SCS2211 – Laboratory (2)

Question (1)

a,b)

```
> data("rock", package = "datasets")
> summary(rock)
      area            peri            shape             perm       
 Min.   : 1016   Min.   : 308.6   Min.   :0.09033   Min.   :   6.30  
 1st Qu.: 5305   1st Qu.:1414.9   1st Qu.:0.16226   1st Qu.:  76.45  
 Median : 7487   Median :2536.2   Median :0.19886   Median : 130.50  
 Mean   : 7188   Mean   :2682.2   Mean   :0.21811   Mean   : 415.45  
 3rd Qu.: 8870   3rd Qu.:3989.5   3rd Qu.:0.26267   3rd Qu.: 777.50  
 Max.   :12212   Max.   :4864.2   Max.   :0.46413   Max.   :1300.00  
```

c)

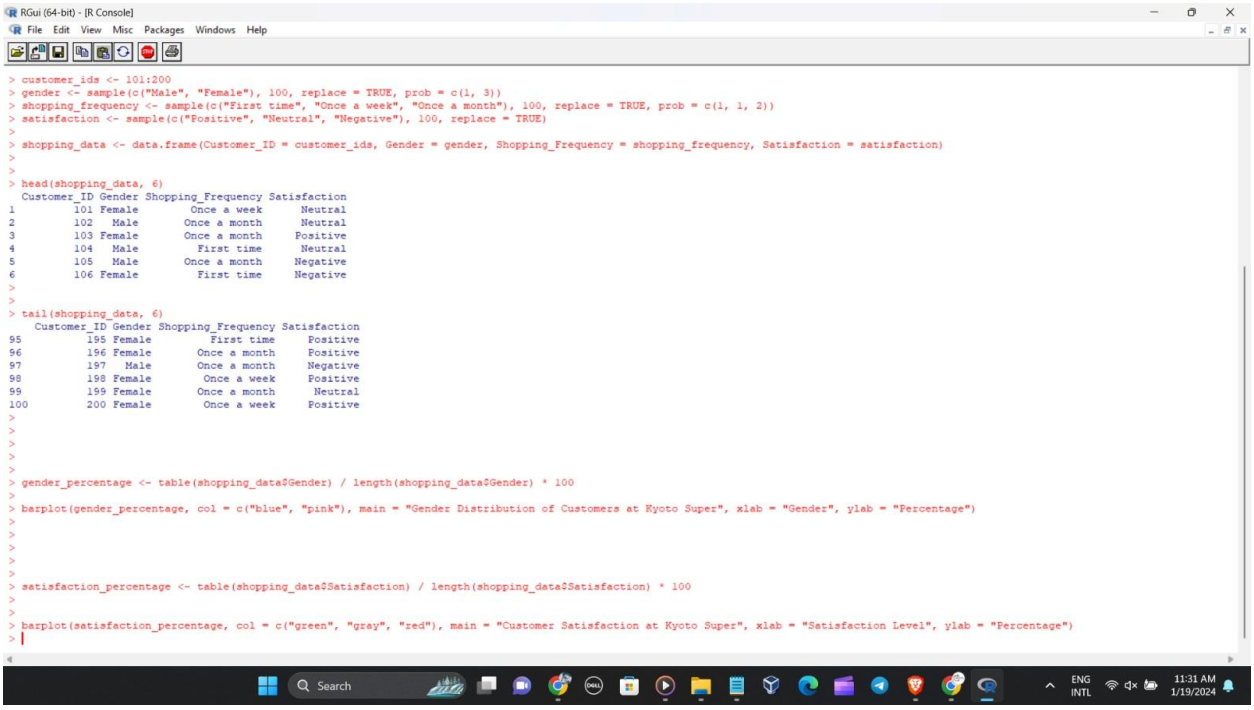
```
> mean_area <- mean(rock$area)
> sd_area <- sd(rock$area)
> n <- length(rock$area)
>
> margin_of_error <- qt(0.975, df = n - 1) * (sd_area / sqrt(n))
>
> confidence_interval <- c(mean_area - margin_of_error, mean_area + margin_of_error)
> cat("95% Confidence Interval for 'area':", confidence_interval, "\n")
95% Confidence Interval for 'area': 6408.421 7967.038
>
```

