IOT Domain Analyst

LAB-X
(Laptop Data analysis using R)
Challenging Task IOT_LAB

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Questions:

1. Arrange your CSV into Excel file format
2. Convert the 7th column title with title of the OS Name into two columns with names "OS Name" and "processor size".
   a. For example the entry under OS with value "64 bit Windows 11 Operating System" is splitted into Windows 11 under OS Name , and 64 bit under Processor Size
3. RAM column replaced as RAM(Size in GB) and its value alone maintained.
   a. For example, Under RAM the value "8 GB DDR4 RAM" is saved as 8 under new column name RAM(Size in GB).
4. List out the entries which have maximum SSD
5. List the number of entries that have warranty of 2 years.

1.

Code:

```
mydata <- read_csv("C:/Users/student/Desktop/Laptop_LAB X (Data Analysis using R
Studio).csv")
# Write the data to an Excel file
write_xlsx(df, "C:/Users/student/Desktop/Laptop_LAB X (Data Analysis using R
Studio).xlsx")
mydata
```

Output:

```
> mydata
# A tibble: 920 x 11
    ...1 title                                               price disco…¹ Proce…² RAM    OS     SSD    Display In_bu…³ warra…⁴
    <dbl> <chr>                                              <chr> <chr>   <chr>   <chr>  <chr>  <chr>  <chr>   <chr>   <chr>
 1      0 DELL Vostro Core i3 11th Gen - (8 GB/1 TB HDD/256 GB SSD/… â,'3… â,'58,… Proces… RAM … Grap… "Dis… Intel … NA      8 GB D…
 2      1 HP 14s Intel Core i3 11th Gen - (8 GB/256 GB SSD/Windows … â,'3… â,'47,… Intel … 8 GB… 64 b… "256… 35.56 … NA      1 Year…
 3      2 Lenovo V15 G2 Core i3 11th Gen - (8 GB/512 GB SSD/Windows… â,'3… â,'59,… Intel … 8 GB… 64 b… "512… 39.62 … No      1 Year…
 4      3 HP 15s Intel Core i3 12th Gen - (8 GB/512 GB SSD/Windows … â,'4… â,'56,… Intel … 8 GB… 64 b… "512… 39.62 … Micros… 1 Year…
 5      4 ASUS VivoBook 15 (2022) Core i3 10th Gen - (8 GB/512 GB S… â,'3… â,'45,… Intel … 8 GB… 64 b… "512… 39.62 … Office… 1 Year…
 6      5 ASUS TUF Gaming A17 with 90Whr Battery Ryzen 7 Octa Core … â,'6… â,'94,… AMD Ry… 8 GB… 64 b… "512… 43.94 … NA      1 Year…
 7      6 ASUS TUF Gaming A17 with 90Whr Battery Ryzen 5 Hexa Core … â,'5… â,'71,… AMD Ry… 8 GB… 64 b… "512… 43.94 … NA      1 Year…
 8      7 ASUS VivoBook K15 OLED (2022) Ryzen 5 Hexa Core AMD R5-55… â,'4… â,'78,… AMD Ry… 8 GB… 64 b… "1 T… 39.62 … Office… 1 Year…
 9      8 HP Ryzen 5 Hexa Core 5500U - (16 GB/512 GB SSD/Windows 11… â,'4… â,'59,… AMD Ry… 16 G… 64 b… "512… 39.62 … Micros… 1 Year…
10      9 HP 15s Intel Core i5 12th Gen - (8 GB/512 GB SSD/Windows … â,'5… â,'70,… Intel … 8 GB… 64 b… "512… 39.62 … NA      1 Year…
# … with 910 more rows, and abbreviated variable names ¹discount, ²Processor, ³In_build_sw, ⁴warranty
# ℹ Use `print(n = ...)` to see more rows
```

2.

Code:

```
mydata <- separate(mydata, col = 7, into = c("processor size", "OS Name"), sep = " bit ",fill = "right")
mydata
```

