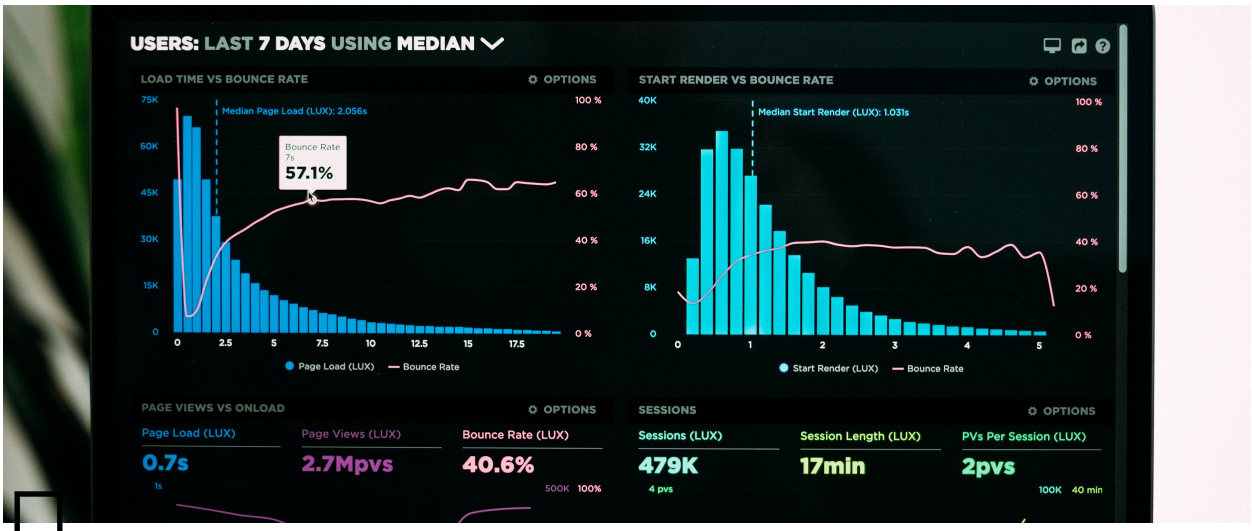

Comtpe Rendu Analyse de donnée

Réalisé par :

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Question 1 :

1. Enter the following vector $X = (a, b, c, d)$, then use the command `sample()` to generate a sample of 1000 entries following the distribution $p = (15\%, 25\%, 40\%, 20\%)$, name your variable XX.

—> réponse :

Le code :

```
> X <- c("a","b","c","d")
> Prob <- c(0.15,0.25,0.4,0.2)
> XX <- sample(X, 1000,replace = T,prob = Prob)
```

