

Lab 1

Q1)

a) Enter the data {2, 5, 3, 7, 1, 9, 6} directly and store it in a variable x.

```
> x<- c (2,5,3,7,1,9,6)
```

```
> x
```

```
[1] 2 5 3 7 1 9 6
```

b) Find the number of elements in x.

```
> length(x)
```

```
[1] 7
```

c) Find the last element of x.

```
> x[length(x)]
```

```
[1] 6
```

d) Find the minimum and maximum elements of x.

```
> min(x)
```

```
[1] 1
```

```
> max(x)
```

```
[1] 9
```

Q2. Enter the data {1,2,.....,19,20} in a variable x.

```
> x=1:20
```

```
> x
```

```
[1] 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
```

a) Find the 3rd element in the data list.

```
> x[3]
```

```
[1] 3
```

b) Find the 3rd to 5th element in the data list.

```
> x[c(3,5)]
```

```
[1] 3 5
```

c) Find the 2nd, 5th, 6th, 12th element in the list.

```
> x[c (2,5,6,12)]
```

```
[1] 2 5 6 12
```

d) Print the data as {20, 19,..., 2,1} without entering the data.

```
> rev(x)
```

```
[1] 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
```

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Lab 2

Problem Set 1

Q.1) Few simple statistical measures:

(a) Enter data as 1,2,3. . . ,10

```
> x=1:10
```

(b) Find sum of the numbers.

```
> sum(x)
```

```
[1] 55
```

(c) Find Mean, median

```
> mean(x)
```

```
[1] 5.5
```

```
> median(x)
```

```
[1] 5.5
```

(d) Find sum of squares of these values.

```
> y
```

```
[1] 1 4 9 16 25 36 49 64 81 100
```

```
> sum(y)
```

```
[1] 385
```

(e) Find the value of $\frac{1}{n} \sum_{i=1}^n |x_i - \bar{x}|$, this is known as mean deviation about mean (M D \bar{x}).

```
> x=1:10
```

```
> z<- abs((x) - mean(x))
```

```
> z
```

```
[1] 4.5 3.5 2.5 1.5 0.5 0.5 1.5 2.5 3.5 4.5
```

```
> meandev <- (1/length(x))*sum(z)
```

```
> meandev
```

```
[1] 2.5
```

(f) Check whether $M D \bar{x}$ is less than or equal to standard deviation.

```
> meandev<=sd(x)
```

```
[1] TRUE
```

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