Coding challenge 1

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Introduction to R – 25 pts

This assignment is intended to introduce you to R, RStudio, and integration with GitHub, as well as help you practice some R coding. You may work in pairs. When submitting the assignment on Canvas, please put both names on the assignment.

1. 5 pts. Explain the following things about R and Rstudio:

o Where do you type code?

We type code in the top left portion of the R studio (script editor). We can also type code in the console.

o Where is the output of the code?

The output will appear in the console (bottom left pane of R studio)

o Where do plots show up?

Plots will show up in the bottom right pane of R studio in the plots tab.

o What is a global environment?

A global environment lies in the top right pane of the R studio. It stores all the variables, data frames, and objects that we create in R and we can view it in the environment tab.

o How do you get help for a function through R Studio?

To get help for a function through R Studio, we use help(name of function) or use help tab in the bottom right pane of R Studio.

o What is an R package?

R package consists of many functions from different places and the R package can be downloaded from repositories. The default repository is CRAN where most of the R packages are available and can be downloaded using code install.packages(name of package).

o What is a function?

A function is a code to perform certain tasks in R.

o How do you find the installed and loaded packages?

To find installed and loaded packages you can go to the tab packages on the bottom left pane of R studio. If a certain package exists there and is checked then it is installed and loaded and if the package exists but is unchecked that means the package is installed but not loaded.

o What is a working directory, and how do you find it?

A working directory is a place or folder where you have been working and from where your files can be read and will be saved. To find a working directory, we use the function getwd()

o What is a relative file path and how is it different than an absolute file path?

Relative file path is the path of the file from your working directory whereas the absolute file path is the complete file path from root.

2. 2 pts. Explain the steps to start a new R project connected to a GitHub repository.

Go to file > click on New Project > Version Control > Git > copy-paste your GitHub repository URL and name the project and browse and set the correct folder > create

3. 3 pts. Please explain the different data classes and how they are similar and different from each other.

o Vector: a one-dimensional collection of elements and all the elements should be of the same data type either numeric, character, or logical.

o Dataframe: a two-dimensional collection of elements and different columns could have a different data type however within the column the datatype should be the same.

o Matrix: a two-dimensional collection of elements but all the elements should be of the same data type.

4. 10 pts. Complete all tasks in an R script and push it to GitHub.

