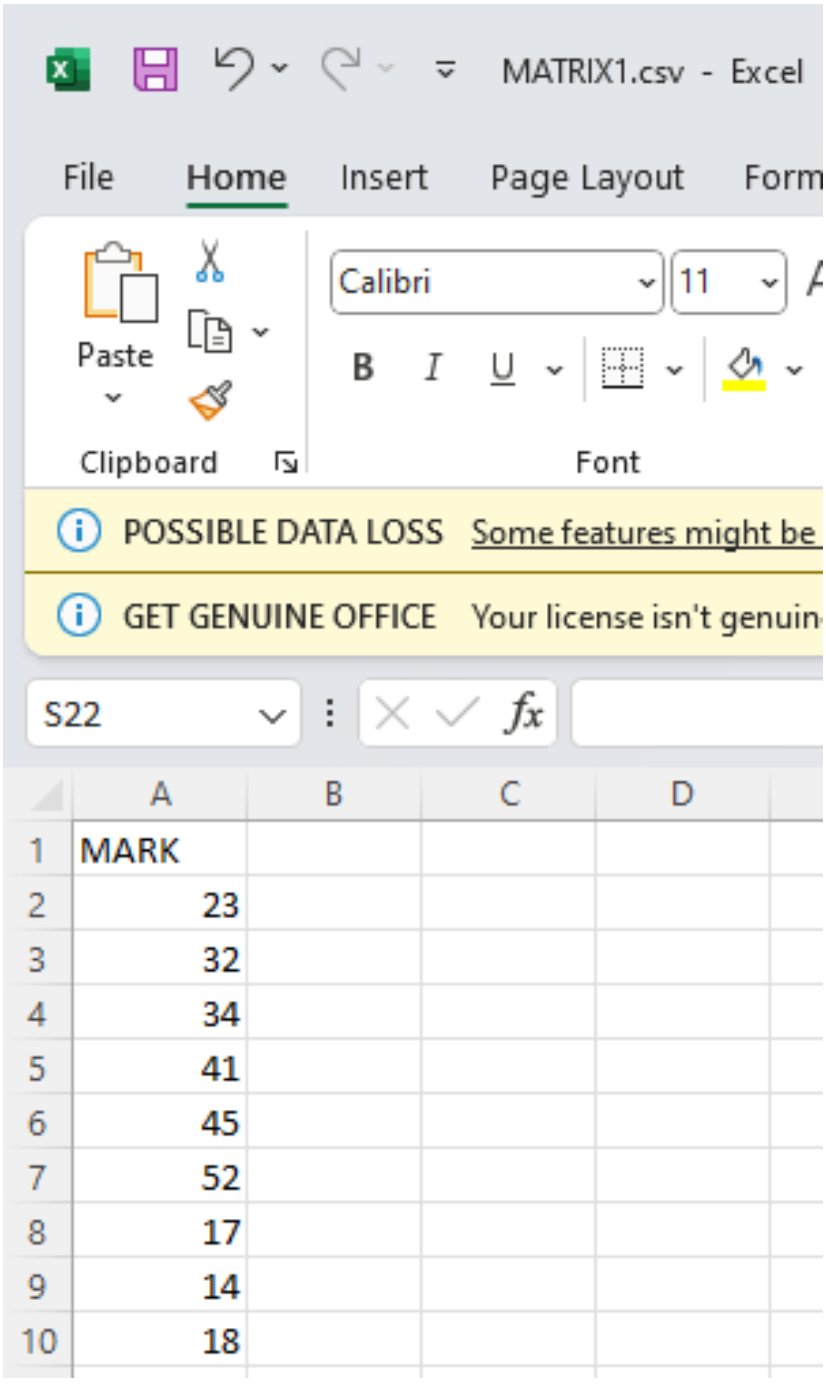
Aadarsh Baranwal
FYCS A

PRACTICAL 2

Q 1) IMPORT DATA FROM CSV TO R AND CREATE A 3 BY 3 MATRIX

MARK: 23,32,34,41,45,52,17,14,18



	A	B	C	D
1	MARK			
2	23			
3	32			
4	34			
5	41			
6	45			
7	52			
8	17			
9	14			
10	18			

Aadarsh Baranwal
FYCS A

PRACTICAL 2

```
> data=read.csv(file.choose())
> data
  MARK
1   23
2   32
3   34
4   41
5   45
6   52
7   17
8   14
9   18
> head(data)
  MARK
1   23
2   32
3   34
4   41
5   45
6   52
> m=data$MARK
> m
[1] 23 32 34 41 45 52 17 14 18
> A=matrix(m,nrow=3,ncol=3)
> A
     [,1] [,2] [,3]
[1,]   23   41   17
[2,]   32   45   14
[3,]   34   52   18
> B=matrix(m,nrow=3,ncol=3,byrow=TRUE)
> B
     [,1] [,2] [,3]
[1,]   23   32   34
[2,]   41   45   52
[3,]   17   14   18
>
```