L’exécution est :

```
> print (XX)
   [1] "a" "c" "c" "a" "c" "a" "b" "c" "c" "c" "c" "d" "d" "c" "d" "c" "c" "b" "c" "c" "a" "c" "d" "c" "a" "b" "c" "b" "c" "c" "b" "b" "b"
  [34] "a" "c" "d" "a" "b" "b" "c" "c" "b" "c" "b" "b" "d" "b" "c" "c" "b" "c" "a" "b" "c" "c" "a" "b" "b" "c" "a" "a" "b" "a" "a" "d" "b"
  [67] "c" "c" "a" "c" "c" "c" "b" "c" "c" "b" "c" "c" "d" "a" "d" "a" "d" "a" "c" "d" "b" "b" "b" "b" "c" "b" "b" "a" "b" "a" "c" "c" "b"
 [100] "b" "a" "a" "d" "b" "b" "d" "c" "d" "b" "d" "d" "d" "c" "c" "c" "c" "c" "c" "a" "b" "a" "d" "c" "c" "b" "c" "b" "a" "a" "c" "a" "c"
 [133] "c" "b" "c" "c" "c" "b" "c" "c" "d" "b" "d" "b" "c" "d" "b" "b" "d" "d" "b" "b" "c" "c" "c" "d" "c" "c" "c" "b" "c" "d" "d" "a" "c"
 [166] "d" "b" "b" "c" "a" "b" "c" "a" "b" "b" "d" "d" "a" "c" "c" "b" "c" "b" "c" "c" "c" "d" "b" "d" "b" "c" "c" "c" "c" "b" "b" "c" "c"
 [199] "b" "c" "d" "a" "a" "c" "c" "a" "c" "c" "d" "a" "b" "d" "c" "d" "d" "c" "c" "a" "b" "d" "c" "b" "b" "a" "b" "d" "b" "a" "a" "a" "c"
 [232] "b" "a" "b" "d" "b" "c" "d" "c" "b" "c" "a" "d" "c" "c" "b" "b" "c" "c" "b" "b" "b" "a" "c" "a" "c" "b" "c" "b" "c" "d" "d" "d" "c"
 [265] "c" "d" "b" "c" "c" "d" "a" "c" "a" "d" "c" "c" "a" "c" "c" "c" "d" "c" "d" "c" "b" "b" "c" "d" "a" "d" "b" "b" "b" "a" "c" "b" "d"
 [298] "c" "d" "b" "d" "b" "c" "c" "c" "a" "b" "c" "b" "b" "b" "d" "c" "d" "d" "b" "d" "b" "d" "c" "c" "b" "c" "d" "c" "a" "d" "c" "c" "d"
 [331] "c" "a" "b" "c" "d" "c" "a" "b" "b" "a" "c" "c" "d" "b" "c" "b" "c" "c" "b" "c" "c" "b" "c" "b" "d" "b" "c" "c" "c" "c" "a" "a" "c"
 [364] "b" "b" "c" "b" "d" "b" "a" "b" "b" "c" "c" "d" "d" "a" "b" "a" "b" "b" "d" "b" "d" "c" "a" "b" "c" "c" "c" "d" "b" "d" "d" "b" "a"
 [397] "d" "a" "a" "c" "d" "b" "c" "b" "c" "c" "c" "d" "b" "c" "c" "b" "c" "b" "d" "b" "b" "c" "b" "b" "c" "b" "c" "b" "c" "a" "a" "a" "c"
 [430] "b" "c" "c" "c" "d" "c" "c" "c" "c" "b" "c" "d" "c" "c" "c" "a" "a" "c" "c" "a" "b" "b" "c" "d" "d" "c" "b" "a" "c" "c" "d" "a" "b"
 [463] "c" "d" "c" "c" "c" "b" "c" "b" "b" "c" "a" "c" "d" "c" "a" "d" "b" "b" "d" "b" "c" "d" "b" "c" "a" "a" "c" "c" "d" "c" "d" "a" "a"
 [496] "b" "d" "c" "b" "a" "c" "d" "b" "d" "d" "c" "b" "c" "b" "b" "c" "b" "a" "c" "c" "d" "b" "b" "c" "b" "c" "c" "c" "c" "a" "b" "b" "c"
 [529] "a" "b" "a" "d" "a" "b" "c" "c" "c" "c" "c" "c" "c" "c" "c" "a" "b" "b" "d" "c" "c" "b" "c" "a" "b" "c" "c" "a" "b" "d" "b" "c" "c"
 [562] "d" "b" "c" "b" "d" "c" "c" "c" "d" "b" "c" "c" "b" "b" "d" "c" "c" "b" "b" "c" "c" "a" "c" "d" "d" "b" "b" "d" "c" "c" "c" "c" "d"
 [595] "b" "d" "b" "c" "b" "a" "c" "c" "d" "c" "c" "d" "d" "c" "c" "c" "b" "c" "d" "c" "b" "a" "c" "c" "b" "c" "b" "b" "c" "d"
 [628] "c" "a" "c" "c" "c" "a" "c" "c" "a" "a" "d" "c" "c" "c" "a" "c" "c" "c" "c" "c" "c" "a" "b" "b" "a" "c" "c" "c" "c" "b" "c" "b" "c" "b"
 [661] "c" "d" "c" "b" "c" "d" "d" "c" "b" "d" "b" "d" "d" "a" "d" "d" "c" "a" "d" "c" "a" "d" "a" "a" "b" "b" "c" "d" "d" "c" "c" "c" "a"
 [694] "c" "b" "a" "b" "b" "c" "b" "c" "d" "c" "d" "b" "c" "c" "b" "b" "c" "a" "d" "a" "d" "d" "b" "b" "d" "c" "c" "d" "c" "d" "b" "c" "c"
 [727] "d" "c" "a" "c" "a" "b" "c" "a" "c" "b" "c" "c" "d" "c" "c" "d" "b" "b" "c" "a" "a" "b" "c" "b" "c" "c" "d" "b" "b" "b" "d" "b" "d"
 [760] "c" "c" "c" "d" "b" "b" "c" "b" "d" "d" "c" "c" "b" "b" "c" "d" "c" "d" "c" "d" "d" "c" "b" "c" "a" "c" "c" "d" "c" "b" "c" "d" "a"
 [793] "c" "a" "a" "a" "c" "d" "b" "b" "b" "a" "b" "c" "c" "c" "c" "b" "c" "c" "c" "b" "d" "b" "a" "c" "c" "a" "c" "a" "a" "a" "b" "b" "c"
 [826] "a" "d" "d" "c" "d" "c" "a" "c" "d" "d" "c" "c" "b" "b" "a" "a" "b" "a" "d" "d" "c" "b" "c" "d" "c" "b" "b" "d" "c" "d" "c" "c" "b"
 [859] "c" "b" "a" "c" "d" "b" "d" "c" "d" "a" "c" "c" "c" "d" "d" "b" "d" "b" "c" "c" "d" "b" "b" "c" "b" "d" "a" "a" "a" "c" "c" "c" "b"
 [892] "c" "b" "a" "c" "c" "a" "a" "c" "c" "a" "c" "d" "b" "d" "c" "a" "b" "d" "b" "d" "b" "d" "c" "a" "b" "c" "d" "a" "b" "c" "d" "c" "c"
 [925] "b" "c" "a" "d" "c" "b" "a" "c" "b" "b" "c" "c" "a" "a" "b" "a" "d" "a" "c" "c" "b" "d" "b" "c" "a" "b" "d" "b" "c" "c" "c" "a" "c"
 [958] "d" "c" "c" "d" "a" "a" "b" "d" "b" "c" "c" "d" "b" "c" "c" "c" "b" "b" "c" "d" "b" "c" "b" "c" "d" "d" "c" "c" "c" "c" "c" "b" "c"
 [991] "c" "c" "b" "b" "b" "c" "c" "c" "b" "d"
```

