Sri Lanka Institute of Information Technology

Lab Submission

Lab Sheet 07

IT24102699
Mummullage B.U.T

Probability and Statistics| IT2120

B.Sc.(Hons) in Information Technology

Exercise

Instructions: Create a folder in your desktop with your registration number (Eg: "IT......"). You need to save the R script file and take screenshots of the command prompt with answers and save it in a word document inside the folder. Save both R script file and word document with your registration number (Eg: "IT....."). After you finish the exercise, zip the folder and upload the zip file to the submission link.

1. A train arrives at a station uniformly between 8:00 a.m. and 8:40 a.m. Let the random variable X represent the number of minutes the train arrives after 8:00 a.m. What is the probability that the train arrives between 8:10 a.m. and 8:25 a.m.?

```
 9  getwd()
10  setwd("F:\\SLIIT\\_Year_02_\\Semester 01\\PS - Probability and Statistics\\Lab Practicals\\Lab 07\\IT24102699")
11  getwd()
12
13
14
15  # Question 01
16
17  punif(25, min = 0, max = 40, lower.tail = TRUE) - punif(10, min = 0, max = 40, lower.tail = TRUE)
18
19
20:1  (Top Level)                                                                                    R Script

Console  Terminal  Background Jobs
R 4.5.1 · F:/SLIIT/_Year_02_/Semester 01/PS - Probability and Statistics/Lab Practicals/Lab 07/IT24102699/
> getwd()
[1] "C:/Users/USER/Documents"
> setwd("F:\\SLIIT\\_Year_02_\\Semester 01\\PS - Probability and Statistics\\Lab Practicals\\Lab 07\\IT24102699")
> getwd()
[1] "F:/SLIIT/_Year_02_/Semester 01/PS - Probability and Statistics/Lab Practicals/Lab 07/IT24102699"
>
>
> # Question 01
>
> punif(25, min = 0, max = 40, lower.tail = TRUE) - punif(10, min = 0, max = 40, lower.tail = TRUE)
[1] 0.375
>
```

2. The time (in hours) to complete a software update is exponentially distributed with rate $\lambda = \frac{1}{3}$. Find the probability that an update will take at most 2 hours.

```
20
21  # Question 02
22
23  pexp(2, rate = 1/3, lower.tail = TRUE)
24
25
24:1  (Top Level)

Console  Terminal  Background Jobs
R 4.5.1 · F:/SLIIT/_Year_02_/Semester 01/PS - Probability and Statistics/Lab P
> # Question 02
>
> pexp(2, rate = 1/3, lower.tail = TRUE)
[1] 0.4865829
>
```

3. Suppose IQ scores are normally distributed with a mean of 100 and a standard deviation of 15.
    i. What is the probability that a randomly selected person has an IQ above 130?
    ii. What IQ score represents the 95th percentile?