Aadarsh Baranwal
FYCS A

PRACTICAL 2

Q 2) CONSTRUCT TWO MATRICES AND PERFORM MATRIX OPERATIONS

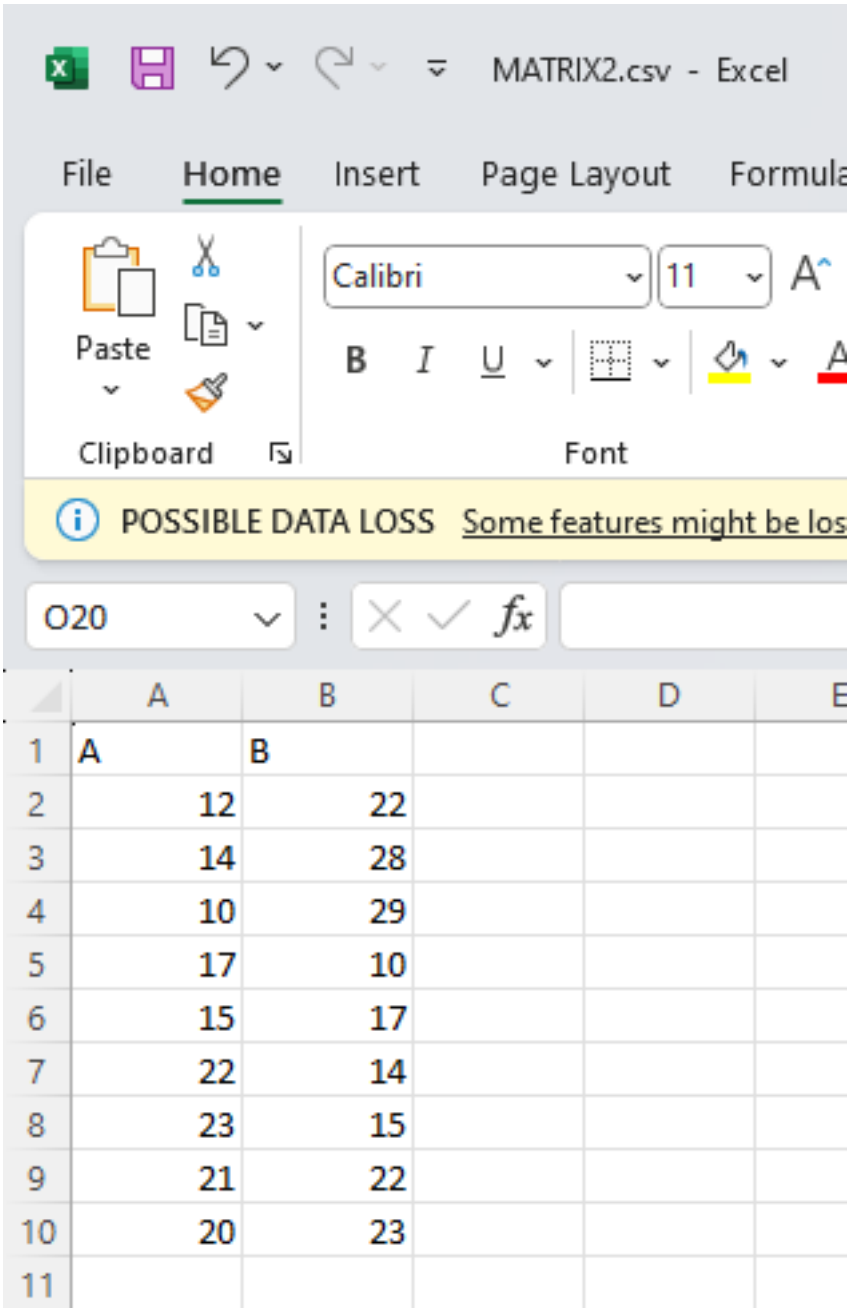
A=12,14,10,17,15,22,23,21,20

B=22,28,29,10,17,14,15,22,23

```
data=read.csv(file.choose())
head(data)
ma=data$A
mb=data$B
A=matrix(ma,nrow=3,ncol=3)
B=matrix(mb,nrow=3,ncol=3)
A=matrix(ma,nrow=3,ncol=3,byrow=TRUE)
B=matrix(mb,nrow=3,ncol=3,byrow=TRUE)
A+B
A-B
A%*%B
solve(A)
solve(B)
qr(A)$rank
qr(B)$rank
t(A)
t(B)
diag(A)
diag(B)
cbind(A,B)
rbind(A,B)
```

Aadarsh Baranwal
FYCS A

PRACTICAL 2



	A	B	C	D	E
1	A	B			
2	12	22			
3	14	28			
4	10	29			
5	17	10			
6	15	17			
7	22	14			
8	23	15			
9	21	22			
10	20	23			
11					

Aadarsh Baranwal
FYCS A

PRACTICAL 2

```
> data=read.csv(file.choose())
> data
   A  B
1 12 22
2 14 28
3 10 29
4 17 10
5 15 17
6 22 14
7 23 15
8 21 22
9 20 23
> head(data)
   A  B
1 12 22
2 14 28
3 10 29
4 17 10
5 15 17
6 22 14
> ma=data$A
> ma
[1] 12 14 10 17 15 22 23 21 20
> mb=data$B
> mb
[1] 22 28 29 10 17 14 15 22 23
> A=matrix(ma,nrow=3,ncol=3)
> A
     [,1] [,2] [,3]
[1,]   12   17   23
[2,]   14   15   21
[3,]   10   22   20
> B=matrix(mb,nrow=3,ncol=3)
> B
     [,1] [,2] [,3]
[1,]   22   10   15
[2,]   28   17   22
[3,]   29   14   23
```

Aadarsh Baranwal
FYCS A

PRACTICAL 2

```
> A=matrix(ma,nrow=3,ncol=3,byrow=TRUE)
> A
     [,1] [,2] [,3]
[1,]   12   14   10
[2,]   17   15   22
[3,]   23   21   20
