720             1600
## 238          1024             1080             2400
## 239          1024             1080             2400
## 240           512             1080             2400
## 241            NA              720             1612
## 242          1024             1080             2412
## 243          1024             1080             2404
## 244            NA             1080             2400
## 245          1024             1080             2400
## 246           512             1080             2400
## 247            NA             1170             2532
## 248            NA             1080             2400
## 249            NA             1116             2480
## 250          1024             1080             2400
## 251            NA             1080             2400
## 252          2048             1080             2400
## 253          1024             1080             2408
## 254            NA             1080             2400
## 255          1024             1080             2412
## 256            NA             1080             2400
## 257            NA             1080             2340
## 258            NA             1080             2408
## 259           512              720             1600
## 260           512             1080             2400
## 261           512             1080             2460
## 262           512              720             1600
```

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```
## 263            NA              828             1792
## 264          1024             1080             2400
## 265          2048             1080             2400
## 266            NA             1080             2400
## 267            NA             1080             2412
## 268          1024             1080             2400
## 269            NA             1080             2400
## 270          1024             1080             2400
## 271            NA             1440             3120
## 272           512             1080             2400
## 273           512             1080             2408
## 274          1024             1080             2400
## 275            NA             1440             3200
## 276            NA             1080             2340
## 277           256             1080             2460
## 278          1024              720             1600
## 279            NA             1080             2448
## 280            NA             1080             2400
## 281            NA             1080             2340
## 282          1024             1080             2400
## 283            NA             1080             2400
## 284          1024             1080             2408
## 285            NA             1080             2400
## 286            NA             1080             2400
## 287          2048             1080             2400
## 288          1024             1080             2408
## 289            NA             1290             2796
## 290          1024             1080             2400
## 291          1024             1080             2400
## 292           512             1080             2400
## 293            NA              720             1600
## 294          1024             1080             2408
## 295            NA             1080             2400
## 296           512             1080             2400
## 297            NA             1080             2400
## 298           512              720             1600
## 299            NA              720             1600
## 300            NA             1080             2460
## 301          1024              720             1600
## 302           512             1080             2400
## 303           512              720             1600
## 304            NA             1080             2400
## 305            NA             1080             2640
## 306            NA             1170             2532
## 307            NA             1080             2412
## 308          1024             1080             2408
## 309          1024             1080             2400
## 310            NA             1080             2400
## 311          1024             1080             2400
## 312            NA             1440             3080
```

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```
## 313            NA             1080             2400
## 314            32             1600              720
## 315            NA             1080             2400
## 316          1024              720             1600
## 317            NA             1080             2400
## 318            NA             1080             2388
## 319            NA             1440             3200
## 320            NA             1812             2176
## 321            NA             1440             1920
## 322            NA             1284             2778
## 323          1024             1080             2400
## 324           256              720             1600
## 325            NA             1080             2400
## 326           512             1080             2400
## 327            NA             1440             3200
## 328           256              720             1640
## 329            NA             1080             2408
## 330           256             1080             2400
## 331            NA             1080             2404
## 332          1024             1080             2400
## 333          1024             1080             2412
## 334            NA             1080             2400
## 335           512             2400             1080
## 336          1024              720             1600
## 337          1024             1080             2460
## 338            NA             1440             3216
## 339           512             1080             2400
## 340           512              720             1600
## 341            NA             1080             2460
## 342          1024              720             1600
## 343          1024             1080             2400
## 344            NA             1080             2400
## 345            NA             1170             2532
## 346            NA             1080             2400
## 347            NA             1260             2800
## 348          1024              720             1600
## 349          1024              720             1600
## 350           512              720             1600
## 351           512              720             1440
## 352           256             1520              720
## 353            NA             1440             3200
## 354          1024              720             1600
## 355          1024             1612              720
## 356            NA              720             1600
## 357           512              720             1600
## 358            NA             1080             2400
## 359           256             1080             2400
## 360            NA             1220             2712
## 361            NA             1080             2376
## 362            NA             1080             2340
```

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```
## 363            NA             1200             2860
## 364            NA             1200             2400
## 365            NA             1080             2412
## 366           256              720             1600
## 367            NA             1080             2340
## 368          1024             1080             2400
## 369          1024             1644             3840
## 370            NA             1080             2400
## 371           512             1080             2400
## 372          1024             1080             2400
## 373            NA             1080             2280
## 374           512             1440             3040
## 375            NA             1080             2400
## 376           256             1080             2400
## 377            NA             1080             2400
## 378            NA             1080             2400
## 379          1024             1080             2400
## 380            NA              720             1600
## 381            NA              720             1560
## 382           256              720             1612
## 383          1024             1080             2408
## 384          1024             1080             2404
## 385            NA             1080             2400
## 386          1024              720             1600
## 387          1024             1080             2412
## 388          1024             1080             2400
## 389           256             1080             2400
## 390            NA             1080             2520
## 391          1024             1080             2400
## 392            NA             1080             2400
## 393           256             1080             2412
## 394           512             1080             2400
## 395            NA              720             1600
## 396           512             1080             2400
## 397            NA             1600              720
## 398            NA             1080             2412
## 399            NA             1290             2796
## 400           512              720             1600
## 401          1024             1440             3214
## 402          1024             1080             2412
## 403          1024             1080             2400
## 404            NA             1440             3200
## 405            NA             1080             2400
## 406          1024             2400             1080
## 407            NA             1080             2448
## 408            NA              720             1600
## 409          1024             1080             2412
## 410          1024              720             1560
## 411            NA             1080             2400
## 412            NA             1080             2400
```