Values	
Prob	num [1:4] 0.15 0.25 0.4 0.2
X	chr [1:4] "a" "b" "c" "d"
XX	chr [1:1000] "a" "c" "c" "a" "c" "a" "b" "c" "c" "c" "c" "d" "d" "c" "d" "c" "c" "b" "c" …

Question 2 :

2. Use the command `table()` to table your statistical variable XX and name your table distribution XXT.

Donc en mettant la variable Prob dans un tableau :

code :

```
>     tab_XX <- table(XX)
```

L’exécution est :

```
> print (tab_XX)
XX
  a   b   c   d
147 264 403 186
```

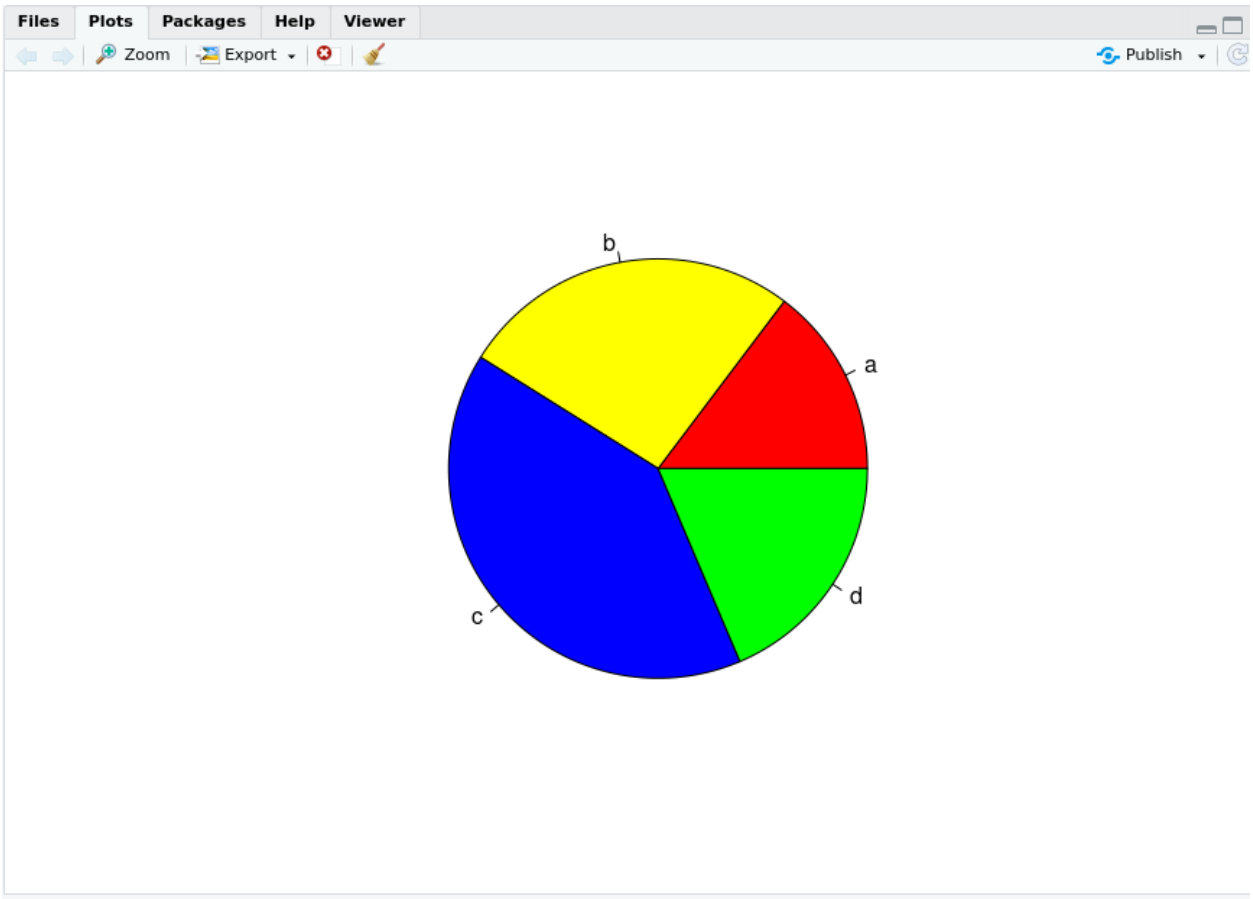
Question 3 :