o Create a vector named 'z' with the values 1 to 200 o Print the mean and standard deviation of z on the console o Create a logical vector named zlog that is 'TRUE' for z values greater than 30 and 'FALSE' otherwise. o Make a dataframe with z and zlog as columns. Name the dataframe zdf o Change the column names in your new dataframe to equal "zvec" and "zlogic" o Make a new column in your dataframe equal to zvec squared (i.e., z2). Call the new column zsquared. o Subset the dataframe with and without the subset() function to only include values of zsquared greater than 10 and less than 100 o Subset the zdf dataframe to only include the values on row 26 o Subset the zdf dataframe to only include the values in the column zsquared in the 180th row. o Annotate your code, commit the changes and push it to your GitHub

```
#To create a vector named 'z' with the values 1 to 200.
z<-1:200
z
```

```
##   [1]   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18
##  [19]  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36
##  [37]  37  38  39  40  41  42  43  44  45  46  47  48  49  50  51  52  53  54
##  [55]  55  56  57  58  59  60  61  62  63  64  65  66  67  68  69  70  71  72
##  [73]  73  74  75  76  77  78  79  80  81  82  83  84  85  86  87  88  89  90
##  [91]  91  92  93  94  95  96  97  98  99 100 101 102 103 104 105 106 107 108
## [109] 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126
## [127] 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144
## [145] 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162
## [163] 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180
## [181] 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198
## [199] 199 200
```

```
#To print the mean and standard deviation of z
mean(z)
```

```
## [1] 100.5
```

```r
sd(z)
```

```
## [1] 57.87918
```

```r
#To create a logical vector named zlog that is 'TRUE' for z values and 'FALSE' otherwise.
zlog<-z>30
zlog
```

```
##   [1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
##  [13] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
##  [25] FALSE FALSE FALSE FALSE FALSE FALSE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
##  [37]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
##  [49]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
##  [61]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
##  [73]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
##  [85]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
##  [97]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [109]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [121]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [133]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [145]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [157]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [169]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [181]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
## [193]  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  TRUE
```

```r
#To make a dataframe with z and zlog as columns.Name the dataframe zdf
zdf<-data.frame(z,zlog)
zdf
```

```
##       z  zlog
## 1     1 FALSE
## 2     2 FALSE
## 3     3 FALSE
## 4     4 FALSE
## 5     5 FALSE
## 6     6 FALSE
## 7     7 FALSE
## 8     8 FALSE
## 9     9 FALSE
## 10   10 FALSE
## 11   11 FALSE
## 12   12 FALSE
## 13   13 FALSE
## 14   14 FALSE
## 15   15 FALSE
## 16   16 FALSE
## 17   17 FALSE
## 18   18 FALSE
## 19   19 FALSE
## 20   20 FALSE
## 21   21 FALSE
```