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```
## 413            NA             1080             2400
## 414            NA             1080             2400
## 415           512              720             1600
## 416            NA             1080             2400
## 417            NA             1179             2556
## 418            NA             1080             2400
## 419            NA             1080             2400
## 420            NA             1440             3200
## 421            NA             1080             2400
## 422            NA             1440             3216
## 423            NA             1080             2376
## 424           256              720             1600
## 425            NA             1080             2400
## 426            NA             1080             2400
## 427           512             1080             2400
## 428            NA             1080             1920
## 429          1024             1080             2400
## 430           512             1080             2460
## 431            NA             1080             2400
## 432            NA             1080             2460
## 433          1024              720             1600
## 434          1024              720             1600
## 435           512             1080             2400
## 436            NA              750             1334
## 437          1024             1080             2400
## 438            NA             1080             2400
## 439           512              720             1600
## 440          1024             1080             2400
## 441           512              720             1600
## 442            NA             1080             2448
## 443            NA             1080             2400
## 444           512              720             1600
## 445            NA             1170             2532
## 446          1024             1080             2408
## 447           512              720             1640
## 448            NA             1080             2400
## 449          1024             1080             2408
## 450            NA             1080             2340
## 451          1024              720             1600
## 452           512              720             1650
## 453            NA             1080             2400
## 454           512              720             1680
## 455            NA             1080             2400
## 456            NA             1080             2460
## 457           512             1080             2400
## 458          1024              720             1600
## 459            NA             2088             2250
## 460            NA             1080             2412
## 461            NA             1080             2400
## 462          1024             2408             1080
```

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```
## 463           512            720           1600
## 464           256           1640            720
## 465          1024           1080           2400
## 466            NA           1080           2400
## 467            NA           1080           2400
## 468           256            720           1600
## 469           512           1080           2400
## 470          1024           1080           2400
## 471          1024           1440           3200
## 472           256           1080           2246
## 473           128            480            854
## 474            64           1080           1920
## 475          1024            720           1600
## 476          1024            720           1600
## 477            NA            854            480
## 478            NA           1916           2160
## 479           256           1212           2616
## 480          1024           1080           2400
## 481          1024           1080           2400
## 482            NA           1080           2520
## 483           256            720           1544
## 484            NA           1644           3840
## 485          1024            720           1600
## 486            NA           1080           2160
## 487            NA           1080           2408
## 488            NA           1080           2400
## 489            NA            720           1600
## 490            NA           1080           2400
## 491          1024            720           1600
## 492            NA           1080           2460
## 493          1024           1080           2400
## 494          1024           1080           2388
## 495            NA           1080           2340
## 496           512           1080           2400
## 497          1024            720           1600
## 498          1024           1080           2400
## 499            NA           1080           2640
## 500            NA           1080           2280
## 501            NA           1440           2880
## 502           512            720           1600
## 503            NA           1080           2400
## 504           256           1080           2412
## 505          1024            720           1600
## 506          1024           1080           2400
## 507          1024           1080           2408
## 508            NA           1080           2412
## 509          1024           1080           2400
## 510            NA           1080           2340
## 511            NA           1440           3412
## 512            NA           1080           2400
```

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```
## 513          1024             1080             2400
## 514            NA             1080             2412
## 515            NA             1080             2400
## 516          1024             1080             2400
## 517            NA              720             1612
## 518            NA             1080             2400
## 519          1024              720             1600
## 520            NA             1080             2460
## 521            NA             1440             3216
## 522            NA             1170             2532
## 523            NA             1080             2400
## 524          1024             2408             1080
## 525          1024             1080             2400
## 526           512             1080             2400
## 527            NA             1080             2412
## 528            NA             1440             3120
## 529           256              720             1600
## 530           256              720             1612
## 531           512             1080             2400
## 532           512              720             1600
## 533            NA             1116             2480
## 534            NA             1440             3200
## 535          1024             1080             2412
## 536            NA             1080             2388
## 537            NA             1080             2340
## 538            NA             1080             2460
## 539            NA             1080             2408
## 540          1024             1080             2400
## 541          1024             1080             2400
## 542          1024             1080             2400
## 543            NA             1080             2408
## 544            NA             1080             2400
## 545           512             1080             2400
## 546            NA             1080             2400
## 547           256             1080             2400
## 548          1024             1440             3200
## 549            NA             1440             3200
## 550          1024              720             1600
## 551            NA             1080             2400
## 552           256             1080             2460
## 553            NA             1440             3200
## 554          1024              720             1600
## 555          1024             1080             2400
## 556           256              720             1600
## 557            NA             1080             2448
## 558            NA             1080             2400
## 559          1024              720             1600
## 560            NA             1116             2480
## 561            NA             1768             2208
## 562            NA             1080             2460
```

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```
## 563           512             1080             2400
## 564          1024             1080             2400
## 565            NA              720             1440
## 566          1024              720             1600
## 567            NA              720             1612
## 568          1024             1080             2400
## 569            NA             1080             2412
## 570            NA             1080             2400
## 571            NA              720             1600
## 572            NA             1080             2460
## 573            NA             1080             2412
## 574            NA             1080             2404
## 575           512              720             1600
## 576          1024             1080             2408
## 577           256              720             1600
## 578           512              720             1600
## 579            NA             1080             2460
## 580            NA             1080             2412
## 581          1024             2400             1080
## 582            NA             1080             2400
## 583            NA             1440             3200
## 584           256              720             1600
## 585           512              720             1600
## 586            NA              720             1440
## 587            NA             1080             2340
## 588           512             1080             2400
## 589           256              720             1600
## 590          1024             1080             2408
## 591            NA             1080             2400
## 592           256             1080             2400
## 593            NA             1080             2400
## 594          1024             1440             3200
## 595            NA             1242             2688
## 596            NA              750             1334
## 597          1024             1080             2400
## 598          1024              720             1600
## 599          1024             1080             2400
## 600            NA             1080             2400
## 601            NA             1080             2400
## 602            NA             1080             2400
## 603          1024             1080             2460
## 604          1024             1080             2400
## 605          1024             1080             2408
## 606           512             1080             2400
## 607          1024             1080             2460
## 608           256             1080             2412
## 609           256              720             1600
## 610          1024             1080             2400
## 611           256              720             1600
## 612            NA              720             1600
```