3. Use the command `pie()` to represent graphically XX into a pie chart and save your graphic in a PDF format name your graph file "XXP.pdf".

code :

```
> pie(tab_XX,labels = X,edges = 200,radius = 0.8,clockwise = FALSE,angle = 45,col = c("red","yellow","blue","green"))
```

L’exécution :



Question 4:

4. Enter the following vector $Y = (1, 2, 3, 4)$, then use the command `sample()` to generate a sample of 1000 entries following the distribution given by $p = (25\%, 15\%, 25\%, 35\%)$, name your variable YY.

code :

```
> Y <- c(1,2,3,4)
> Prob_Y <- c(0.25,0.15,0.25,0.35)
> YY <- sample(Y,1000,replace = T ,prob = Prob_Y)
```

L’exécution :

```
> print(YY)
   [1] 4 4 4 4 3 1 3 1 3 4 3 3 4 3 4 4 4 3 4 4 4 1 3 3 4 4 1 4 4 4 4 3 3 4 3 2 2 3 2 2 3 4 1 1 3 3 4 3 2 3 3 3 4 4 1 1 4 4 2 3 4 3 4 2 4 1 4 3 4
  [70] 3 3 3 3 4 3 3 3 1 3 3 3 1 1 4 3 3 2 4 4 3 4 4 4 4 4 3 4 4 2 3 2 3 2 4 1 1 2 3 3 3 4 1 3 4 3 2 4 3 4 3 2 1 1 4 3 2 3 2 2 1 3 4 3 3 2 2 4 2 3
 [139] 4 4 2 3 1 4 4 3 4 4 3 3 4 4 3 2 1 2 1 3 2 2 1 4 1 1 1 4 2 2 4 1 2 4 1 3 2 1 3 3 4 3 1 1 1 1 3 2 1 3 4 2 1 4 2 1 1 1 4 4 1 4 4 3 4 4 2 4 1
 [208] 1 4 2 4 3 3 3 2 3 1 3 4 4 1 4 3 1 1 4 1 1 1 3 4 1 4 4 3 4 2 1 3 4 1 1 3 1 4 4 1 4 4 1 4 4 4 4 1 2 4 4 2 4 1 4 1 4 2 3 2 2 1 2 4 1 3 4 1 4
 [277] 4 2 3 2 4 4 4 2 4 2 4 3 1 4 3 4 4 2 3 3 1 4 4 1 1 4 2 4 2 4 2 1 2 4 2 4 3 1 1 4 2 2 4 1 3 4 4 2 3 1 3 1 3 2 3 4 3 3 2 3 2 1 1 3 1 3 3 2 2
 [346] 1 1 1 3 3 2 1 4 3 4 3 1 1 3 1 3 3 1 3 4 3 1 1 3 2 4 3 4 2 3 4 3 3 1 1 1 3 4 2 4 4 1 3 2 3 4 3 4 4 4 3 3 2 1 3 4 4 4 1 3 4 1 4 4 4 4 4 4 4
 [415] 4 1 3 4 2 3 3 2 1 1 1 1 4 4 4 1 3 4 4 3 3 4 2 4 4 4 3 1 4 3 4 2 3 4 4 4 4 4 4 3 3 1 4 1 2 3 1 3 1 1 4 2 4 4 2 4 4 4 1 2 1 4 4 1 4 3 3 4 1
 [484] 1 4 4 4 2 3 4 1 4 4 2 3 4 1 3 1 3 1 1 1 1 4 1 4 4 4 3 2 2 1 4 3 4 1 3 1 4 2 2 1 1 4 4 4 3 3 1 3 3 1 3 4 4 1 2 2 3 1 2 4 3 2 4 3 4 2 1 2 4
 [553] 4 4 4 4 3 3 2 3 4 4 3 1 1 4 1 2 2 4 3 4 1 1 3 3 3 3 4 2 4 3 4 1 4 4 1 4 2 1 4 4 3 2 1 1 4 2 1 3 2 3 4 2 4 2 3 1 1 3 4 2 1 1 4 4 3 1 1 4 4
 [622] 1 4 2 4 2 3 4 4 3 3 4 3 1 3 3 2 3 3 3 2 4 2 2 1 1 4 1 4 1 1 4 4 3 4 2 1 3 4 3 3 4 4 2 4 2 3 2 3 3 1 1 4 4 2 4 2 4 1 2 4 1 2 4 2 1 4 4 4 3
 [691] 4 4 2 3 1 4 4 4 1 4 1 1 4 3 4 1 2 4 2 4 3 2 2 2 3 3 2 4 1 3 4 4 1 1 4 4 3 1 3 1 4 4 1 3 4 3 3 1 1 3 3 1 4 4 3 3 1 4 3 4 2 3 1 4 3 1 4 2 3
 [760] 4 3 3 4 3 2 1 3 4 2 1 1 4 3 4 1 3 1 1 4 1 1 4 1 4 4 2 2 3 4 3 2 1 4 2 3 3 3 2 4 2 2 2 1 3 3 4 2 3 1 3 4 4 1 1 3 3 2 3 4 1 4 4 3 3 2 1 4 2
 [829] 1 1 4 2 1 4 4 4 1 3 1 4 1 4 3 4 2 2 1 2 1 2 3 3 4 2 4 2 1 1 4 2 4 4 2 3 4 3 4 2 4 2 1 1 3 1 3 4 1 3 3 2 2 1 4 3 3 4 3 4 4 1 4 4 4 1 3 4
 [898] 1 3 2 4 4 2 3 3 4 3 1 1 3 1 1 4 1 4 3 4 3 1 4 4 2 1 2 3 3 1 4 4 1 1 1 3 1 4 4 4 1 1 1 4 1 1 1 4 3 4 3 4 2 4 4 1 3 2 4 3 1 3 4 4 3 3 4 1 1
 [967] 4 4 1 1 2 3 2 3 2 4 2 2 2 4 1 3 3 3 2 3 1 4 4 3 4 3 4 3 3 1 2 1 4 4
```