```
## 22   22 FALSE
## 23   23 FALSE
## 24   24 FALSE
## 25   25 FALSE
## 26   26 FALSE
## 27   27 FALSE
## 28   28 FALSE
## 29   29 FALSE
## 30   30 FALSE
## 31   31  TRUE
## 32   32  TRUE
## 33   33  TRUE
## 34   34  TRUE
## 35   35  TRUE
## 36   36  TRUE
## 37   37  TRUE
## 38   38  TRUE
## 39   39  TRUE
## 40   40  TRUE
## 41   41  TRUE
## 42   42  TRUE
## 43   43  TRUE
## 44   44  TRUE
## 45   45  TRUE
## 46   46  TRUE
## 47   47  TRUE
## 48   48  TRUE
## 49   49  TRUE
## 50   50  TRUE
## 51   51  TRUE
## 52   52  TRUE
## 53   53  TRUE
## 54   54  TRUE
## 55   55  TRUE
## 56   56  TRUE
## 57   57  TRUE
## 58   58  TRUE
## 59   59  TRUE
## 60   60  TRUE
## 61   61  TRUE
## 62   62  TRUE
## 63   63  TRUE
## 64   64  TRUE
## 65   65  TRUE
## 66   66  TRUE
## 67   67  TRUE
## 68   68  TRUE
## 69   69  TRUE
## 70   70  TRUE
## 71   71  TRUE
## 72   72  TRUE
## 73   73  TRUE
## 74   74  TRUE
## 75   75  TRUE
```

```
## 76   76  TRUE
## 77   77  TRUE
## 78   78  TRUE
## 79   79  TRUE
## 80   80  TRUE
## 81   81  TRUE
## 82   82  TRUE
## 83   83  TRUE
## 84   84  TRUE
## 85   85  TRUE
## 86   86  TRUE
## 87   87  TRUE
## 88   88  TRUE
## 89   89  TRUE
## 90   90  TRUE
## 91   91  TRUE
## 92   92  TRUE
## 93   93  TRUE
## 94   94  TRUE
## 95   95  TRUE
## 96   96  TRUE
## 97   97  TRUE
## 98   98  TRUE
## 99   99  TRUE
## 100 100  TRUE
## 101 101  TRUE
## 102 102  TRUE
## 103 103  TRUE
## 104 104  TRUE
## 105 105  TRUE
## 106 106  TRUE
## 107 107  TRUE
## 108 108  TRUE
## 109 109  TRUE
## 110 110  TRUE
## 111 111  TRUE
## 112 112  TRUE
## 113 113  TRUE
## 114 114  TRUE
## 115 115  TRUE
## 116 116  TRUE
## 117 117  TRUE
## 118 118  TRUE
## 119 119  TRUE
## 120 120  TRUE
## 121 121  TRUE
## 122 122  TRUE
## 123 123  TRUE
## 124 124  TRUE
## 125 125  TRUE
## 126 126  TRUE
## 127 127  TRUE
## 128 128  TRUE
## 129 129  TRUE
```

```
## 130 130  TRUE
## 131 131  TRUE
## 132 132  TRUE
## 133 133  TRUE
## 134 134  TRUE
## 135 135  TRUE
## 136 136  TRUE
## 137 137  TRUE
## 138 138  TRUE
## 139 139  TRUE
## 140 140  TRUE
## 141 141  TRUE
## 142 142  TRUE
## 143 143  TRUE
## 144 144  TRUE
## 145 145  TRUE
## 146 146  TRUE
## 147 147  TRUE
## 148 148  TRUE
## 149 149  TRUE
## 150 150  TRUE
## 151 151  TRUE
## 152 152  TRUE
## 153 153  TRUE
## 154 154  TRUE
## 155 155  TRUE
## 156 156  TRUE
## 157 157  TRUE
## 158 158  TRUE
## 159 159  TRUE
## 160 160  TRUE
## 161 161  TRUE
## 162 162  TRUE
## 163 163  TRUE
## 164 164  TRUE
## 165 165  TRUE
## 166 166  TRUE
## 167 167  TRUE
## 168 168  TRUE
## 169 169  TRUE
## 170 170  TRUE
## 171 171  TRUE
## 172 172  TRUE
## 173 173  TRUE
## 174 174  TRUE
## 175 175  TRUE
## 176 176  TRUE
## 177 177  TRUE
## 178 178  TRUE
## 179 179  TRUE
## 180 180  TRUE
## 181 181  TRUE
## 182 182  TRUE
## 183 183  TRUE
```

```
## 184 184  TRUE
## 185 185  TRUE
## 186 186  TRUE
## 187 187  TRUE
## 188 188  TRUE
## 189 189  TRUE
## 190 190  TRUE
## 191 191  TRUE
## 192 192  TRUE
## 193 193  TRUE
## 194 194  TRUE
## 195 195  TRUE
## 196 196  TRUE
## 197 197  TRUE
## 198 198  TRUE
## 199 199  TRUE
## 200 200  TRUE
```

```
#To change the column names in your new dataframe to equal "zvec" and "zlogic"
colnames(zdf)<-c("zvec","zlogic")
zdf
```

```