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```
## 613            NA             1080             2400
## 614            NA             1170             2532
## 615            NA             1644             3840
## 616            NA             1080             2340
## 617            NA             1080             2400
## 618            NA              720             1560
## 619            NA             1080             2400
## 620            NA             1080             2400
## 621          1024              720             1600
## 622            NA             1170             2532
## 623            NA             1080             2400
## 624            NA             1080             2460
## 625            NA             1080             2412
## 626            NA             1440             3080
## 627            NA             1080             2400
## 628            NA             1080             2400
## 629            NA              720             1600
## 630          1024             1440             3200
## 631          1024             1080             2408
## 632           256             1344             2772
## 633           256              720             1600
## 634            NA             1080             2448
## 635            NA             1080             2400
## 636          1024             1080             2400
## 637            NA              720             1600
## 638           512              720             1600
## 639            NA              750             1334
## 640            NA              720             1560
## 641            NA             1080             2400
## 642            NA             1080             2408
## 643            NA             1080             2400
## 644            NA             1080             2400
## 645           256              720             1612
## 646          1024             1080             2400
## 647           128             1612              720
## 648            NA             1080             2412
## 649            NA             1080             2408
## 650            NA             1344             2772
## 651            NA             1080             2408
## 652           512              720             1600
## 653           256             1600              720
## 654            NA              720             1560
## 655           512             1080             2460
## 656            NA             1080             2400
## 657            NA             1080             2400
## 658           512             1080             2400
## 659           512             1080             2400
## 660            NA             2400             1080
## 661            NA             1080             2460
## 662          1024             1080             2340
```

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```
## 663            NA             1080             2460
## 664          1024             1080             2400
## 665           512             1440             3040
## 666            NA             1080             2400
## 667          1024              720             1600
## 668          1024              720             1600
## 669          1024              720             1600
## 670           128             1612              720
## 671           512             1080             2400
## 672          1024             1080             2400
## 673          1024             1080             2400
## 674          1024             1080             2408
## 675           256             1080             2460
## 676            NA              720             1600
## 677           512              720             1600
## 678            NA             1080             2520
## 679            NA             1080             2400
## 680           512              720             1600
## 681            NA             1080             2400
## 682            NA             1792             1920
## 683            NA             1284             2778
## 684          1024              720             1600
## 685           256             1080             2400
## 686           512             1080             2340
## 687           256             1080             2400
## 688            NA             1440             3200
## 689           512             1080             2400
## 690           256              720             1520
## 691           512             1080             2340
## 692           256             1080             2400
## 693          1024             1080             2400
## 694           512             1080             2340
## 695          1024             1440             3040
## 696           256              720             1544
## 697           256             1080             2340
## 698          1024             1080             2408
## 699            NA             1080             2400
## 700            NA             1080             2448
## 701            NA             1080             2400
## 702            NA             1220             2712
## 703            NA             1440             3200
## 704          1024              720             1600
## 705            NA             2200             2480
## 706          1024             1080             2412
## 707            NA             1170             2532
## 708          2048             1080             2460
## 709           256              720             1600
## 710            NA              720             1600
## 711            NA             1440             3200
## 712           512             1080             2400
```

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```
## 713            NA             1080             2340
## 714            NA              720             1520
## 715           256             1288             2700
## 716            NA             1440             3200
## 717           256              720             1440
## 718            NA             1080             2400
## 719            NA             1080             2400
## 720            NA             1080             2520
## 721            NA             1440             3216
## 722           512             1080             2340
## 723            32             1600              720
## 724            NA             1080             2400
## 725            NA             1080             2400
## 726           512             1080             2400
## 727          1024             1440             3200
## 728           256             1080             2340
## 729           256             1080             2340
## 730           256             1080             2340
## 731           256              720             1544
## 732           256             1080             2246
## 733           512              720             1600
## 734           128              720             1600
## 735            NA             1440             3200
## 736            NA             1080             2400
## 737            NA             1200             2652
## 738            NA              750             1580
## 739          1024             1080             2400
## 740            NA             1290             2796
## 741            NA             1080             2400
## 742            NA             1080             2408
## 743            NA             2460             1080
## 744            NA             1080             2412
## 745            NA             1440             3080
## 746            NA             1440             3216
## 747          1024              720             1600
## 748            NA             1080             2388
## 749          1024              720             1560
## 750            NA             1080             2340
## 751          1024             1080             2408
## 752          1024             2400             1080
## 753            NA             1440             3216
## 754           256              720             1600
## 755          1024              720             1600
## 756           512              720             1600
## 757            NA             1284             2778
## 758            NA              720             1600
## 759            NA             1080             2400
## 760          1024              720             1600
## 761            NA             1440             3200
## 762           256              720             1600
```

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```
## 763          1024              720              1600
## 764           256             1600               720
## 765            NA             1080              2340
## 766            NA             1860              2480
## 767          1024             1080              2400
## 768           256             1600               720
## 769           256              720              1600
## 770            32              720              1600
## 771           512             1080              2340
## 772            NA             1080              2400
## 773           512             1080              2400
## 774          1024             1440              3200
## 775           256             1080              2400
## 776           256             1200              2640
## 777           256              720              1544
## 778           256             1080              2316
## 779           256             1520               720
## 780           256             1080              2280
## 781           512             1440              2960
## 782            NA             1080              2400
## 783            NA              720              1600
## 784          1024              720              1600
## 785          1024             1260              2730
## 786            NA             1080              2460
## 787            NA             1080              2460
## 788            NA             1080              2400
## 789            NA             1284              2778
## 790            NA             1179              2556
## 791          1024             1080              2408
## 792           512             1080              2400
## 793            NA              720              1600
## 794            NA              720              1612
## 795            NA             1080              2400
## 796          1024              720              1600
## 797            NA             1220              2712
## 798            NA              720              1612
## 799           512             2400              1080
## 800            NA             1080              2400
## 801          1024             1080              2400
## 802            NA             1080              2400
## 803          1024             1080              2400
## 804            NA             1080              2400
## 805           512              720              1600
## 806          1024             1080              2408
## 807            NA             1080              2408
## 808          1024             1080              2400
## 809          1024             1080              2408
## 810            NA             1080              2408
## 811          1024             1600               720
## 812            NA              720              1600
```