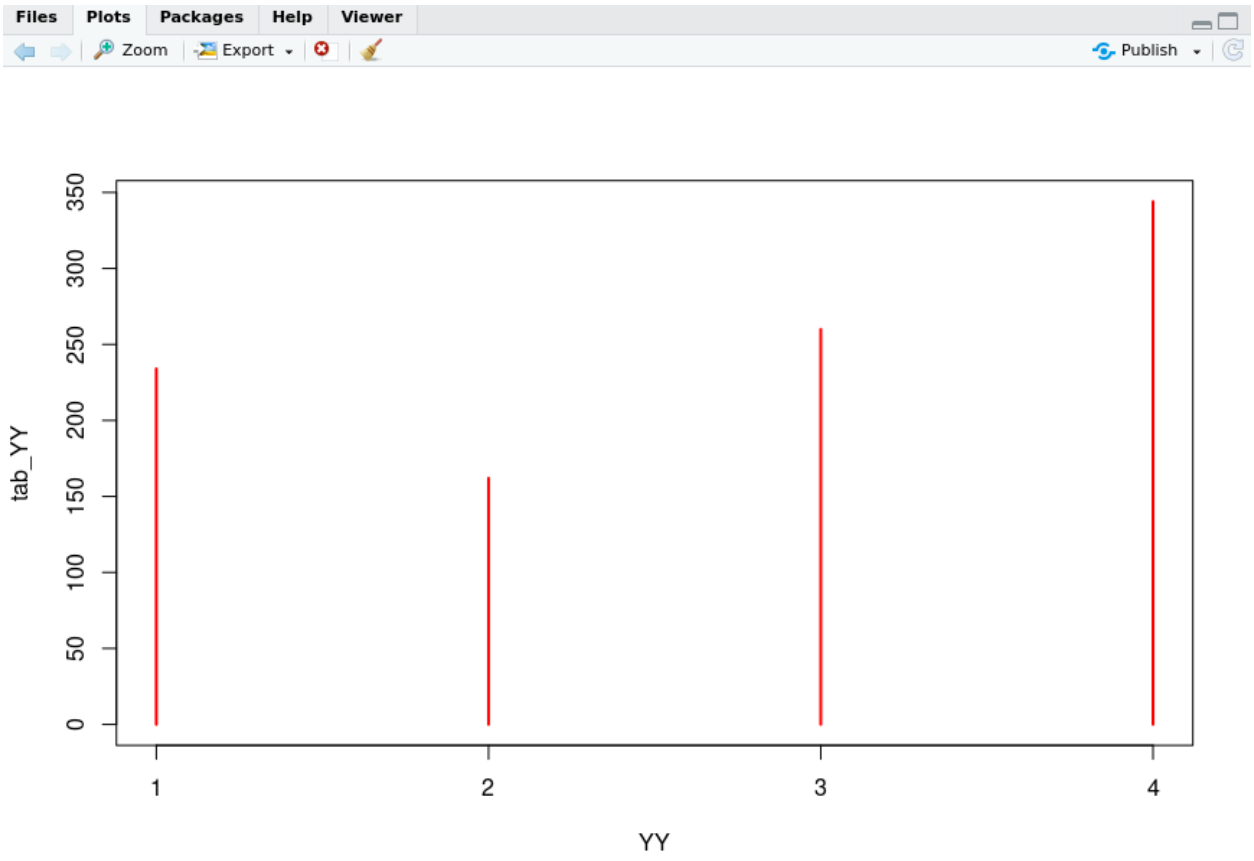
Question 5 :

5. Table your data and plot the corresponding bar graph in a pdf file that you name "YYP.pdf".

code :

```
> tab_YY <- table(YY)
> plot (tab_YY,col ="red")
```

L’exécution :