##     zvec zlogic
## 1      1  FALSE
## 2      2  FALSE
## 3      3  FALSE
## 4      4  FALSE
## 5      5  FALSE
## 6      6  FALSE
## 7      7  FALSE
## 8      8  FALSE
## 9      9  FALSE
## 10    10  FALSE
## 11    11  FALSE
## 12    12  FALSE
## 13    13  FALSE
## 14    14  FALSE
## 15    15  FALSE
## 16    16  FALSE
## 17    17  FALSE
## 18    18  FALSE
## 19    19  FALSE
## 20    20  FALSE
## 21    21  FALSE
## 22    22  FALSE
## 23    23  FALSE
## 24    24  FALSE
## 25    25  FALSE
## 26    26  FALSE
## 27    27  FALSE
## 28    28  FALSE
## 29    29  FALSE
## 30    30  FALSE
## 31    31   TRUE
```

```
## 32    32   TRUE
## 33    33   TRUE
## 34    34   TRUE
## 35    35   TRUE
## 36    36   TRUE
## 37    37   TRUE
## 38    38   TRUE
## 39    39   TRUE
## 40    40   TRUE
## 41    41   TRUE
## 42    42   TRUE
## 43    43   TRUE
## 44    44   TRUE
## 45    45   TRUE
## 46    46   TRUE
## 47    47   TRUE
## 48    48   TRUE
## 49    49   TRUE
## 50    50   TRUE
## 51    51   TRUE
## 52    52   TRUE
## 53    53   TRUE
## 54    54   TRUE
## 55    55   TRUE
## 56    56   TRUE
## 57    57   TRUE
## 58    58   TRUE
## 59    59   TRUE
## 60    60   TRUE
## 61    61   TRUE
## 62    62   TRUE
## 63    63   TRUE
## 64    64   TRUE
## 65    65   TRUE
## 66    66   TRUE
## 67    67   TRUE
## 68    68   TRUE
## 69    69   TRUE
## 70    70   TRUE
## 71    71   TRUE
## 72    72   TRUE
## 73    73   TRUE
## 74    74   TRUE
## 75    75   TRUE
## 76    76   TRUE
## 77    77   TRUE
## 78    78   TRUE
## 79    79   TRUE
## 80    80   TRUE
## 81    81   TRUE
## 82    82   TRUE
## 83    83   TRUE
## 84    84   TRUE
## 85    85   TRUE
```

```
## 86    86   TRUE
## 87    87   TRUE
## 88    88   TRUE
## 89    89   TRUE
## 90    90   TRUE
## 91    91   TRUE
## 92    92   TRUE
## 93    93   TRUE
## 94    94   TRUE
## 95    95   TRUE
## 96    96   TRUE
## 97    97   TRUE
## 98    98   TRUE
## 99    99   TRUE
## 100  100   TRUE
## 101  101   TRUE
## 102  102   TRUE
## 103  103   TRUE
## 104  104   TRUE
## 105  105   TRUE
## 106  106   TRUE
## 107  107   TRUE
## 108  108   TRUE
## 109  109   TRUE
## 110  110   TRUE
## 111  111   TRUE
## 112  112   TRUE
## 113  113   TRUE
## 114  114   TRUE
## 115  115   TRUE
## 116  116   TRUE
## 117  117   TRUE
## 118  118   TRUE
## 119  119   TRUE
## 120  120   TRUE
## 121  121   TRUE
## 122  122   TRUE
## 123  123   TRUE
## 124  124   TRUE
## 125  125   TRUE
## 126  126   TRUE
## 127  127   TRUE
## 128  128   TRUE
## 129  129   TRUE
## 130  130   TRUE
## 131  131   TRUE
## 132  132   TRUE
## 133  133   TRUE
## 134  134   TRUE
## 135  135   TRUE
## 136  136   TRUE
## 137  137   TRUE
## 138  138   TRUE
## 139  139   TRUE
```

```
## 140  140   TRUE
## 141  141   TRUE
## 142  142   TRUE
## 143  143   TRUE
## 144  144   TRUE
## 145  145   TRUE
## 146  146   TRUE
## 147  147   TRUE
## 148  148   TRUE
## 149  149   TRUE
## 150  150   TRUE
## 151  151   TRUE
## 152  152   TRUE
## 153  153   TRUE
## 154  154   TRUE
## 155  155   TRUE
## 156  156   TRUE
## 157  157   TRUE
## 158  158   TRUE
## 159  159   TRUE
## 160  160   TRUE
## 161  161   TRUE
## 162  162   TRUE
## 163  163   TRUE
## 164  164   TRUE
## 165  165   TRUE
## 166  166   TRUE
## 167  167   TRUE
## 168  168   TRUE
## 169  169   TRUE
## 170  170   TRUE
## 171  171   TRUE
## 172  172   TRUE
## 173  173   TRUE
## 174  174   TRUE
## 175  175   TRUE
## 176  176   TRUE
## 177  177   TRUE
## 178  178   TRUE
## 179  179   TRUE
## 180  180   TRUE
## 181  181   TRUE
## 182  182   TRUE
## 183  183   TRUE
## 184  184   TRUE
## 185  185   TRUE
## 186  186   TRUE
## 187  187   TRUE
## 188  188   TRUE
## 189  189   TRUE
## 190  190   TRUE
## 191  191   TRUE
## 192  192   TRUE
## 193  193   TRUE
```