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```
## 813           512             1080             2400
## 814            NA             1170             2532
## 815           256             1080             2480
## 816            NA             1080             2400
## 817            NA             1080             2400
## 818            NA              480              640
## 819           512             1080             2400
## 820            NA             1080             2400
## 821            NA             1080             2400
## 822            NA             1080             2400
## 823          1024             1080             2400
## 824            NA              720             1600
## 825            NA             1170             2532
## 826           512              720             1600
## 827           256             1080             2400
## 828            NA              720             1480
## 829            NA             1080             2400
## 830           256              720             1600
## 831            NA             1080             2520
## 832           256              720             1520
## 833           256             1080             2340
## 834           256             1080             2340
## 835           256             1080             2340
## 836           512             1080             2340
## 837           512              720             1520
## 838           512              720             1520
## 839            NA             1080             2160
## 840           512             1080             2340
## 841           512             1440             3040
## 842           256             1080             2280
## 843           128             1080             1920
## 844          2048             1080             2408
## 845            NA              720             1600
## 846          1024             1080             2412
## 847            NA             1080             2400
## 848           512             1080             2400
## 849          1024             1080             2400
## 850           512              720             1600
## 851          1024              720             1600
## 852            NA             1080             2400
## 853            NA             1080             2388
## 854            NA             1080             2400
## 855           256             1080             2400
## 856            NA             1080             2412
## 857          1024             1080             2408
## 858            NA             1080             2412
## 859            NA             1080             2376
## 860           512             1080             2400
## 861            NA             1080             2400
## 862            NA             1440             1920
```

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```
## 863            NA             1080             2460
## 864            NA             1080             2400
## 865            NA              720             1600
## 866            NA             2400             1080
## 867            NA             1080             2520
## 868           256              720             1600
## 869           256             1080             2460
## 870          1024             1080             2400
## 871           256             1080             2460
## 872            NA             1080             2400
## 873           256             1080             2400
## 874           256             1080             2400
## 875            NA              854              480
## 876            NA             1440             3200
## 877            NA             1080             2400
## 878           256             1080             2400
## 879          1024              720             1600
## 880           256              720             1600
## 881            NA             1080             2340
## 882            NA             1170             2532
## 883           256              720             1600
## 884           512             1080             2400
## 885           256             1520              720
## 886            NA             1080             2400
## 887          1024             1440             3200
## 888            NA             1080             2340
## 889           512             1080             2340
## 890           256              720             1520
## 891            NA             1080             2160
## 892            64             1080             1920
## 893            NA             1284             2778
## 894            NA             1080             2408
## 895           256              720             1600
## 896            NA             1080             2460
## 897            NA             1080             2400
## 898            NA              720             1600
## 899           512              720             1600
## 900            NA              720             1612
## 901           256              720             1600
## 902            NA             1080             2460
## 903            NA              720             1600
## 904            NA             1080             2400
## 905            NA              720             1440
## 906            NA             1812             2176
## 907            NA             1080             2400
## 908            NA             1080             2340
## 909            NA             1080             2412
## 910            NA             1080             2412
## 911          1024             1080             2400
## 912          1024              720             1560
```

