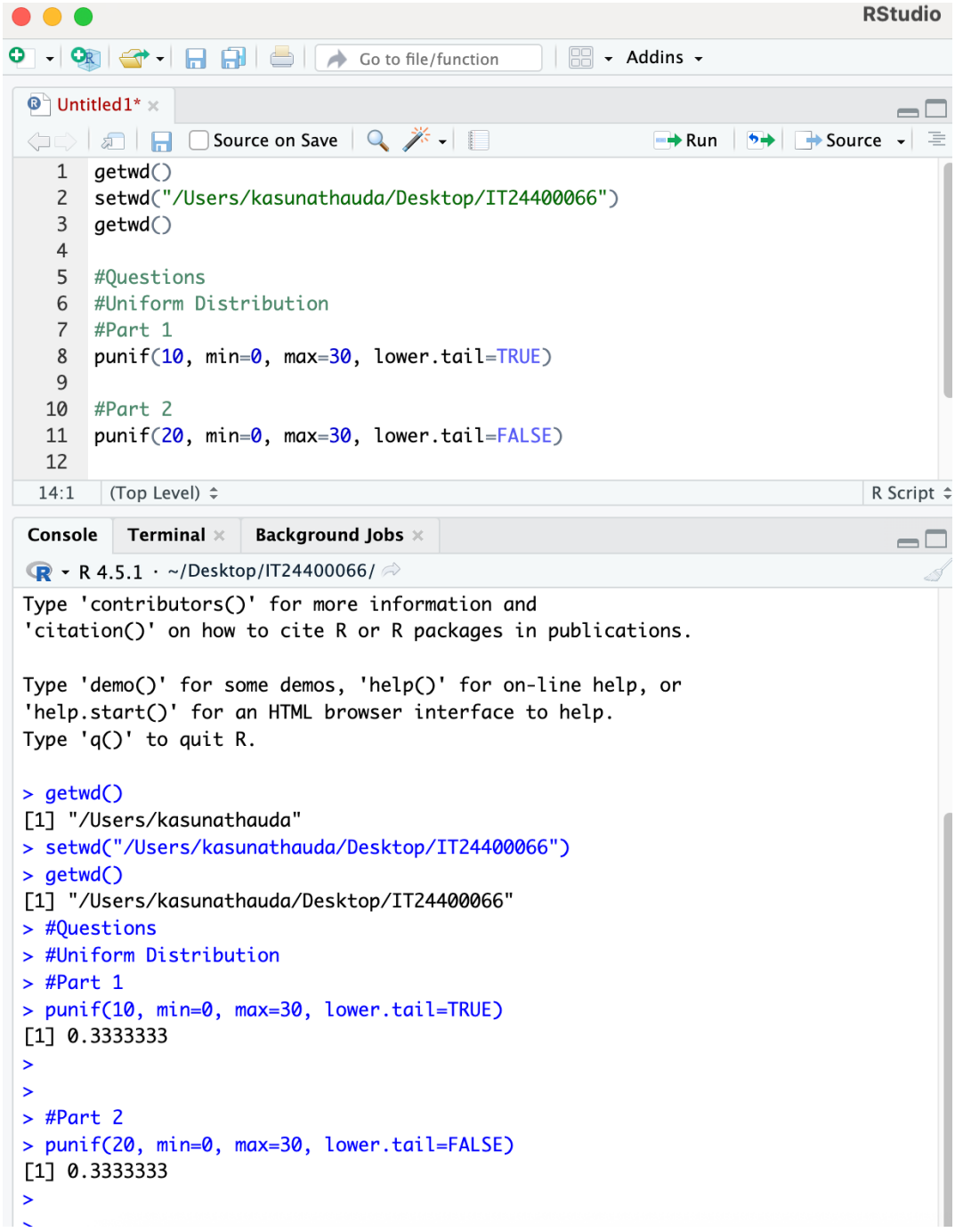
Probability and Statistics - IT2120

Lab Sheet 07

Question 01



Untitled1*

Source on Save | Run | Source

```
10  #Part 2
11  punif(20, min=0, max=30, lower.tail=FALSE)
12
13  #Questions 2
14  #Exponential Distribution
15  #Part 1
16  rate <- 1/2
17  pexp(3, rate=rate, lower.tail=TRUE)
18
19  #Part 2
20  pexp(4, rate=rate, lower.tail=FALSE)
21
22  #Part 3
23  pexp(4, rate=rate) - pexp(2, rate=rate,lower.tail = TRUE)
24
```

