

******* Practical 1 *******

```
// Print Hello World Programm
```

```
s = "Hello World";
```

```
print(s)
```

```
s<- "Hello world";
```

```
print(s)
```

```
// Vector Program
```

```
age = c(11,7);
```

```
name = c("Aman","Kiran");
```

```
print(age)
```

```
print(name)
```

```
// Array
```

```
arr = array(c(4:1),dim = c(3,3));
```

```
print(arr)
```

```
// matrix
```

```
m = matrix(c(4:1),nrow = 3,ncol = 3);
```

```
print(m)
```

```
// List
```

```
s = list(name= "Shivam",gender ="M",age=20);
```

```
print(s)
```

```
// DataFrame
```

```
name = c("Shivam","Sumit")
```

```
age = c(20,20)
```

```
class = c("SY","SY")
```

```
studData = data.frame(name,age,class)
```

```
print(studData)
```

```
***** Practical 2 *****
```

```
// Create Matrix and Performe Add , sub all
```

```
m1 = matrix(data =1:4,nrow = 2,ncol = 2);
```

```
print(m)
```

```
m2 = matrix(data=1:4,nrow = 2,ncol = 2)
```

```
print(m2)
```

```
// Addition
```

```
m1 = matrix(data =1:4,nrow = 2,ncol = 2);
```

```
m2 = matrix(data=1:4,nrow = 2,ncol = 2)
```

```
ans = m1+ m2
```

```
print(ans)
```

```
// Substraction
```

```
m1 = matrix(data =1:4,nrow = 2,ncol = 2);
```

```
m2 = matrix(data=1:4,nrow = 2,ncol = 2)
ans = m1 - m2
print(ans)
```

```
// Multiplication
```

```
m1 = matrix(data =1:4,nrow = 2,ncol = 2);
m2 = matrix(data=1:4,nrow = 2,ncol = 2)
ans = m1 * m2
print(ans)
```

```
// Transform of matrix
```

```
m1 = matrix(data =1:4,nrow = 2,ncol = 2);
t = t(m1);
print(t)
```

```
// Inverse of Matric
```

```
m1 = matrix(data =1:4,nrow = 2,ncol = 2);
t = solve(m1);
print(t)
```

```
// determinant of matric
```

```
m1 = matrix(data =1:4,nrow = 2,ncol = 2);
det = det(m1);
print(det)
```

***** **Practical 3** *****

```
// Calculate mean using mean function
```

```
m = c(97,98,78,56,34,12)
```

```
ans = mean(m);
```

```
print(ans)
```

```
// median or Middle of the Number
```

```
m = c(97,78,57,64,87);
```

```
ans = median(m);
```

```
print(ans)
```

```
// Mode or common number in data set
```

```
// Creating mode function
```

```
getMode = function(x)
```

```
{
```

```
  uniqv = unique(x)
```

```
  uniqv[which.max(tabulate(match(x,uniqv)))]
```

```
}
```

```
x = c(11,22,33,4,5,12,3,2,5,2,2)
```

```
print(getMode(x))
```

```
y = c('IT','IT',"CS","PM","CS","OS","IT","FM")
```

```
print(getMode(y));
```

```
// range - it is used to find the minimum and maximum value of a numeric vector
```

```
arr = c(-10,-15,5,19,27,0)
```

```
range(arr)
```

******* Practical 4 *******

```
stud = read.csv("C:/Shivam/stud.csv")
```

```
print(stud)
```

```
m = mean(stud$marks);
```

```
print(m)
```

```
mod = median(stud$marks);
```

```
print(mod)
```

```
res = quantile(stud$marks);
```

```
print(res)
```

```
rangee = range(stud$marks)
```

```
print(rangee)
```

```
iqrr = IQR(stud$marks);
```

```
print(iqrr)
```

```
result = hist(stud$marks);
```

******* Practical 5 *******