> B=matrix(mb,nrow=3,ncol=3,byrow=TRUE)
> B
     [,1] [,2] [,3]
[1,]   22   28   29
[2,]   10   17   14
[3,]   15   22   23
> A+B
     [,1] [,2] [,3]
[1,]   34   42   39
[2,]   27   32   36
[3,]   38   43   43
> A-B
     [,1] [,2] [,3]
[1,]  -10  -14  -19
[2,]    7   -2    8
[3,]    8   -1   -3
> A%*%B
     [,1] [,2] [,3]
[1,]  554  794  774
[2,]  854 1215 1209
[3,] 1016 1441 1421
> solve(A)
       [,1]  [,2]   [,3]
[1,] -0.324 -0.14  0.316
[2,]  0.332  0.02 -0.188
[3,]  0.024  0.14 -0.116
> solve(B)
             [,1]        [,2]        [,3]
[1,]  0.33067729 -0.02390438 -0.40239044
[2,] -0.07968127  0.28286853 -0.07171315
[3,] -0.13944223 -0.25498008  0.37450199
> round(solve(B),2)
      [,1]  [,2]  [,3]
[1,]  0.33 -0.02 -0.40
[2,] -0.08  0.28 -0.07
[3,] -0.14 -0.25  0.37
>
```

Aadarsh Baranwal
FYCS A

PRACTICAL 2

```
> qr(A)$rank
[1] 3
> qr(B)$rank
[1] 3
> t(A)
     [,1] [,2] [,3]
[1,]   12   17   23
[2,]   14   15   21
[3,]   10   22   20
> t(B)
     [,1] [,2] [,3]
[1,]   22   10   15
[2,]   28   17   22
[3,]   29   14   23
> diag(A)
[1] 12 15 20
> diag(B)
[1] 22 17 23
> cbind(A,B)
     [,1] [,2] [,3] [,4] [,5] [,6]
[1,]   12   14   10   22   28   29
[2,]   17   15   22   10   17   14
[3,]   23   21   20   15   22   23
> rbind(A,B)
     [,1] [,2] [,3]
[1,]   12   14   10
[2,]   17   15   22
[3,]   23   21   20
[4,]   22   28   29
[5,]   10   17   14
[6,]   15   22   23
>
```