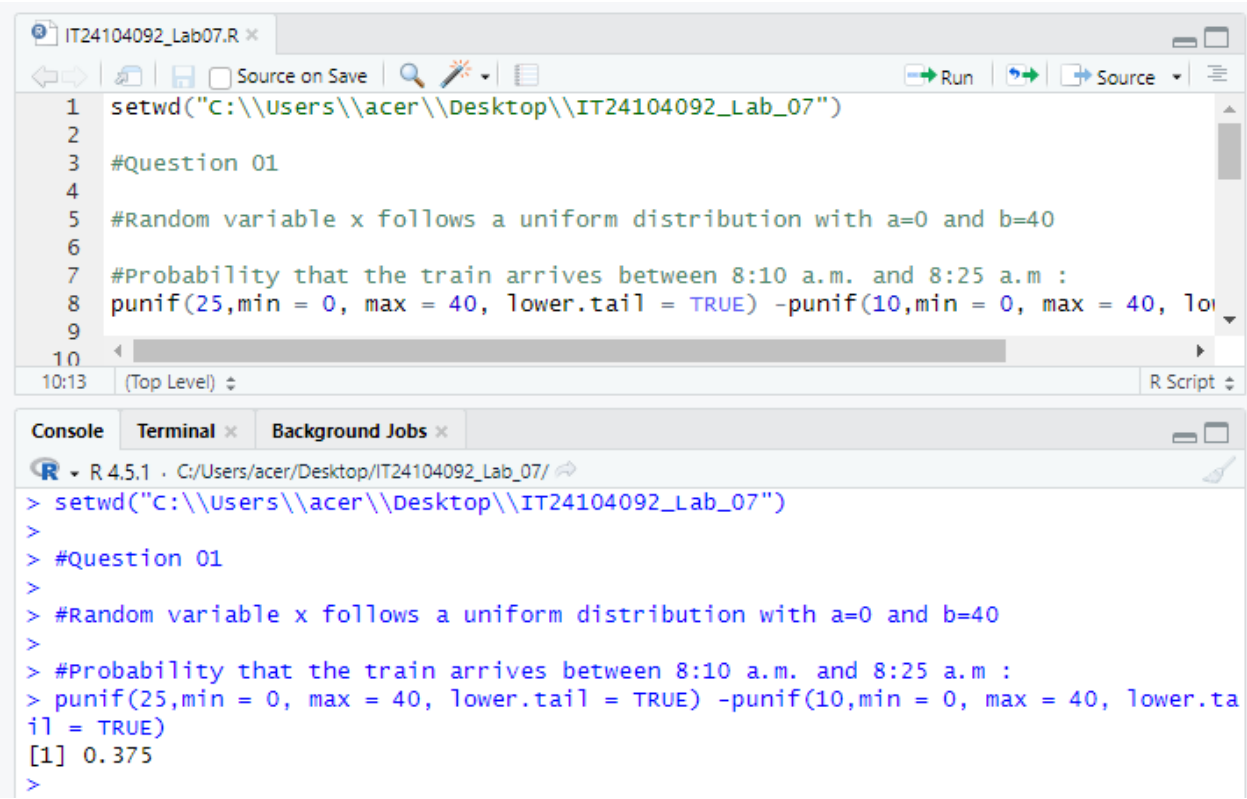
SLIIT UNI

THE KNOWLEDGE UNIVERSITY

Faculty of Computing

Year 2 Semester 1 (2025)

IT2120 - Probability and Statistics Lab Sheet 07



IT24104092_Lab07.R

```r
setwd("C:\\Users\\acer\\Desktop\\IT24104092_Lab_07")

#Question 01

#Random variable x follows a uniform distribution with a=0 and b=40

#Probability that the train arrives between 8:10 a.m. and 8:25 a.m :
punif(25,min = 0, max = 40, lower.tail = TRUE) -punif(10,min = 0, max = 40, lo

#Question 02

#Random variable x has exponential distribution with lambda=0.34

#Probability that an update will take at most 2 hours :
pexp(2,rate = 0.334,lower.tail = TRUE)

```

15:39 (Top Level) R Script

Console Terminal Background Jobs

R 4.5.1 · C:/Users/acer/Desktop/IT24104092_Lab_07/

```
> setwd("C:\\Users\\acer\\Desktop\\IT24104092_Lab_07")
>
> #Question 01
>
> #Random variable x follows a uniform distribution with a=0 and b=40
>
> #Probability that the train arrives between 8:10 a.m. and 8:25 a.m :
> punif(25,min = 0, max = 40, lower.tail = TRUE) -punif(10,min = 0, max = 40, lower.ta
il = TRUE)
[1] 0.375
>
> #Question 02
>
> #Random variable x has exponential distribution with lambda=0.34
>
> #Probability that an update will take at most 2 hours :
> pexp(2,rate = 0.334,lower.tail = TRUE)
[1] 0.487267
>
```

IT24104092_Lab07.R

Source on Save | Run | Source

```
13
14 #Probability that an update will take at most 2 hours :
15 pexp(2,rate = 0.334,lower.tail = TRUE)
16
17 #Question 03
18
19 #Random variable x has normal distribution with mean=100 and standard deviatio
20
21 #i.Probability that a randomly selected person has an IQ above 130 :
22 1-pnorm(130,mean = 100, sd=15, lower.tail = TRUE)
23
24 #ii.IQ Score represents the 95th percentile :
25 qnorm(0.95,mean = 100, sd=15,lower.tail = TRUE)
26
27
28
```

26:1 (Top Level) R Script

Console | Terminal | Background Jobs

R 4.5.1 · C:/Users/acer/Desktop/IT24104092_Lab_07/

```
> #Question 03
>
> #Random variable x has normal distribution with mean=100 and standard deviation=15
>
> #i.Probability that a randomly selected person has an IQ above 130 :
> 1-pnorm(130,mean = 100, sd=15, lower.tail = TRUE)
[1] 0.02275013
>
> #ii.IQ Score represents the 95th percentile :
> qnorm(0.95,mean = 100, sd=15,lower.tail = TRUE)
[1] 124.6728
>
```