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```
## 913           512             2400             1080
## 914            NA             1080             2412
## 915          1024             1080             2412
## 916          1024             1080             2400
## 917            NA             1916             2160
## 918            NA             1080             2400
## 919           256              720             1612
## 920            NA             1080             2400
## 921            NA             1080             2400
## 922          1024             2400             1080
## 923          1024             1080             2408
## 924            NA             1170             2532
## 925            NA             1080             2400
## 926           256              720             1600
## 927            NA             1080             2400
## 928            NA              720             1600
## 929          1024             1080             2400
## 930            NA             1080             2400
## 931            NA             1080             2340
## 932           256             1600              720
## 933           256             1080             2412
## 934            NA             1080             2400
## 935            NA              720             1600
## 936          1024              720             1600
## 937            NA             1080             2400
## 938            NA             1080             2400
## 939           512              720             1600
## 940           512             1080             2340
## 941           512              720             1600
## 942           512              720             1600
## 943            NA             1080             2400
## 944           256             1600              720
## 945           256              720             1600
## 946           128             1520              720
## 947           256              720             1600
## 948            NA             1080             2340
## 949           256              720             1544
## 950            NA             1080             2400
## 951          1024             1440             3168
## 952           256             1176             2400
## 953           512              720             1560
## 954           256             1560              720
## 955            NA             2200             2480
## 956           512             1080             2340
## 957           512             2220             1080
## 958            NA              720             1280
## 959           512              720             1650
## 960            NA              720             1560
## 961            NA              720             1600
## 962          1024              720             1612
```

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```
## 963          1024             1080              2340
## 964           512             1600               720
## 965            NA             1080              2400
## 966            64              720              1560
## 967            NA              720              1520
## 968            NA             1440              3200
## 969            NA             1080              2400
## 970            NA             1080              2400
## 971          1024              720              1600
## 972            NA             1080              2400
## 973            NA              854               480
## 974            NA             1440              3120
## 975            NA             1916              2160
## 976            NA             1080              2460
## 977          1024              720              1600
## 978            NA             1080              2460
## 979          1024             1080              2400
## 980          1024             1080              2400
```

```
# 8. Remove missing values in your dataset
# Description: Remove rows with missing values from the dataset.
clean_dataset <- na.omit(dataset)
cat("8. Dataset after removing missing values:\n")
```

```
## 8. Dataset after removing missing values:
```

```
print(clean_dataset)
```

```
## # A tibble: 352 × 26
##    brand_name model   price rating has_5g has_nfc has_ir_blaster
processor_brand
##    <chr>      <chr>   <dbl>  <dbl> <chr>  <chr>   <chr>          <chr>
##  1 oneplus    OnePlu… 19989     81 True   False   False
snapdragon
##  2 samsung    Samsun… 16499     75 True   False   False          exynos
##  3 samsung    Samsun… 16999     80 True   True    False
snapdragon
##  4 realme     Realme… 18999     82 True   False   False
snapdragon
##  5 vivo       Vivo T… 16990     80 True   False   False
snapdragon
##  6 vivo       Vivo Y… 14499     72 False  False   False          helio
##  7 poco       Poco X… 14999     80 True   False   True
snapdragon
##  8 xiaomi     Xiaomi… 17859     76 True   False   True
snapdragon
##  9 oneplus    OnePlu… 21995     84 True   False   False
snapdragon
## 10 vivo       Vivo V… 27999     83 True   False   False          dimensity
## # ℹ 342 more rows
## # ℹ 18 more variables: num_cores <dbl>, processor_speed <dbl>,
```

```
## #   battery_capacity <dbl>, fast_charging_available <dbl>, fast_charging
<dbl>,
## #   ram_capacity <dbl>, internal_memory <dbl>, screen_size <dbl>,
## #   refresh_rate <dbl>, num_rear_cameras <dbl>, num_front_cameras <dbl>,
## #   os <chr>, primary_camera_rear <dbl>, primary_camera_front <dbl>,
## #   extended_memory_available <dbl>, extended_upto <dbl>, …
```

```
# 9. Identify and remove duplicated data in your dataset
# Description: Remove duplicate rows from the dataset.
no_duplicates_dataset <- clean_dataset %>% distinct()
cat("9. Dataset after removing duplicates:\n")
```

```
## 9. Dataset after removing duplicates:
```

```
print(no_duplicates_dataset)
```

```
## # A tibble: 352 × 26
##    brand_name model   price rating has_5g has_nfc has_ir_blaster
processor_brand
##    <chr>      <chr>   <dbl>  <dbl> <chr>  <chr>   <chr>          <chr>
##  1 oneplus    OnePlu… 19989     81 True   False   False
snapdragon
##  2 samsung    Samsun… 16499     75 True   False   False          exynos
##  3 samsung    Samsun… 16999     80 True   True    False
snapdragon
##  4 realme     Realme… 18999     82 True   False   False
snapdragon
##  5 vivo       Vivo T… 16990     80 True   False   False
snapdragon
##  6 vivo       Vivo Y… 14499     72 False  False   False          helio
##  7 poco       Poco X… 14999     80 True   False   True
snapdragon
##  8 xiaomi     Xiaomi… 17859     76 True   False   True
snapdragon
##  9 oneplus    OnePlu… 21995     84 True   False   False
snapdragon
## 10 vivo       Vivo V… 27999     83 True   False   False          dimensity
## # ℹ 342 more rows
## # ℹ 18 more variables: num_cores <dbl>, processor_speed <dbl>,
## #   battery_capacity <dbl>, fast_charging_available <dbl>, fast_charging
<dbl>,
## #   ram_capacity <dbl>, internal_memory <dbl>, screen_size <dbl>,
## #   refresh_rate <dbl>, num_rear_cameras <dbl>, num_front_cameras <dbl>,
## #   os <chr>, primary_camera_rear <dbl>, primary_camera_front <dbl>,
## #   extended_memory_available <dbl>, extended_upto <dbl>, …
```

```
# 10. Reorder multiple rows in descending order
# Description: Sort the dataset in descending order based on the price
column.
sorted_dataset <- no_duplicates_dataset %>% arrange(desc(price))
cat("10. Dataset sorted in descending order by price:\n")
```

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```
## 10. Dataset sorted in descending order by price:

print(sorted_dataset)

## # A tibble: 352 × 26
##    brand_name model   price rating has_5g has_nfc has_ir_blaster
processor_brand
##    <chr>      <chr>   <dbl>  <dbl> <chr>  <chr>   <chr>          <chr>
##  1 huawei     Huawe… 239999     81 False  True    True
snapdragon
##  2 samsung    Samsu…  83000     88 False  True    False          exynos
##  3 samsung    Samsu…  78990     86 True   True    False          exynos
##  4 samsung    Samsu…  74999     89 True   True    False          exynos
##  5 samsung    Samsu…  58999     89 False  True    False          exynos
##  6 doogee     Dooge…  45999     88 True   False   False          dimensity
##  7 samsung    Samsu…  42999     81 False  True    False          exynos
##  8 samsung    Samsu…  41999     88 False  True    False          exynos
##  9 nokia      Nokia…  41990     85 True   True    False
snapdragon
## 10 samsung    Samsu…  39999     83 False  True    False          exynos
## # ℹ 342 more rows
## # ℹ 18 more variables: num_cores <dbl>, processor_speed <dbl>,
## #   battery_capacity <dbl>, fast_charging_available <dbl>, fast_charging
<dbl>,
## #   ram_capacity <dbl>, internal_memory <dbl>, screen_size <dbl>,
## #   refresh_rate <dbl>, num_rear_cameras <dbl>, num_front_cameras <dbl>,
## #   os <chr>, primary_camera_rear <dbl>, primary_camera_front <dbl>,
## #   extended_memory_available <dbl>, extended_upto <dbl>, …