Question 6 :

6. Use the command `rnorm()` to generate 1000 entries following the normal distribution with mean $\mu = 10$ and standard deviation $\sigma = 2$ and name the obtained statistical series Z.

code :

```
> Z <- rnorm(1000,mean = 10,sd=2)
```

L'exécution :

```
> print (Z)
   [1] 12.498689 10.690501 10.443985  8.477589 11.219316 13.131836 11.901037  9.045902  9.019067  9.718895  8.706242  8.024602 14.852859
  [14] 10.977074 12.254294 10.468639  9.202097 12.591557  8.606177  8.634776  9.989288  9.551853 11.511565  5.815409 11.514612  7.767872
  [27] 11.239275 12.350767 11.698057  7.879807 11.679272 10.709852  9.674806 13.941021  7.849950 14.163320 11.271898  8.639085 11.243160
  [40] 10.326112  5.186574  9.950080 11.989434  9.382366 14.359189 11.113773 11.224247  6.979194 13.495438  8.941677 10.236748  9.814449
  [53] 10.427022 10.698433 11.074564  9.891448  9.711390  8.582018  7.564555  7.094130  9.997921 11.671454 14.685786  9.743699 12.290463
  [66] 10.020177  9.425811  9.858951  4.840456  7.313709 12.310838 10.125980 10.341276 11.721929  9.018912 11.210549 14.220288  9.808043
  [79]  8.092813 14.699531 12.792913 10.661320  9.463117  8.440901  7.193526 12.210365 12.719172  9.536338 11.079977 10.138773 11.129577
  [92] 11.994802 11.093847  8.525090 14.046518  7.819733 15.979260 10.125725 12.631356 10.960532  7.800051  8.921294  9.043520  9.694782
 [105] 13.482284  7.331421 13.392443 11.743959 14.253859 13.800219 12.599965  8.363856 11.840904 12.340264 10.810771 10.968731 11.262795
 [118] 11.518324  9.697378  9.229186 13.737114 10.229027  7.984983 11.060913  9.593981  9.731928 12.425365  8.667286 12.027946  7.553073
 [131]  9.907793 11.495258  9.660810 12.378579  8.259394 11.969013 12.380934  7.061752 13.863279 10.749200 11.041294 12.261015  8.036103
 [144]  9.394547 10.308095 10.210238 10.084446  9.741081 11.246806 11.321649  8.219095  8.564986  8.692658 13.745362 11.238864  8.829963
 [157] 13.511693  6.348082  6.687230 10.468315  9.467401 12.482198  9.734298 15.279758 10.808104  8.499131  8.026556 10.841007  8.940969
 [170]  9.126874  6.271434  5.237672 10.636480  7.151571 11.493960  8.753338 12.477223  8.068451 12.150142 10.826350  8.685380  8.147878
 [183] 13.201966 10.339171 11.357943 10.483643  9.677756  6.981691  8.622395  8.521315 11.823184  7.124394 10.321616  7.888908  9.200862
 [196]  8.437912  8.345474  9.239698  6.800918 10.768460  7.011641 10.626935  4.792774 11.508873  7.870094  6.956775  9.907027 16.502885
 [209] 11.256757 11.189039  8.193576 10.563580 10.820100 10.591719  9.409627 10.675120 10.750524 13.294907  9.950571 12.475295 16.313463
 [222]  9.115464  8.655380 10.832618  7.426799 12.593998  9.232883 11.568786 10.800788 13.005011 10.592389  8.639425 11.888814 10.946311
 [235] 12.642700  8.707446  9.004064 14.168806 10.123124  9.780542 10.969736 10.500960 10.156547  8.594755  9.394100 12.378056  8.007890
 [248]  7.283079  8.045326 11.296869  9.419548 11.186574 11.687085 13.676086  9.576716  9.528610  9.946617  9.084046  9.223317 10.140528
 [261]  8.097568  9.642284 11.612413  8.272394  6.883498 13.101573  8.856762  6.932486  9.998549  8.553710  8.570663  8.088747  8.879721
 [274]  5.761910  7.521133 11.266835 11.557212 10.195658  8.862979 10.353723  8.854856  9.461047  7.784788 10.746393  8.946077 10.598532
 [287] 13.257157 10.239792  6.239453 12.769138 14.302326  8.856745 10.833950 10.865698  9.159250 10.130805 10.127249 12.495439  8.560513
 [300]  6.384616  7.146563  9.977401 13.556775 10.750136 10.467170  8.226918 10.659148 10.899610  9.513384 12.219878  9.559547 11.042776
 [313] 11.191782 11.448919 13.805614  9.964005  9.262821 10.013928 10.070278 11.861284  7.890104  9.189795 10.025705  8.204698  9.756192
 [326]  7.194895 10.525585 10.050026 12.298728 11.221262 11.615830  7.191834  9.157516 10.805230  9.809748  9.602294  9.383716 13.530851
 [339]  8.762370 10.300157 11.689897  9.718695  6.343663  7.134470 10.773078 10.326227 12.089154  7.672783  9.471328  9.615097  8.397329
 [352] 11.861975  9.680075  9.717446 11.425363 13.447119  8.447251 14.742570 11.779411 11.663695 12.486997 10.217637  8.325855 13.671515
 [365] 11.490487 10.189534  9.636846 10.852857  9.229327  8.748423 10.279930  9.561518  5.840364  9.221016  9.559152 12.169866  9.045102
 [378]  6.462778 12.102734  8.760913 11.944970 10.623218  8.632526  9.994957 10.392797  8.002974 11.535523 13.578799 10.166949 11.648568
 [391] 10.354355  7.623209 10.268246 10.809675  8.822503  8.992851  9.496094 10.083570  8.559415 12.749090 10.005058  6.965613 12.435520
 [404] 12.005419  9.261419 10.411618  9.769993 10.090116 10.124439  7.652527  9.435529  9.201520  9.957621  9.245042 10.833070 11.971922
 [417]  9.323552  7.461428 10.193319 12.193066 12.302599  9.863840 11.823171  9.262760 11.160577 11.536546  9.414438  9.353672 10.396007
 [430] 10.311591 10.385845  9.340641 15.168826  7.802568 10.269366 10.613940  6.493427  8.831382 12.672328  9.244365  8.796854 12.998668
 [443]  9.897842  9.466501 12.273876  8.657954  9.526340 11.160141 10.674086  7.855106  8.622207 11.066210 10.579099 11.343345  9.792066
 [456] 11.210585  9.807291  9.685858 10.411330 11.354338 10.184555  6.751316  8.861044 11.619854 10.038799 10.459483 10.172506 10.475632
 [469] 11.050798  8.801242 12.159143 10.517211 10.312424  8.810941  8.079741 13.373340 12.888857  7.890673 12.065105 11.977825  6.051207
 [482] 12.558060 11.031404 12.763579 10.843090 10.840825  9.194701  8.468780 10.499653  9.486461  8.242990  6.767821  7.643410  9.234579
 [495]  8.822819 12.072889  8.453844  9.796844 15.302939 12.750014 11.280663  4.546516 11.938255  7.070647  9.592615 11.178313 10.762733
 [508]  6.816314  9.157073 12.575542 11.164071  9.570225 12.101380 10.839526  9.475546 12.472869 13.096352  7.670957 11.349601  8.533755
 [521]  9.575791 11.981307  9.848018 12.855045 10.554119  8.833624 11.482443  9.855398 13.574722  8.154991 13.013342 11.276828  8.384277
 [534]  9.110830 11.378458 10.893052  9.143786 11.053444  9.093002 11.316932 10.810060  9.581243  9.316970  9.953306 10.049173 10.778218
 [547]  6.439232 10.100011 11.449703 13.114013 11.246464 12.781561  9.462093  9.444207  9.817438  7.131401  6.615475  9.769462  6.978110
 [560]  8.825112 10.297267 13.161094 10.017888 11.579392 12.099304  8.920942  7.994418  9.674378  9.656563  8.762297  8.531679 10.522101
 [573]  9.951584  9.546390  7.689003  5.206471 10.683316 10.458718 10.420824  9.303272 12.037385 11.389089  8.840186  8.779093  9.480543
 [586]  6.534631 11.049571 10.301285 12.477377 10.877598  3.351052 10.875204 10.170927  7.759481  8.924240  6.602919  8.913998  6.294606
 [599]  7.321654  5.830805 10.630716 11.134634 10.397957 11.083607 10.310258 10.155191  5.720612 10.057589  8.358355 11.414962  6.138093
 [612] 11.168202  9.220462  9.970875  7.719667 10.519575 13.453681 10.792354 11.518329 12.644243  9.997024  8.363909 10.473288 10.665313
```