Output:

```
> mydata
# A tibble: 920 x 12
    ...1 title                                           price disco…¹ Proce…² RAM    proce…³ OS Na…⁴ SSD    Display In_bu…⁵ warra…⁶
    <dbl> <chr>                                          <chr> <chr>   <chr>   <chr>  <chr>   <chr>   <chr>  <chr>   <chr>   <chr>
 1      0 DELL Vostro Core i3 11th Gen - (8 GB/1 TB HDD/2… â,'3… â,'58,… Proces… RAM … Graphi… NA      "Dis… Intel … NA      8 GB D…
 2      1 HP 14s Intel Core i3 11th Gen - (8 GB/256 GB SS… â,'3… â,'47,… Intel … 8 GB… 64      Window… "256… 35.56 … NA      1 Year…
 3      2 Lenovo V15 G2 Core i3 11th Gen - (8 GB/512 GB S… â,'3… â,'59,… Intel … 8 GB… 64      Window… "512… 39.62 … No      1 Year…
 4      3 HP 15s Intel Core i3 12th Gen - (8 GB/512 GB SS… â,'4… â,'56,… Intel … 8 GB… 64      Window… "512… 39.62 … Micros… 1 Year…
 5      4 ASUS VivoBook 15 (2022) Core i3 10th Gen - (8 G… â,'3… â,'45,… Intel … 8 GB… 64      Window… "512… 39.62 … Office… 1 Year…
 6      5 ASUS TUF Gaming A17 with 90Whr Battery Ryzen 7 … â,'6… â,'94,… AMD Ry… 8 GB… 64      Window… "512… 43.94 … NA      1 Year…
 7      6 ASUS TUF Gaming A17 with 90Whr Battery Ryzen 5 … â,'5… â,'71,… AMD Ry… 8 GB… 64      Window… "512… 43.94 … NA      1 Year…
 8      7 ASUS VivoBook K15 OLED (2022) Ryzen 5 Hexa Core… â,'4… â,'78,… AMD Ry… 8 GB… 64      Window… "1 T… 39.62 … Office… 1 Year…
 9      8 HP Ryzen 5 Hexa Core 5500U - (16 GB/512 GB SSD/… â,'4… â,'59,… AMD Ry… 16 G… 64      Window… "512… 39.62 … Micros… 1 Year…
10      9 HP 15s Intel Core i5 12th Gen - (8 GB/512 GB SS… â,'5… â,'70,… Intel … 8 GB… 64      Window… "512… 39.62 … NA      1 Year…
# … with 910 more rows, and abbreviated variable names ¹discount, ²Processor, ³`processor size`, ⁴`OS Name`, ⁵In_build_sw,
#   ⁶warranty
# ℹ Use `print(n = ...)` to see more rows
```

3.

Code:

```
mydata$RAM <- as.numeric(str_extract(mydata$RAM, "\\d+"))
colnames(mydata)[6] <- "RAM(Size in GB)"
mydata
```

Output:

```
> mydata
# A tibble: 920 x 12
   ...1 title                                        price disco…¹ Proce…² RAM(S…³ proce…⁴ OS Na…⁵ SSD   Display In_bu…⁶ warra…⁷
   <dbl> <chr>                                        <chr> <chr>   <chr>     <dbl> <chr>   <chr>   <chr> <chr>   <chr>    <chr>
 1     0 DELL Vostro Core i3 11th Gen - (8 GB/1 TB HDD… â,'3… â,'58,… Proces…       8 Graphi… NA      "Dis… Intel … NA       8 GB D…
 2     1 HP 14s Intel Core i3 11th Gen - (8 GB/256 GB … â,'3… â,'47,… Intel …       8 64     Window… "256… 35.56 … NA       1 Year…
 3     2 Lenovo V15 G2 Core i3 11th Gen - (8 GB/512 GB… â,'3… â,'59,… Intel …       8 64     Window… "512… 39.62 … No       1 Year…
 4     3 HP 15s Intel Core i3 12th Gen - (8 GB/512 GB … â,'4… â,'56,… Intel …       8 64     Window… "512… 39.62 … Micros… 1 Year…
 5     4 ASUS VivoBook 15 (2022) Core i3 10th Gen - (8… â,'3… â,'45,… Intel …       8 64     Window… "512… 39.62 … Office… 1 Year…
 6     5 ASUS TUF Gaming A17 with 90whr Battery Ryzen … â,'6… â,'94,… AMD Ry…       8 64     Window… "512… 43.94 … NA       1 Year…
 7     6 ASUS TUF Gaming A17 with 90whr Battery Ryzen … â,'5… â,'71,… AMD Ry…       8 64     Window… "512… 43.94 … NA       1 Year…
 8     7 ASUS VivoBook K15 OLED (2022) Ryzen 5 Hexa Co… â,'4… â,'78,… AMD Ry…       8 64     Window… "1 T… 39.62 … Office… 1 Year…
 9     8 HP Ryzen 5 Hexa Core 5500U - (16 GB/512 GB SS… â,'4… â,'59,… AMD Ry…      16 64     Window… "512… 39.62 … Micros… 1 Year…
10     9 HP 15s Intel Core i5 12th Gen - (8 GB/512 GB … â,'5… â,'70,… Intel …       8 64     Window… "512… 39.62 … NA       1 Year…
# … with 910 more rows, and abbreviated variable names ¹discount, ²Processor, ³`RAM(Size in GB)`, ⁴`processor size`, ⁵`OS Name`,
#   ⁶In_build_sw, ⁷warranty
# ℹ Use `print(n = ...)` to see more rows
```

4.

