```
R version 4.0.2 (2020-06-22) -- "Taking Off Again"
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Platform: x86_64-w64-mingw32/x64 (64-bit)

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[Previously saved workspace restored]

> #Experiment-6
>   #19bcd7143
>   #Amlan Shivam Nayak
>   #slot L1
>
>   #Normal distribution
>   #23/11/2020
>  #code MAT1011
>   #Finding probabilty density function
>
>   x<-seq(-5,5,length=500)
>   x
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```

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[403]  3.05611222  3.07615230  3.09619238  3.11623246  3.13627255  3.15631263
[409]  3.17635271  3.19639279  3.21643287  3.23647295  3.25651303  3.27655311
[415]  3.29659319  3.31663327  3.33667335  3.35671343  3.37675351  3.39679359
[421]  3.41683367  3.43687375  3.45691383  3.47695391  3.49699399  3.51703407
[427]  3.53707415  3.55711423  3.57715431  3.59719439  3.61723447  3.63727455
[433]  3.65731463  3.67735471  3.69739479  3.71743487  3.73747495  3.75751503
[439]  3.77755511  3.79759519  3.81763527  3.83767535  3.85771543  3.87775551
[445]  3.89779559  3.91783567  3.93787575  3.95791583  3.97795591  3.99799599
[451]  4.01803607  4.03807615  4.05811623  4.07815631  4.09819639  4.11823647
[457]  4.13827655  4.15831663  4.17835671  4.19839679  4.21843687  4.23847695
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[469]  4.37875752  4.39879760  4.41883768  4.43887776  4.45891784  4.47895792
[475]  4.49899800  4.51903808  4.53907816  4.55911824  4.57915832  4.59919840
[481]  4.61923848  4.63927856  4.65931864  4.67935872  4.69939880  4.71943888
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[493]  4.85971944  4.87975952  4.89979960  4.91983968  4.93987976  4.95991984
[499]  4.97995992  5.00000000
> plot(x,dnorm(x,mean=0,sd=1),type="l",lty=1,lwd=3,col=('blue'),main="NOrmal Profiles",ylim=c(
0,0.5),xlim=c(-5,5))
>   curve(dnorm(x,-1,1),add=TRUE,lty=2,col='red')
>   curve(dnorm(x,1,1),add=TRUE,lty=3,col='green')
> legend(2,0.5,legend=c("N~(0,1)","N~(-1,1)","N~(1,1)"),lty=c(1,2,3),col=c('blue','red','green
'))
> #Check for flatness
> #mean=0 sd=0.1,0.5,1
> plot(x,dnorm(x,mean=0,sd=0.1),type="l",lty=1,lwd=3,col=('blue'),main="NOrmal Profiles",ylim=
c(0,0.5),xlim=c(-5,5),ylab="density")
> plot(x,dnorm(x,mean=0,sd=0.8),type="l",lty=1,lwd=3,col=('blue'),main="NOrmal Profiles",ylim=
c(0,0.5),xlim=c(-5,5),ylab="density")
>   curve(dnorm(x,mean=0,sd=1.8),add=TRUE,lty=2,col=c('red'))
> legend(1,0.5,legend=c("N~(0,0.8)","N~(-0,1.8)","N~(0,2.8)"),lty=c(1,2,3),col=c('blue','red',
'green'))
> #Determine the probabilties
> #P(X<=2)
> pnorm(2,mean=0,sd=1)
[1] 0.9772499
> #find P(0.84<=x<=2.5)
> pnorm(2.5,mean=0,sd=1)-pnorm(0.84,mean=0,sd=1)
[1] 0.1942445
> #Assume that the test scores of a college entrance exam fits a normal distribution.
> #Furthermore, the mean test score is 72
> #and the standard deviation is 15.2.
> #What is the percentage of
> #students scoring 84 or more in the exam?
> pnorm(84, mean=72, sd=15.2, lower.tail=FALSE)
[1] 0.2149176
> #The percentage of students scoring 84 or more in the college entrance exam is 21.5%
```

```
> #The percentage of students scoring 84 or more
> #n the college entrance exam is 21.5%.
>
```