# 11. Rename some of the column names in your dataset
# Description: Rename selected columns in the dataset for better readability.
renamed_dataset <- no_duplicates_dataset %>% rename(
  BrandName = brand_name,
  ModelName = model,
  Price = price
)
cat("11. Dataset with renamed columns:\n")

## 11. Dataset with renamed columns:

print(renamed_dataset)

## # A tibble: 352 × 26
##    BrandName ModelName                Price rating has_5g has_nfc
has_ir_blaster
##    <chr>     <chr>                    <dbl>  <dbl> <chr>  <chr>   <chr>
##  1 oneplus   OnePlus Nord CE 2 Lite … 19989     81 True   False   False
##  2 samsung   Samsung Galaxy A14 5G    16499     75 True   False   False
##  3 samsung   Samsung Galaxy F23 5G (… 16999     80 True   True    False
##  4 realme    Realme 10 Pro            18999     82 True   False   False
##  5 vivo      Vivo T1 5G (6GB RAM + 1… 16990     80 True   False   False
```

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```
##  6 vivo      Vivo Y22                 14499     72 False  False   False
##  7 poco      Poco X4 Pro 5G           14999     80 True   False   True
##  8 xiaomi    Xiaomi Redmi Note 12     17859     76 True   False   True
##  9 oneplus   OnePlus Nord CE 2 Lite … 21995     84 True   False   False
## 10 vivo      Vivo V25 5G              27999     83 True   False   False
## # ℹ 342 more rows
## # ℹ 19 more variables: processor_brand <chr>, num_cores <dbl>,
## #   processor_speed <dbl>, battery_capacity <dbl>,
## #   fast_charging_available <dbl>, fast_charging <dbl>, ram_capacity
<dbl>,
## #   internal_memory <dbl>, screen_size <dbl>, refresh_rate <dbl>,
## #   num_rear_cameras <dbl>, num_front_cameras <dbl>, os <chr>,
## #   primary_camera_rear <dbl>, primary_camera_front <dbl>, …
```

```
# 12. Add new variables in your data frame by using a mathematical function
(e.g., multiply an existing column by 2)
# Description: Add a new variable 'DoublePrice' by multiplying the price
column by 2.
new_var_dataset <- no_duplicates_dataset %>% mutate(DoublePrice = price * 2)
cat("12. Dataset with new variable 'DoublePrice':\n")
```

```
## 12. Dataset with new variable 'DoublePrice':
```

```
print(new_var_dataset)
```

```
## # A tibble: 352 × 27
##    brand_name model   price rating has_5g has_nfc has_ir_blaster
processor_brand
##    <chr>      <chr>   <dbl>  <dbl> <chr>  <chr>   <chr>          <chr>
##  1 oneplus    OnePlu… 19989     81 True   False   False
snapdragon
##  2 samsung    Samsun… 16499     75 True   False   False          exynos
##  3 samsung    Samsun… 16999     80 True   True    False
snapdragon
##  4 realme     Realme… 18999     82 True   False   False
snapdragon
##  5 vivo       Vivo T… 16990     80 True   False   False
snapdragon
##  6 vivo       Vivo Y… 14499     72 False  False   False          helio
##  7 poco       Poco X… 14999     80 True   False   True
snapdragon
##  8 xiaomi     Xiaomi… 17859     76 True   False   True
snapdragon
##  9 oneplus    OnePlu… 21995     84 True   False   False
snapdragon
## 10 vivo       Vivo V… 27999     83 True   False   False          dimensity
## # ℹ 342 more rows
## # ℹ 19 more variables: num_cores <dbl>, processor_speed <dbl>,
## #   battery_capacity <dbl>, fast_charging_available <dbl>, fast_charging
<dbl>,
## #   ram_capacity <dbl>, internal_memory <dbl>, screen_size <dbl>,
```

```
## #   refresh_rate <dbl>, num_rear_cameras <dbl>, num_front_cameras <dbl>,
## #   os <chr>, primary_camera_rear <dbl>, primary_camera_front <dbl>,
## #   extended_memory_available <dbl>, extended_upto <dbl>, …
```

```
# 13. Create a training set using random number generator engine
# Description: Create a training set containing 70% of the data using a
random sampling method.
set.seed(123)  # Ensures reproducibility of the random sample
training_set <- no_duplicates_dataset %>% sample_frac(0.7)
cat("13. Training set (70% of the data):\n")
```

```
## 13. Training set (70% of the data):
```

```
print(training_set)
```

```
## # A tibble: 246 × 26
##    brand_name model   price rating has_5g has_nfc has_ir_blaster
processor_brand
##    <chr>      <chr>   <dbl>  <dbl> <chr>  <chr>   <chr>          <chr>
##  1 samsung    Samsun… 16499     80 False  False   False          helio
##  2 xiaomi     Xiaomi… 32999     83 True   False   True
snapdragon
##  3 samsung    Samsun… 21999     84 True   True    False          dimensity
##  4 realme     Realme… 11399     73 False  False   False          tiger
##  5 redmi      Redmi … 18999     81 False  False   True
snapdragon
