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Class: TYBSC CS A

Subject: Data Science

Practical No: 4

Aim: Demonstration of Hypothesis testing.

Steps:

Step 1: First we have to create Excel file and Enter the 28 values so that we can fine deviation, Square of deviation, population, differentiate of mean, T-value, and system calculate standard deviation and save as .CSV file.

Output:

	A	B	C	D	E
1		C1	Deviation	Deviation sqr	
2	1	85.3	-12.22142857	149.3633163	
3		86.9	-10.62142857	112.8147449	
4		96.8	-0.721428571	0.520459184	
5		108.5	10.97857143	120.5290306	
6		113.8	16.27857143	264.9918878	
7		87.7	-9.821428571	96.46045918	
8		94.5	-3.021428571	9.129030612	
9		99.9	2.378571429	5.657602041	
10		92.9	-4.621428571	21.35760204	
11		67.3	-30.22142857	913.3347449	
12		90.6	-6.921428571	47.90617347	
13		129.8	32.27857143	1041.906173	
14		48.9	-48.62142857	2364.043316	
15		117.5	19.97857143	399.1433163	
16		100.8	3.278571429	10.74903061	
17		94.5	-3.021428571	9.129030612	
18		94.4	-3.121428571	9.743316327	
19		98.9	1.378571429	1.900459184	
20		96	-1.521428571	2.314744898	
21		99.4	1.878571429	3.529030612	
22		79.1	-18.42142857	339.3490306	
23		108.5	10.97857143	120.5290306	
24		84.6	-12.92142857	166.9633163	
25		117.5	19.97857143	399.1433163	
26		70	-27.52142857	757.4290306	
27		104.4	6.878571429	47.3147449	
28		127.1	29.57857143	874.8918878	
29		135	37.47857143	1404.643316	
30		97.52143	calculate varianc	346.242398	
31				t value	-0.69214
32	populatio	100		system calculate stdev	18.94904
33	Diff in me	-2.47857			
34					

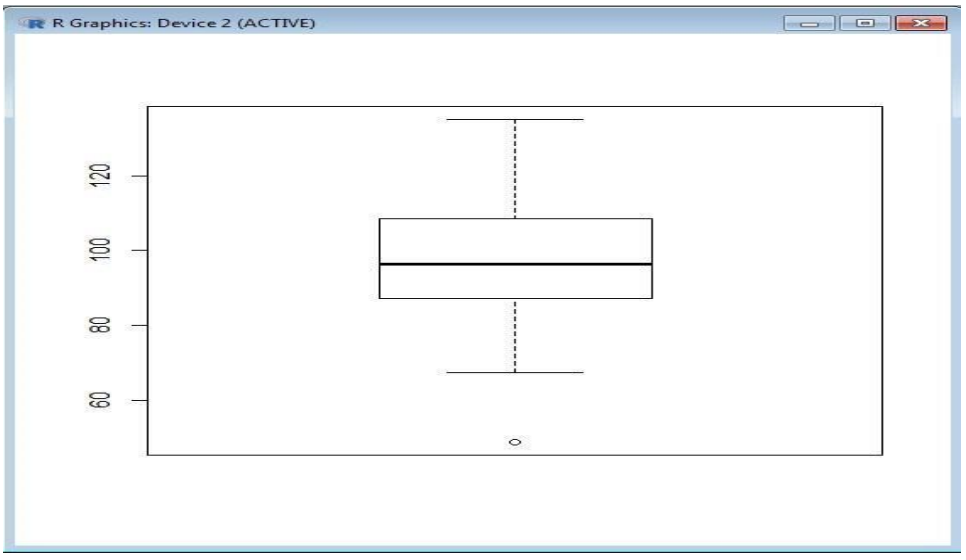
Step 2:Now we have to import Excel file (onetest.csv) type bellow command.

Output:

```
R Console
> datanew=read.csv("D:/onettest.csv")
> datanew
      C1
1   85.3
2   86.9
3   96.8
4  108.5
5  113.8
6   87.7
7   94.5
8   99.9
9   92.9
10  67.3
11  90.6
12 129.8
13  48.9
14 117.5
15 100.8
16  94.5
17  94.4
18  98.9
19  96.0
20  99.4
21  79.1
22 108.5
23  84.6
24 117.5
25  70.0
26 104.4
27 127.1
28 135.0
```

Step 3: After importing onetest.csv file we will plot Boxplot diagram type bellow command.

#boxplot(datanew) Output:



Step 4:After that find mean of respective data.

Output:

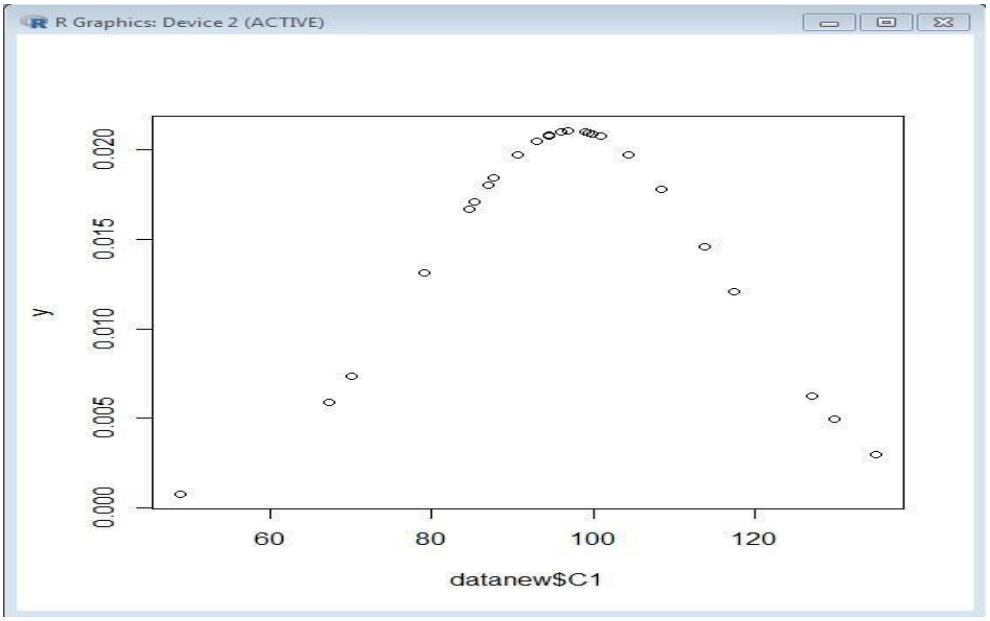
```
> m1=mean(datanew$C1)
> m1
[1] 97.52143
```

Step 5:Now calculate the standard deviation.
Output:

```
> sd1=sd(datanew$C1)
> sd1
[1] 18.94904
> mean1=mean(datanew$C1)
> mean1
[1] 97.52143
```

Step 6:Plot bell curve.

plot(datanew$C1) Output:



Step 7: At the end find T-Test value type following command.

Output:

```
> t.test(datanew$C1,alternative="greater",mu=100)

        One Sample t-test

data:  datanew$C1
t = -0.69214, df = 27, p-value = 0.7526
alternative hypothesis: true mean is greater than 100
95 percent confidence interval:
 91.4219     Inf
sample estimates:
mean of x
 97.52143
```

CONCLUSION:Thus we have implemented Hypothesis testing of a Single Population means successfully