LAB Assessment-IV

MAT-5007

Applied statistical methods

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1. Find the probability values of

$$P(0.8 \leq Z \leq 1.5)$$
$$P(Z \leq 2)$$
$$P(Z \geq 1)$$

```
> #Moeenul Islam
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> #QUESTION1
> #(a)
> #p(0.8<=z<=1.5)
> pnorm(1.5)-pnorm(0.8)
[1] 0.1450482
> #(b)
> #p(z<=2)
> pnorm(2)
[1] 0.9772499
> #(c)
> #p(z>=1)
> pnorm(1,lower.tail = FALSE)
[1] 0.1586553
```

2. If mean=70 and Standard deviation is 16

    i) $P(38 \leq X \leq 46)$ ii) $P(X \leq 94)$ iii) $P(X \geq 86)$

Find the Probability values.

```
> #Moeenul Islam
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> #QUESTION2
> #(a)
> #p(38<x<46)
> pnorm(46,mean=70,sd=16)-pnorm(38,mean=70,sd=16)
[1] 0.04405707
> #(b)
> #p(x<=94)
> pnorm(94,mean=70,sd=16)
[1] 0.9331928
> #(c)
> #P(X>=86)
> pnorm(86,mean=70,sd=16,lower.tail = FALSE)
[1] 0.1586553
```

3. 1000 students had Written an examination the mean of test is 35
   and standard deviation is 5.Assumning the to be normal find
   i)   How many students Marks Lie between 25 and 40
   ii)   How many students get more than 40
   iii)   How many students get below 20

```
> #Moeenul Islam
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> #QUESTION3
> n=1000
> mean=35
> sd=5
> #(a)
> #p(25<=x<40)
> p=pnorm(40,mean,sd)-pnorm(25,mean,sd)
> p
[1] 0.8185946
> stnum=p*n
> stnum
[1] 818.5946
> #(b)
> #p(x>40)
> p2=pnorm(40,mean,sd,lower.tail = FALSE)
> p2
[1] 0.1586553
> stnum=n*p2
> stnum
[1] 158.6553
> #(c)
> #p(X<20)
> p3=pnorm(20,mean,sd)
> p3
[1] 0.001349898
> stnum=n*p3
> stnum
[1] 1.349898
```