

Sri Lanka Institute of Information Technology



Lab Submission Lab sheet 07

IT24104110

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Probability and Statistics - IT2120

B.Sc. (Hons) in Information Technology

Exercise

```
Lab7_Exercise.R x
Source on Save
1 setwd("C:\\Users\\User\\OneDrive\\Desktop\\Lab7")
2 getwd()
3 ##Question1
4 ##Uniform Distribution
5 ##Let the random variable X represent the number of minutes the train arrives after 8:00a.m.
6 ##it ask to find  $p(10 < x < 25) = p(x \leq 25) - p(x \leq 10)$ 
7 punif(25,min=0,max=40,lower.tail = TRUE)-punif(10,min=0,max=40,lower.tail = TRUE)
8 ##Question2
9 ##Exponential Distribution
10 ##here,random variable x has exponential distribution with lambda = 0.5
11 ##it ask to find  $p(x \leq 5)$ 
12 ##probability ( $\leq$ ),if"lower.tail" argumrnt equals to "TRUE"
13 pexp(5,rate=0.33,lower.tail = TRUE)
14 ##Question3
15 ##Normal Distribution
16 ##here, random variable x has normal distribution with mean = 100 and sd=15
17 ##part i
18 ##It ask to find  $p(x > 130)$ .
19 ##we need to set our probability with ( $\leq$ ).
20 ##here ,  $p(x > 130) = 1 - p(x \leq 130)$ 
21 1-pnorm(130,mean = 100,sd=15,lower.tail = TRUE)
22 ##part ii
23 ##It ask to find output of  $p(X \leq x) = 0.95$ 
24 qnorm(0.95,mean = 100,sd=15,lower.tail = TRUE)
25
```

```
> setwd("C:\\Users\\User\\OneDrive\\Desktop\\Lab7")
> getwd()
[1] "C:/Users/User/OneDrive/Desktop/Lab7"
> ##Question1
> ##Uniform Distribution
> ##Let the random variable X represent the number of minutes the train arrives after 8:00a.m.
> ##it ask to find  $p(10 < x < 25) = p(x \leq 25) - p(x \leq 10)$ 
> punif(25,min=0,max=40,lower.tail = TRUE)-punif(10,min=0,max=40,lower.tail = TRUE)
[1] 0.375
> ##Question2
> ##Exponential Distribution
> ##here,random variable x has exponential distribution with lambda = 0.5
> ##it ask to find  $p(x \leq 5)$ 
> ##probability ( $\leq$ ),if"lower.tail" argumrnt equals to "TRUE"
> pexp(5,rate=0.33,lower.tail = TRUE)
[1] 0.8079501
> ##Question3
> ##Normal Distribution
> ##here, random variable x has normal distribution with mean = 100 and sd=15
> ##part i
> ##It ask to find  $p(x > 130)$ .
> ##we need to set our probability with ( $\leq$ ).
> ##here ,  $p(x > 130) = 1 - p(x \leq 130)$ 
> 1-pnorm(130,mean = 100,sd=15,lower.tail = TRUE)
[1] 0.02275013
> ##part ii
> ##It ask to find output of  $p(X \leq x) = 0.95$ 
> qnorm(0.95,mean = 100,sd=15,lower.tail = TRUE)
[1] 124.6728
```