##  6 samsung    Samsun… 83000     88 False  True    False          exynos
##  7 oppo       Oppo R… 19999     83 False  True    False          helio
##  8 realme     Realme… 13999     77 False  False   False          helio
##  9 realme     Realme…  8720     64 False  False   False          tiger
## 10 samsung    Samsun… 35489     86 False  True    False          exynos
## # ℹ 236 more rows
## # ℹ 18 more variables: num_cores <dbl>, processor_speed <dbl>,
## #   battery_capacity <dbl>, fast_charging_available <dbl>, fast_charging
<dbl>,
## #   ram_capacity <dbl>, internal_memory <dbl>, screen_size <dbl>,
## #   refresh_rate <dbl>, num_rear_cameras <dbl>, num_front_cameras <dbl>,
## #   os <chr>, primary_camera_rear <dbl>, primary_camera_front <dbl>,
## #   extended_memory_available <dbl>, extended_upto <dbl>, …
```

```
# 14. Print the summary statistics of your dataset
# Description: Print summary statistics for the dataset to understand the
distribution of values.
cat("14. Summary statistics of the dataset:\n")
```

```
## 14. Summary statistics of the dataset:
```

```
print(summary(no_duplicates_dataset))
```

```
##   brand_name           model                price            rating
##  Length:352         Length:352         Min.   :  6699   Min.   :60.00
##  Class :character   Class :character   1st Qu.: 12999   1st Qu.:75.00
```

```
##  Mode  :character   Mode  :character   Median : 15999   Median :79.00
##                                       Mean   : 18526   Mean   :78.06
##                                       3rd Qu.: 19999   3rd Qu.:82.00
##                                       Max.   :239999   Max.   :89.00
##     has_5g            has_nfc          has_ir_blaster     processor_brand
##  Length:352         Length:352         Length:352         Length:352
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##    num_cores     processor_speed battery_capacity fast_charging_available
##  Min.   :4.000   Min.   :1.600   Min.   : 3100    Min.   :1
##  1st Qu.:8.000   1st Qu.:2.000   1st Qu.: 5000    1st Qu.:1
##  Median :8.000   Median :2.200   Median : 5000    Median :1
##  Mean   :7.955   Mean   :2.217   Mean   : 5069    Mean   :1
##  3rd Qu.:8.000   3rd Qu.:2.400   3rd Qu.: 5000    3rd Qu.:1
##  Max.   :8.000   Max.   :3.200   Max.   :22000    Max.   :1
##  fast_charging     ram_capacity    internal_memory  screen_size
##  Min.   : 10.00   Min.   : 2.000   Min.   : 32.0   Min.   :5.900
##  1st Qu.: 18.00   1st Qu.: 4.000   1st Qu.: 64.0   1st Qu.:6.500
##  Median : 25.00   Median : 6.000   Median :128.0   Median :6.580
##  Mean   : 30.34   Mean   : 5.926   Mean   :115.1   Mean   :6.560
##  3rd Qu.: 33.00   3rd Qu.: 8.000   3rd Qu.:128.0   3rd Qu.:6.662
##  Max.   :210.00   Max.   :12.000   Max.   :512.0   Max.   :6.950
##   refresh_rate   num_rear_cameras num_front_cameras      os
##  Min.   : 60.0   Min.   :1.000    Min.   :1.000     Length:352
##  1st Qu.: 60.0   1st Qu.:3.000    1st Qu.:1.000     Class :character
##  Median : 90.0   Median :3.000    Median :1.000     Mode  :character
##  Mean   : 88.4   Mean   :3.017    Mean   :1.011
##  3rd Qu.:120.0   3rd Qu.:3.000    3rd Qu.:1.000
##  Max.   :144.0   Max.   :4.000    Max.   :2.000
##  primary_camera_rear primary_camera_front extended_memory_available
##  Min.   :  8.00      Min.   : 5.00        Min.   :1
##  1st Qu.: 48.00      1st Qu.: 8.00        1st Qu.:1
##  Median : 50.00      Median :16.00        Median :1
##  Mean   : 55.19      Mean   :14.96        Mean   :1
##  3rd Qu.: 64.00      3rd Qu.:16.00        3rd Qu.:1
##  Max.   :200.00      Max.   :60.00        Max.   :1
##  extended_upto    resolution_width resolution_height
##  Min.   : 128.0   Min.   : 720     Min.   : 720
##  1st Qu.: 512.0   1st Qu.:1080     1st Qu.:2340
##  Median :1024.0   Median :1080     Median :2400
##  Mean   : 797.5   Mean   :1067     Mean   :2213
##  3rd Qu.:1024.0   3rd Qu.:1080     3rd Qu.:2408
##  Max.   :2048.0   Max.   :2408     Max.   :3200

# 15. Perform the following statistical functions using any numerical
variable
# Description: Calculate mean, median, mode, and range for the 'price'
```

```r
variable.
mean_price <- mean(no_duplicates_dataset$price)
median_price <- median(no_duplicates_dataset$price)
mode_price <- as.numeric(names(sort(table(no_duplicates_dataset$price),
decreasing=TRUE)[1]))
range_price <- range(no_duplicates_dataset$price)

cat("15. Statistical functions:\n")
```

```
## 15. Statistical functions:
```

```r
cat("Mean Price:", mean_price, "\n")
```

```
## Mean Price: 18525.6
```

```r
cat("Median Price:", median_price, "\n")
```

```
## Median Price: 15999
```