Question 7 :

7. Use the command `seq()` to set up a sequence of equidistant points in the range of Z, name the obtained sequence "Z_e". Use the command `cut()` to construct classes and build up the frequency distribution by using `table` which you apply on the output of `cut()`.

code :

```
> Z_e <- seq(Z[1],Z[1000],length.out =100)
```

L’exécution :

```
 [1] 12.498689 12.468846 12.439004 12.409161 12.379319 12.349476 12.319634 12.289792 12.259949 12.230107 12.200264 12.170422 12.140579
[14] 12.110737 12.080894 12.051052 12.021210 11.991367 11.961525 11.931682 11.901840 11.871997 11.842155 11.812312 11.782470 11.752628
[27] 11.722785 11.692943 11.663100 11.633258 11.603415 11.573573 11.543730 11.513888 11.484046 11.454203 11.424361 11.394518 11.364676
[40] 11.334833 11.304991 11.275148 11.245306 11.215464 11.185621 11.155779 11.125936 11.096094 11.066251 11.036409 11.006566 10.976724
[53] 10.946882 10.917039 10.887197 10.857354 10.827512 10.797669 10.767827 10.737984 10.708142 10.678300 10.648457 10.618615 10.588772
[66] 10.558930 10.529087 10.499245 10.469402 10.439560 10.409718 10.379875 10.350033 10.320190 10.290348 10.260505 10.230663 10.200820
[79] 10.170978 10.141136 10.111293 10.081451 10.051608 10.021766  9.991923  9.962081  9.932238  9.902396  9.872554  9.842711  9.812869
[92]  9.783026  9.753184  9.723341  9.693499  9.663656  9.633814  9.603972  9.574129  9.544287
```

