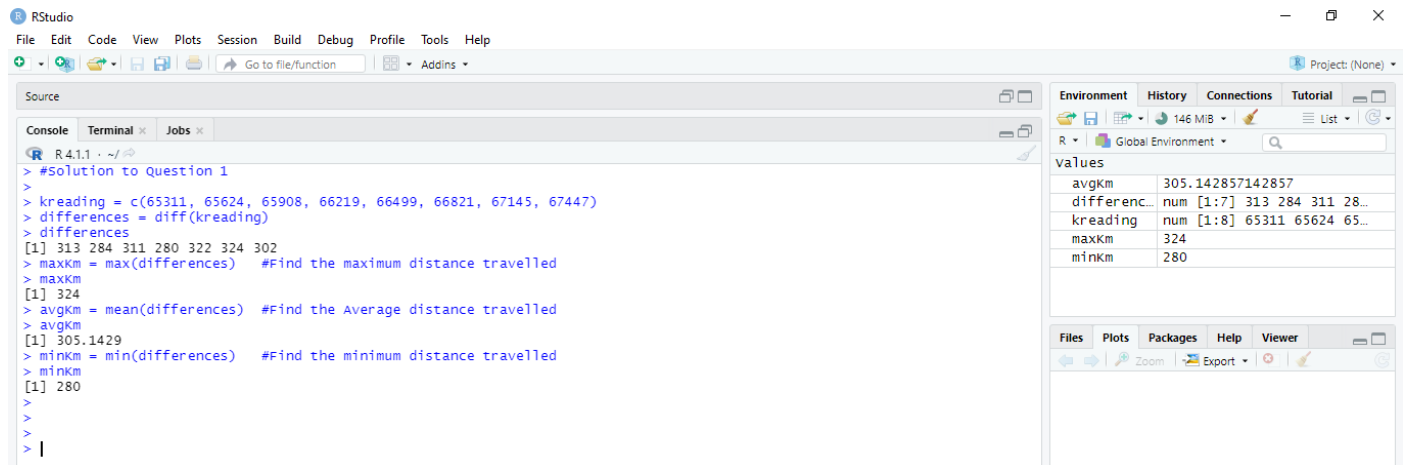


Name: Sucheta Jhunjunwala

Homework 1

Solution 1



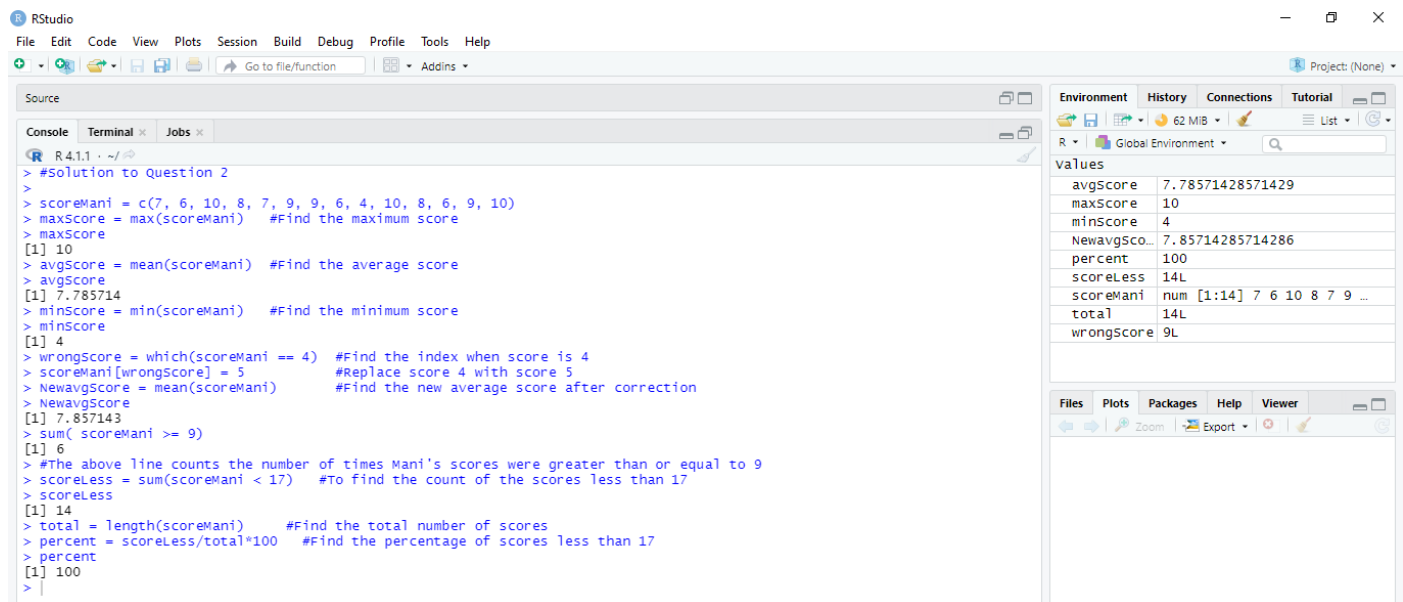
RStudio interface showing the console output for Solution 1. The code calculates the maximum, average, and minimum distances travelled based on a vector of readings.

```
R 4.1.1 ~ /  
> #Solution to Question 1  
> kreading = c(65311, 65624, 65908, 66219, 66499, 66821, 67145, 67447)  
> differences = diff(kreading)  
> differences  
[1] 313 284 311 280 322 324 302  
> maxkm = max(differences) #Find the maximum distance travelled  
> maxkm  
[1] 324  
> avgkm = mean(differences) #Find the Average distance travelled  
> avgkm  
[1] 305.1429  
> minkm = min(differences) #Find the minimum distance travelled  
> minkm  
[1] 280  
>  
>  
> |
```