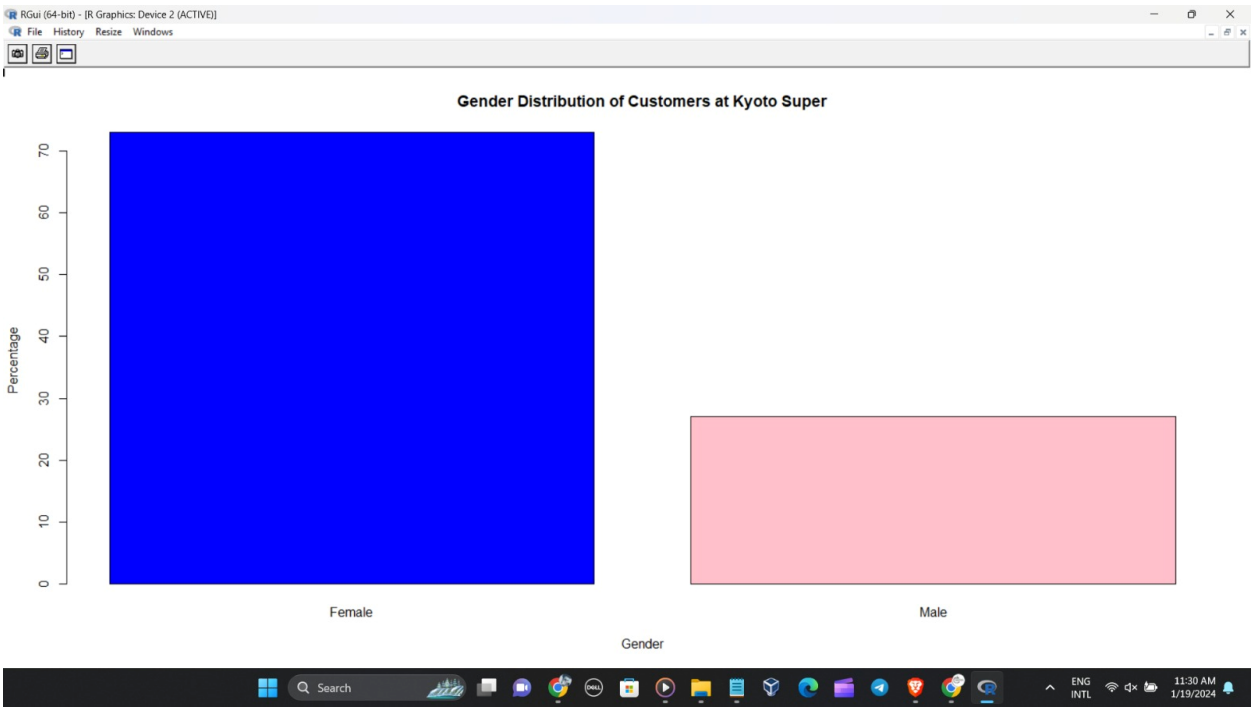
d)

```
> test_result <- t.test(rock$area, mu = 7000, alternative = "greater")
>
> cat("Test Statistic:", test_result$statistic, "\n")
Test Statistic: 0.4846122
> cat("P-value:", test_result$p.value, "\n")
P-value: 0.3151012
```

```
> if (test_result$p.value < 0.05){
+     cat("Reject the null hypothesis. There is enough evidence to support the researcher's claim that the area of pores space is greater than 7000 pixel
s.\n")
+
+ }else{
+     cat("Fail to reject the null hypothesis. There is not enough evidence to support the researcher's claim.\n")
+
+ }
Fail to reject the null hypothesis. There is not enough evidence to support the researcher's claim.
>
```

Question (2)




RGui (64-bit) - [R Graphics: Device 2 (ACTIVE)]
File History Resize Windows
Gender Distribution of Customers at Kyoto Super
Percentage
0
10
20
30
40
50
60
70
Female
Male
Gender
Search
ENG
INTL
11:30 AM
1/19/2024


RGui (64-bit) - [R Graphics: Device 2 (ACTIVE)]
File History Resize Windows
Customer Satisfaction at Kyoto Super
Percentage
0
10
20
30
40
Negative
Neutral
Positive
Satisfaction Level
Search
ENG
INTL
11:31 AM
1/19/2024