code :

```
> c <- cut(Z_e, 7)
> tc = table(c)
```

L’exécution :

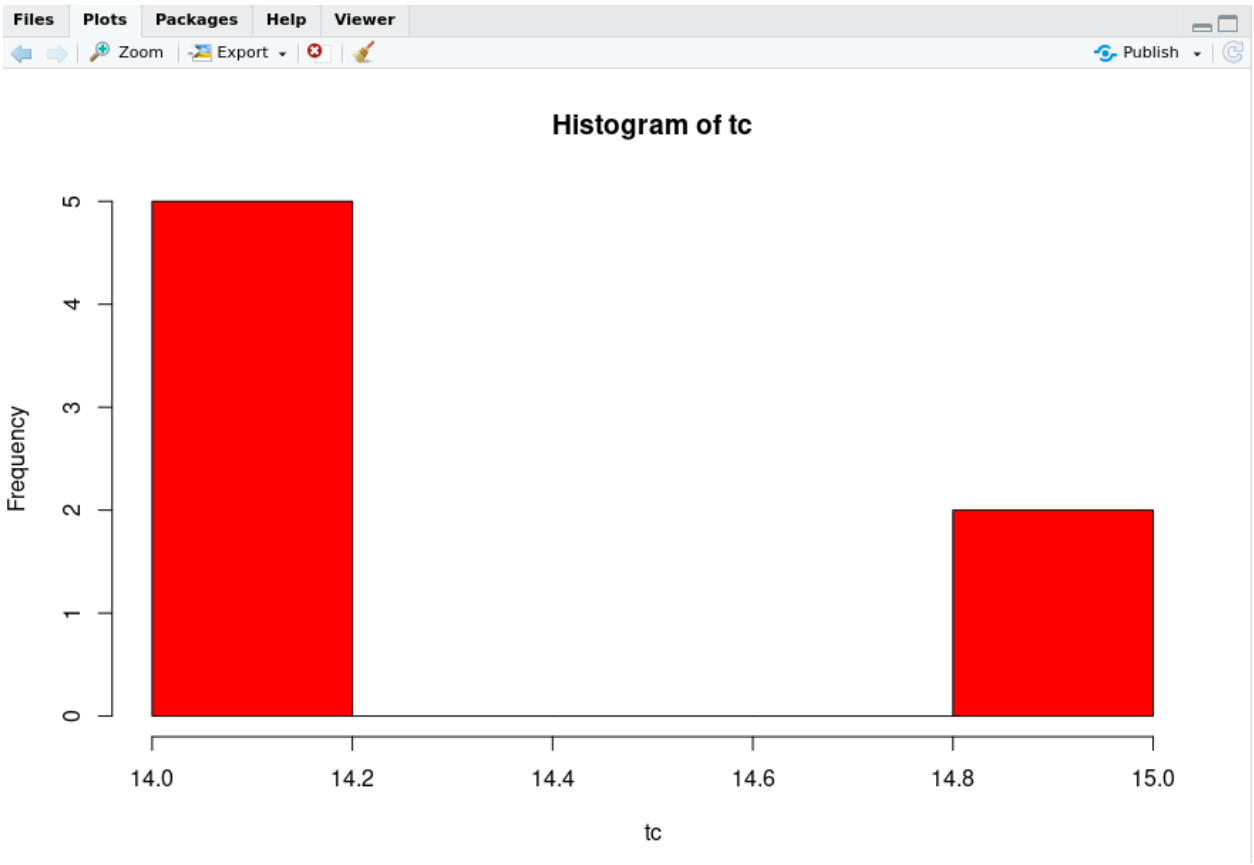
```
> print (tc)
c
(9.54,9.97] (9.97,10.4] (10.4,10.8] (10.8,11.2] (11.2,11.7] (11.7,12.1] (12.1,12.5]
         15          14          14          14          14          14          15
>
```

Question 8:

8. Use the command `hist()` to draw the corresponding histogram and save the obtained graph in a pdf format file "Z_hist.pdf".

code :

```
> hist(tc,col="red")
```


Files
Plots
Packages
Help
Viewer
Zoom
Export
Publish
Histogram of tc
Frequency
0
1
2
3
4
5
14.0
14.2
14.4
14.6
14.8
15.0
tc