```
## 194  194   TRUE
## 195  195   TRUE
## 196  196   TRUE
## 197  197   TRUE
## 198  198   TRUE
## 199  199   TRUE
## 200  200   TRUE
```

```
#To make a new column names in your dataframe equal to zvec squared (i.e, z^2). Call the new column zsq
zdf$zsquared<-(zdf$zvec^2)
zdf
```

```
##     zvec zlogic zsquared
## 1      1  FALSE        1
## 2      2  FALSE        4
## 3      3  FALSE        9
## 4      4  FALSE       16
## 5      5  FALSE       25
## 6      6  FALSE       36
## 7      7  FALSE       49
## 8      8  FALSE       64
## 9      9  FALSE       81
## 10    10  FALSE      100
## 11    11  FALSE      121
## 12    12  FALSE      144
## 13    13  FALSE      169
## 14    14  FALSE      196
## 15    15  FALSE      225
## 16    16  FALSE      256
## 17    17  FALSE      289
## 18    18  FALSE      324
## 19    19  FALSE      361
## 20    20  FALSE      400
## 21    21  FALSE      441
## 22    22  FALSE      484
## 23    23  FALSE      529
## 24    24  FALSE      576
## 25    25  FALSE      625
## 26    26  FALSE      676
## 27    27  FALSE      729
## 28    28  FALSE      784
## 29    29  FALSE      841
## 30    30  FALSE      900
## 31    31   TRUE      961
## 32    32   TRUE     1024
## 33    33   TRUE     1089
## 34    34   TRUE     1156
## 35    35   TRUE     1225
## 36    36   TRUE     1296
## 37    37   TRUE     1369
## 38    38   TRUE     1444
## 39    39   TRUE     1521
## 40    40   TRUE     1600
## 41    41   TRUE     1681
```

```
## 42    42   TRUE     1764
## 43    43   TRUE     1849
## 44    44   TRUE     1936
## 45    45   TRUE     2025
## 46    46   TRUE     2116
## 47    47   TRUE     2209
## 48    48   TRUE     2304
## 49    49   TRUE     2401
## 50    50   TRUE     2500
## 51    51   TRUE     2601
## 52    52   TRUE     2704
## 53    53   TRUE     2809
## 54    54   TRUE     2916
## 55    55   TRUE     3025
## 56    56   TRUE     3136
## 57    57   TRUE     3249
## 58    58   TRUE     3364
## 59    59   TRUE     3481
## 60    60   TRUE     3600
## 61    61   TRUE     3721
## 62    62   TRUE     3844
## 63    63   TRUE     3969
## 64    64   TRUE     4096
## 65    65   TRUE     4225
## 66    66   TRUE     4356
## 67    67   TRUE     4489
## 68    68   TRUE     4624
## 69    69   TRUE     4761
## 70    70   TRUE     4900
## 71    71   TRUE     5041
## 72    72   TRUE     5184
## 73    73   TRUE     5329
## 74    74   TRUE     5476
## 75    75   TRUE     5625
## 76    76   TRUE     5776
## 77    77   TRUE     5929
## 78    78   TRUE     6084
## 79    79   TRUE     6241
## 80    80   TRUE     6400
## 81    81   TRUE     6561
## 82    82   TRUE     6724
## 83    83   TRUE     6889
## 84    84   TRUE     7056
## 85    85   TRUE     7225
## 86    86   TRUE     7396
## 87    87   TRUE     7569
## 88    88   TRUE     7744
## 89    89   TRUE     7921
## 90    90   TRUE     8100
## 91    91   TRUE     8281
## 92    92   TRUE     8464
## 93    93   TRUE     8649
## 94    94   TRUE     8836
## 95    95   TRUE     9025
```

```