24:1 (Top Level) R Script

Console | Terminal | Background Jobs

R 4.5.1 · ~/Desktop/IT24400066/

```
> #Questions 2
> #Exponential Distribution
> #Part 1
> rate <- 1/2
> pexp(3, rate=rate, lower.tail=TRUE)
[1] 0.7768698
>
>
> #Part 2
> pexp(4, rate=rate, lower.tail=FALSE)
[1] 0.1353353
>
>
> #Part 3
> pexp(4, rate=rate) - pexp(2, rate=rate,lower.tail = TRUE)
[1] 0.2325442
>
```

Untitled1*

```
21
22  #Part 3
23  pexp(4, rate=rate) - pexp(2, rate=rate,lower.tail = TRUE)
24
25
26  #Questions 3
27  #Normal Distribution
28  #Part 1
29  1-pnorm(37.9,mean = 36.8, sd=0.4, lower.tail = TRUE)
30
31  #Part 2
32  pnorm(36.9, mean=36.8, sd=0.4, lower.tail = TRUE) - pnorm(36.4, mean=36.8, sd=0.4, lower.tail = TRUE)
33
34  #Part 3
35  qnorm(0.012, mean=36.8, sd=0.4, lower.tail=TRUE)
36
37  #Part 4
38  qnorm(0.01, mean=36.8, sd=0.4, lower.tail=FALSE)
39
```