Code:

```
maxSSD="1 TB SSD"
max_ssd_row <- mydata[mydata$SSD == maxSSD,]
print(max_ssd_row)
```

Output:

```
> print(max_ssd_row)
# A tibble: 143 x 12
   ...1 title                                        price disco…¹ Proce…² RAM(S…³ proce…⁴ OS Na…⁵ SSD   Display In_bu…⁶ warra…⁷
   <dbl> <chr>                                        <chr> <chr>   <chr>     <dbl> <chr>   <chr>   <chr> <chr>   <chr>    <chr>
 1    33 ASUS TUF Gaming F17 (2022) with 90whr Battery… â,'1… â,'1,6… Intel …      16 64     Window… 1 TB… 43.94 … NA       1 Year…
 2    60 ASUS TUF Dash F15 Core i7 12th Gen - (16 GB/1… â,'9… â,'1,2… Intel …      16 64     Window… 1 TB… 39.62 … NA       1 Year…
 3    68 ASUS TUF Gaming F15 (2022) Core i7 12th Gen -… â,'1… â,'1,8… Intel …      16 64     Window… 1 TB… 39.62 … NA       1 Year…
 4    82 APPLE 2021 Macbook Pro M1 Max - (32 GB/1 TB S… â,'3… â,'3,2… Apple …      32 Mac OS… NA     1 TB… 41.15 … iMovie… 1 Year…
 5    89 ASUS ROG Strix G15 (2022) with 90whr Battery … â,'1… â,'1,7… AMD Ry…      16 Window… NA     1 TB… 39.62 … Micros… 1 Year…
 6    92 ASUS ROG Strix G15 Ryzen 7 Octa Core AMD R7-4… â,'8… â,'1,1… AMD Ry…      16 Window… NA     1 TB… 39.62 … Micros… 1 Year…
 7   101 ASUS ROG Strix G15 (2022) with 90whr Battery … â,'1… â,'1,8… AMD Ry…      16 Window… NA     1 TB… 39.62 … Micros… 1 Year…
 8   133 HP Pavilion Core i7 12th Gen - (16 GB/1 TB SS… â,'8… â,'1,0… Intel …      16 64     Window… 1 TB… 35.56 … Micros… 1 Year…
 9   138 HP Pavilion Intel Core i7 12th Gen - (16 GB/1… â,'8… â,'1,0… Intel …      16 64     Window… 1 TB… 39.62 … Micros… 1 Year…
10   143 HP Envy 13 Intel Evo Core i7 12th Gen - (16 G… â,'1… â,'1,2… Intel …      16 Window… NA     1 TB… 33.78 … NA       1 Year…
# … with 133 more rows, and abbreviated variable names ¹discount, ²Processor, ³`RAM(Size in GB)`, ⁴`processor size`, ⁵`OS Name`,
#   ⁶In_build_sw, ⁷warranty
# ℹ Use `print(n = ...)` to see more rows
```

5.

Code:

```
warr="2 Years Warranty"
warr_row <- mydata[mydata$warranty == warr,]
print(warr_row)
```

Output:

```
> print(warr_row)
# A tibble: 16 × 12
   ...1 title                                            price disco…¹ Proce…² RAM(S…³ proce…⁴ OS Na…⁵ SSD   Display In_bu…⁶ warra…⁷
  <dbl> <chr>                                            <chr> <chr>   <chr>     <dbl> <chr>   <chr>   <chr> <chr>   <chr>   <chr>
 1    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
 2    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
 3    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
 4   392 Lenovo IdeaPad 3 Core i3 11th Gen - (8 GB/256… â,'3… â,'61,… Intel …      8   64      Window… 256 … 39.62 … Office… 2 Year…
 5    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
 6    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
 7    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
 8    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
 9    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
10    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
11    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
12    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
13    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
14   886 Lenovo IdeaPad 3 Core i3 10th Gen - (8 GB/256… â,'3… â,'57,… Intel …      8   Window… NA      256 … 39.62 … Micros… 2 Year…
15    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
16    NA NA                                              NA    NA      NA         NA   NA      NA      NA    NA      NA      NA
# … with abbreviated variable names ¹discount, ²Processor, ³`RAM(Size in GB)`, ⁴`processor size`, ⁵`OS Name`, ⁶In_build_sw,
#   ⁷warranty
```