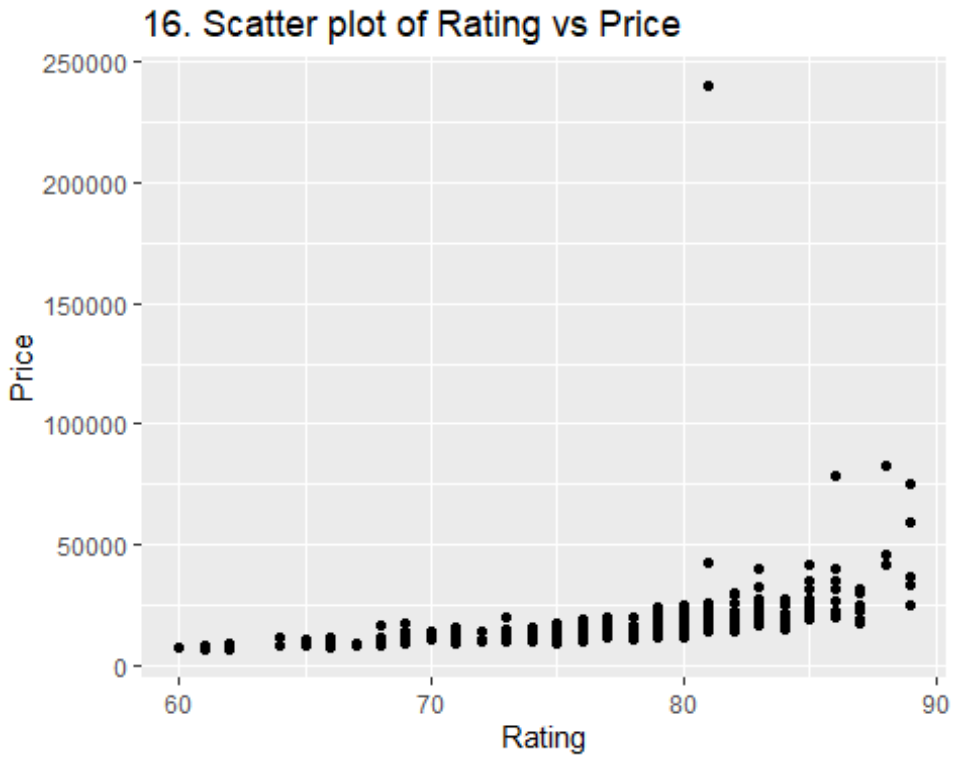
```r
cat("Mode Price:", mode_price, "\n")
```

```
## Mode Price: 15999
```

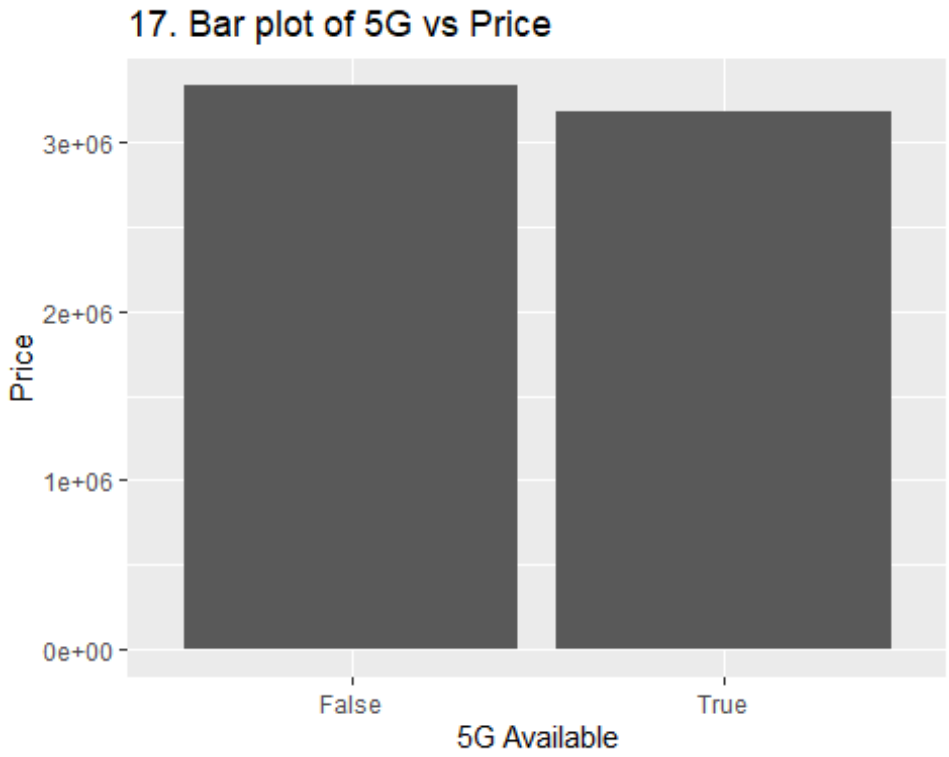
```r
cat("Range of Price:", range_price, "\n")
```

```
## Range of Price: 6699 239999
```

```r
# 16. Plot a scatter plot for any 2 variables in your dataset
# Description: Create a scatter plot of 'rating' vs 'price'.
ggplot(no_duplicates_dataset, aes(x = rating, y = price)) +
  geom_point() +
  labs(title = "16. Scatter plot of Rating vs Price", x = "Rating", y =
"Price")
```




```
# 17. Plot a bar plot for any 2 variables in your dataset
# Description: Create a bar plot of 'has_5g' vs 'price'.
ggplot(no_duplicates_dataset, aes(x = factor(has_5g), y = price)) +
  geom_bar(stat = "identity") +
  labs(title = "17. Bar plot of 5G vs Price", x = "5G Available", y =
"Price")
```




```
# 18. Find the correlation between any 2 variables by applying Pearson
correlation
# Description: Calculate the Pearson correlation between 'rating' and
'price'.
correlation <- cor(no_duplicates_dataset$rating, no_duplicates_dataset$price,
method = "pearson")
cat("18. Pearson Correlation between Rating and Price:", correlation, "\n")

## 18. Pearson Correlation between Rating and Price: 0.4107629
```