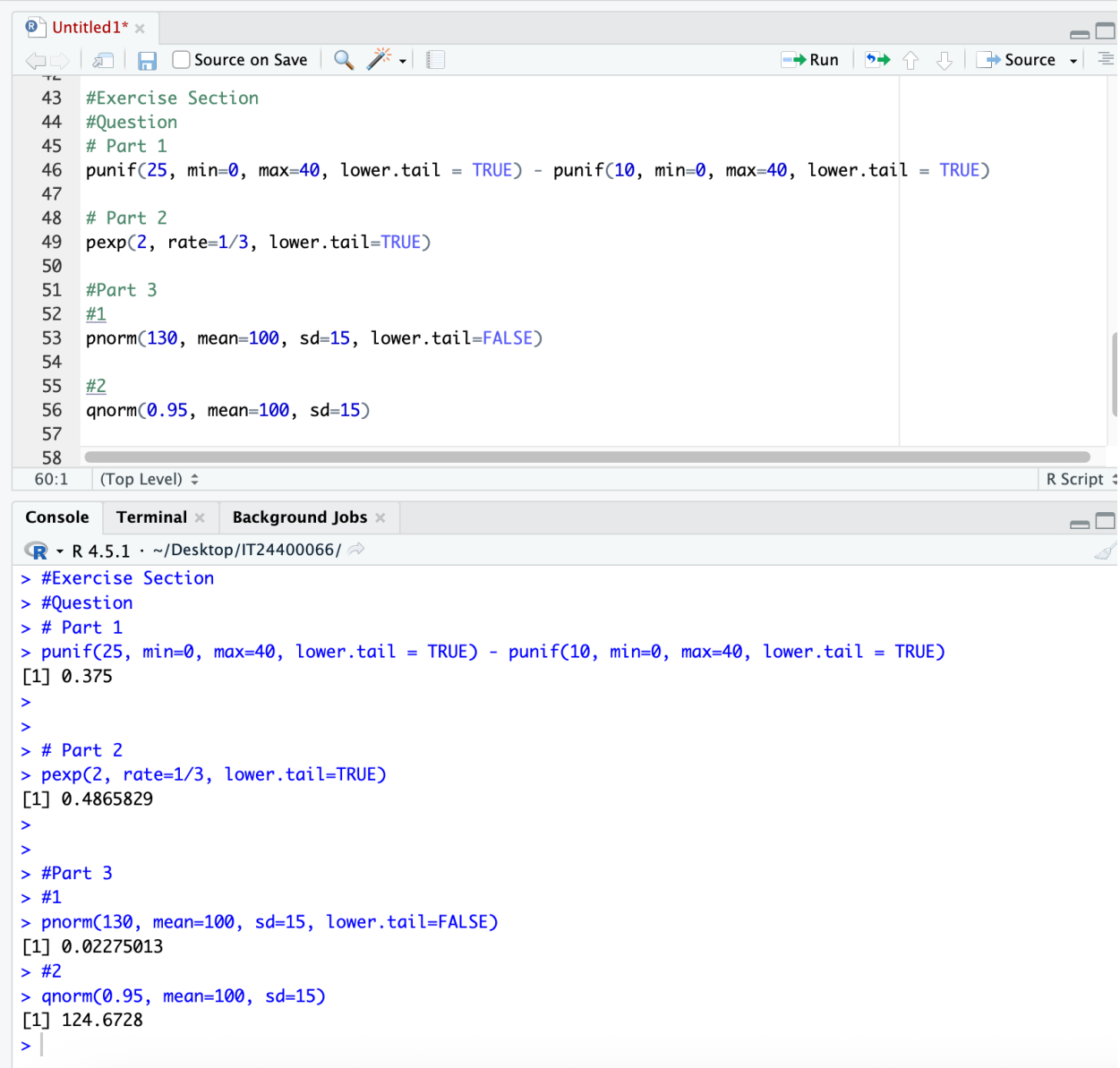
38:49 (Top Level) R Script

Console Terminal Background Jobs

R 4.5.1 · ~/Desktop/IT24400066/

```
> #Questions 3
> #Normal Distribution
> #Part 1
> 1-pnorm(37.9,mean = 36.8, sd=0.4, lower.tail = TRUE)
[1] 0.002979763
>
> #Part 2
> pnorm(36.9, mean=36.8, sd=0.4, lower.tail = TRUE) - pnorm(36.4, mean=36.8, sd=0.4, lower.tail = TRUE)
[1] 0.4400511
>
> #Part 3
> qnorm(0.012, mean=36.8, sd=0.4, lower.tail=TRUE)
[1] 35.89715
>
> #Part 4
> qnorm(0.01, mean=36.8, sd=0.4, lower.tail=FALSE)
[1] 37.73054
>
```

Question 2


Untitled1*
Source on Save
Run
Source
#Exercise Section
#Question
# Part 1
punif(25, min=0, max=40, lower.tail = TRUE) - punif(10, min=0, max=40, lower.tail = TRUE)
# Part 2
pexp(2, rate=1/3, lower.tail=TRUE)
#Part 3
#1
pnorm(130, mean=100, sd=15, lower.tail=FALSE)
#2
qnorm(0.95, mean=100, sd=15)
60:1
(Top Level)
R Script
Console
Terminal
Background Jobs
R 4.5.1 · ~/Desktop/IT24400066/
> #Exercise Section
> #Question
> # Part 1
> punif(25, min=0, max=40, lower.tail = TRUE) - punif(10, min=0, max=40, lower.tail = TRUE)
[1] 0.375
> # Part 2
> pexp(2, rate=1/3, lower.tail=TRUE)
[1] 0.4865829
> #Part 3
> #1
> pnorm(130, mean=100, sd=15, lower.tail=FALSE)
[1] 0.02275013
> #2
> qnorm(0.95, mean=100, sd=15)
[1] 124.6728