## 96    96   TRUE     9216
## 97    97   TRUE     9409
## 98    98   TRUE     9604
## 99    99   TRUE     9801
## 100  100   TRUE    10000
## 101  101   TRUE    10201
## 102  102   TRUE    10404
## 103  103   TRUE    10609
## 104  104   TRUE    10816
## 105  105   TRUE    11025
## 106  106   TRUE    11236
## 107  107   TRUE    11449
## 108  108   TRUE    11664
## 109  109   TRUE    11881
## 110  110   TRUE    12100
## 111  111   TRUE    12321
## 112  112   TRUE    12544
## 113  113   TRUE    12769
## 114  114   TRUE    12996
## 115  115   TRUE    13225
## 116  116   TRUE    13456
## 117  117   TRUE    13689
## 118  118   TRUE    13924
## 119  119   TRUE    14161
## 120  120   TRUE    14400
## 121  121   TRUE    14641
## 122  122   TRUE    14884
## 123  123   TRUE    15129
## 124  124   TRUE    15376
## 125  125   TRUE    15625
## 126  126   TRUE    15876
## 127  127   TRUE    16129
## 128  128   TRUE    16384
## 129  129   TRUE    16641
## 130  130   TRUE    16900
## 131  131   TRUE    17161
## 132  132   TRUE    17424
## 133  133   TRUE    17689
## 134  134   TRUE    17956
## 135  135   TRUE    18225
## 136  136   TRUE    18496
## 137  137   TRUE    18769
## 138  138   TRUE    19044
## 139  139   TRUE    19321
## 140  140   TRUE    19600
## 141  141   TRUE    19881
## 142  142   TRUE    20164
## 143  143   TRUE    20449
## 144  144   TRUE    20736
## 145  145   TRUE    21025
## 146  146   TRUE    21316
## 147  147   TRUE    21609
## 148  148   TRUE    21904
## 149  149   TRUE    22201
```

```
## 150  150   TRUE    22500
## 151  151   TRUE    22801
## 152  152   TRUE    23104
## 153  153   TRUE    23409
## 154  154   TRUE    23716
## 155  155   TRUE    24025
## 156  156   TRUE    24336
## 157  157   TRUE    24649
## 158  158   TRUE    24964
## 159  159   TRUE    25281
## 160  160   TRUE    25600
## 161  161   TRUE    25921
## 162  162   TRUE    26244
## 163  163   TRUE    26569
## 164  164   TRUE    26896
## 165  165   TRUE    27225
## 166  166   TRUE    27556
## 167  167   TRUE    27889
## 168  168   TRUE    28224
## 169  169   TRUE    28561
## 170  170   TRUE    28900
## 171  171   TRUE    29241
## 172  172   TRUE    29584
## 173  173   TRUE    29929
## 174  174   TRUE    30276
## 175  175   TRUE    30625
## 176  176   TRUE    30976
## 177  177   TRUE    31329
## 178  178   TRUE    31684
## 179  179   TRUE    32041
## 180  180   TRUE    32400
## 181  181   TRUE    32761
## 182  182   TRUE    33124
## 183  183   TRUE    33489
## 184  184   TRUE    33856
## 185  185   TRUE    34225
## 186  186   TRUE    34596
## 187  187   TRUE    34969
## 188  188   TRUE    35344
## 189  189   TRUE    35721
## 190  190   TRUE    36100
## 191  191   TRUE    36481
## 192  192   TRUE    36864
## 193  193   TRUE    37249
## 194  194   TRUE    37636
## 195  195   TRUE    38025
## 196  196   TRUE    38416
## 197  197   TRUE    38809
## 198  198   TRUE    39204
## 199  199   TRUE    39601
## 200  200   TRUE    40000
```

```
#To subset the dataframe with the subset() function to only include values of zsquared greater than 10
subset(zdf,zsquared>10 & zsquared<100)
```

```
##   zvec zlogic zsquared
## 4    4  FALSE       16
## 5    5  FALSE       25
## 6    6  FALSE       36
## 7    7  FALSE       49
## 8    8  FALSE       64
## 9    9  FALSE       81
```

```
#To subset the dataframe without the subset() function to only include values of zsquared greater than
zdf[zdf$zsquared>10 & zdf$zsquared<100,]
```

```
##   zvec zlogic zsquared
## 4    4  FALSE       16
## 5    5  FALSE       25
## 6    6  FALSE       36
## 7    7  FALSE       49
## 8    8  FALSE       64
## 9    9  FALSE       81
```

```
#To subset the zdf dataframe to only include the values on row 26
subset(zdf[26,])
```

```
##    zvec zlogic zsquared
## 26   26  FALSE      676
```

```
#To subset the zdf dataframe to only include the values in the column zsquared in the 180th row.
zdf$zsquared[zdf$zvec==180]
```

```
## [1] 32400
```