The Environment pane shows the following values:

Variable	Value
avgkm	305.142857142857
differences	num [1:7] 313 284 311 280 322 324 302
kreading	num [1:8] 65311 65624 65908 66219 66499 66821 67145 67447
maxkm	324
minkm	280

Solution 2



RStudio interface showing the console output for Solution 2. The code calculates the maximum, average, and minimum scores, and then corrects a score of 4 to 5, recalculating the average.

```
R 4.1.1 ~ /  
> #Solution to Question 2  
>  
> scoreMani = c(7, 6, 10, 8, 7, 9, 9, 6, 4, 10, 8, 6, 9, 10)  
> maxScore = max(scoreMani) #Find the maximum score  
> maxScore  
[1] 10  
> avgScore = mean(scoreMani) #Find the average score  
> avgScore  
[1] 7.785714  
> minScore = min(scoreMani) #Find the minimum score  
> minScore  
[1] 4  
> wrongScore = which(scoreMani == 4) #Find the index when score is 4  
> scoreMani[wrongScore] = 5 #Replace score 4 with score 5  
> NewavgScore = mean(scoreMani) #Find the new average score after correction  
> NewavgScore  
[1] 7.857143  
> sum( scoreMani >= 9)  
[1] 6  
> #The above line counts the number of times Mani's scores were greater than or equal to 9  
> scoreLess = sum(scoreMani < 17) #To find the count of the scores less than 17  
> scoreLess  
[1] 14  
> total = length(scoreMani) #Find the total number of scores  
> percent = scoreLess/total*100 #Find the percentage of scores less than 17  
> percent  
[1] 100  
>  
> |
```

The Environment pane shows the following values:

Variable	Value
avgScore	7.78571428571429
maxScore	10
minScore	4
NewavgScore	7.85714285714286
percent	100
scoreLess	14L
scoreMani	num [1:14] 7 6 10 8 7 9 9 6 5 10 8 6 9 10
total	14L
wrongScore	9L

Solution 3



RStudio interface showing the console output for Solution 3. The code calculates the amount spent on a cell phone, the smallest and largest amounts, the count of months where the bill was greater than 400, and the percentage of such months.

```
R 4.1.1 ~ /  
> #Solution to Question 3  
>  
> Nainabill = c(460, 330, 390, 370, 460, 300, 480, 320, 490, 350, 300, 480)  
> amount = sum(Nainabill) #Find the amount spend on cell phone  
> amount  
[1] 4730  
> smallest = min(Nainabill) #Find the smallest amount spent on cell phone  
> smallest  
[1] 300  
> largest = max(Nainabill) #Find the largest amount spent on cell phone  
> largest  
[1] 490  
> countMon = sum(Nainabill>400) #Count the months when bill was greater than 400  
> countMon  
[1] 5  
> percent = countMon/length(Nainabill)*100 #Percentage when bill was greater than 400  
> percent  
[1] 41.66667  
> freemoney = 3000 - Nainabill #Find the money saved after paying her bill  
> freemoney  
[1] 2540 2670 2610 2630 2540 2700 2520 2680 2510 2650 2700 2520  
> avgleft = mean(freemoney) #Find the average amount available each month  
> avgleft  
[1] 2605.833  
>  
> |
```

The Environment pane shows the following values:

Variable	Value
amount	4730
avgleft	2605.83333333333
countMon	5L
freemoney	num [1:12] 2540 2670 2610 2630 2540 2700 2520 2680 2510 2650 2700 2520
largest	490
Nainabill	num [1:12] 460 330 390 370 460 300 480 320 490 350 300 480
percent	41.6666666666667
smallest	300