Sri Lanka Institute of Information Technology

Lab Submission

<Lab sheets No 7>

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Probability and Statistics | IT2120

B.Sc. (Hons) in Information Technology

Exercise

```
 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<=25)-p(x<=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<=5)
12  ##probability (<=),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 (<=).
20  ##here , p(x>130)= 1-p(x<=130)
21  1-pnorm(130,mean = 100,sd=15,lower.tail = TRUE)
22  ##part ii
23  ##It ask to find output of p(X<=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<=25)-p(x<=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<=5)
> ##probability (<=),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 (<=).
> ##here , p(x>130)= 1-p(x<=130)
> 1-pnorm(130,mean = 100,sd=15,lower.tail = TRUE)
[1] 0.02275013
> ##part ii
> ##It ask to find output of p(X<=x)=0.95
> qnorm(0.95,mean = 100,sd=15,lower.tail = TRUE)
[1] 124.6728
```