Link to my Github repository: https://github.com/mamata2423/ReproducibilityClass/blob/main/CodingChallenge1.R

5. 5 pts. Download the Tips.csv file from Canvas. Use the read.csv() function to read the data into R so that the missing values are properly coded. **Note the missing values are reported in the data as a period (i.e., "."). How do you know the data were read correctly?

```
read.csv("/Users/Mamata/Downloads/TipsR.csv",na.strings=".")
```

```
##    Delivery School Total   Tip Gender PaymentMethod
## 1        A1      1 19.78  3.00      m             4
## 2        A2      1 18.50  2.50      m             2
## 3        A3      3  7.85  0.15      m             2
## 4        A4      1  7.99  1.21      f             1
## 5        A5      2 13.07  2.93      m             2
## 6        A6      2 13.07  1.93      f             2
## 7        A7      3 11.99  1.32      f             1
## 8        A8      3  8.42  1.08      f             1
## 9        A9      1 12.51  2.49      m             2
## 10      A10      1 22.89  2.48      m             1
## 11      A11      3 25.70  4.30      m             1
```

```
## 12      A12      3 11.48  1.50      m            1
## 13      A13      1 60.42  4.00      f            1
## 14      A14      1 14.84  0.00      f            1
## 15      A15      1 13.64  0.00      f            1
## 16      A16      1 16.84  2.00      f            1
## 17      A17      1  6.99  1.15      f            1
## 18      A18      3 11.19  3.00      m            1
## 19      A19      3  7.07  1.00      m            1
## 20       B1      3 22.49  5.00      m            3
## 21       B2      3  8.98  4.00      f            1
## 22       B3      3 11.99  3.00      m            3
## 23       B4      2 23.41  3.50      m            2
## 24       B5      2 30.50  5.00      f            1
## 25       B6      1 13.07  5.00      m            2
## 26       B7      2 23.42  6.58      m            2
## 27       B8      1 13.07  0.00      m            2
## 28       B9      1 14.70  0.00      M            1
## 29      B10      1 13.07  3.00      m            1
## 30      B11      1 23.49 20.00      m            1
## 31      B12      2 15.25  0.00      f            2
## 32       C1      1 14.75  3.25   <NA>            2
## 33       C2      3 14.75  0.00   <NA>            1
## 34       C3      3 22.27  3.67      f            1
## 35       C4      3 13.97  2.31   <NA>            1
## 36       C5      2 17.42  2.50   <NA>            2
## 37       C6      2 51.19  3.50   <NA>            2
## 38       C7      2  9.78  3.00   <NA>            1
## 39       C8      2  7.07  0.00   <NA>            1
## 40       C9      2 14.49  2.00   <NA>            1
## 41      C10      3 11.42  3.48   <NA>            2
## 42       D1      2 18.52  9.48      m            2
## 43       D2      1 16.39  4.00   <NA>            1
## 44       D3      1 35.97  7.12   <NA>            1
## 45       D4      1 12.51  2.49   <NA>            1
## 46       D5      3 26.48  4.37   <NA>            1
## 47       D6      2 10.33  2.00   <NA>            1
## 48       D7      2 11.42  2.00   <NA>            1
## 49       D8      1 29.49  0.41   <NA>            1
## 50       D9      2 11.79  2.00   <NA>            1
## 51      D10      2  7.07  3.00   <NA>            1
## 52      D11      2 21.43  2.57      f            2
## 53      D12      3  4.45  1.00   <NA>            1
## 54      D13      3 13.46  2.00      m            1
## 55       E1      3  6.49  1.51   <NA>            2
## 56       E2      3 12.47  2.07   <NA>            1
## 57       E3      3 10.48  2.00   <NA>            1
## 58       E4      2 38.82  4.00      m            1
## 59       E5      2 23.42  1.50      m            1
## 60       E6      2  7.07  1.00      f            1
## 61       E7      1 13.07  3.00   <NA>            1
## 62       E8      1  6.49  0.71   <NA>            1
## 63       F1      3 19.47  5.00   <NA>            1
## 64       F2      3 18.96  3.11   <NA>            1
## 65       F3      2 13.19  3.00   <NA>            4
```

```
## 66       F4      1 25.58  5.00   <NA>            1
## 67       F5      1  7.07  5.93   <NA>            2
## 68       F6      3 53.47  6.53   <NA>            1
## 69       F7      3 13.97  2.31   <NA>            1
## 70       F8      1 49.03  3.97   <NA>            2
## 71       F9      3 11.99  1.98   <NA>            1
## 72      F10      1 26.14  4.00      f            3
## 73      F11      1  7.07  0.00      f            2
## 74      F12      3 13.07  1.93      m            1
## 75      F13      3 13.97  2.32      m            1
## 76      F14      2  6.49  2.00      m            4
## 77      F15      3 43.44  4.78      m            1
## 78      F16      1 10.12  0.63      f            2
## 79       G1      3 44.36  0.64      m            2
## 80       G2      3 11.99  1.98      m            1
## 81       G3      2  8.16  1.00      m            2
## 82       G4      2 13.99  3.01      m            2
## 83       G5      2 18.52  2.00      m            1
## 84       G6      2  7.07  1.93      f            2
## 85       G7      2 15.84  2.00      f            1
## 86       G8      1 13.07  1.93      m            2
## 87       G9      1  7.07  1.00      m            2
## 88      G10      2  8.71  2.00      m            1
## 89      G11      2  7.07  3.93      m            2
## 90      G12      2 18.52  0.00      f            4
```

I used na.strings option to tell R that missing values in my data are denoted as "." and when I load my data, NA appears instead of "." in the missing value, we know the data is read correctly.