Compare parametric and non-parametric statistics:

NON-PARAMETRIC:

Q-test: H0 = There is no outlier in the data set.
H1 = There is one outlier in the data set.

Data set	sorted	Q
30.1	30.1	0.351
32.56	32.56	
33.33	33.33	
34.1	34.1	
34.45	34.45	
35.12	35.12	
35.14	35.14	
37.1	37.1	0.280

alpha=	0.05
range=	7
N=	8
Qcrit=	0.526

The calculated value 0,351 is smaller than the critical valu
Therefore, the null hypothesis is accepted, no outlier pre

N	Q_{crit} (CL:90%)	Q_{crit} (CL:95%)	Q_{crit} (CL:99%)
3	0.941	0.970	0.994
4	0.765	0.829	0.926
5	0.642	0.710	0.821
6	0.560	0.625	0.740
7	0.507	0.568	0.680
8	0.468	0.526	0.634
9	0.437	0.493	0.598
10	0.412	0.466	0.568

PARAMETRIC:

Grubb´s test: H0 = There is no outlier in the data set.
H1 = There is one outlier in the data set.

Data set
30.1
32.56
33.33
34.1
34.45
35.12
35.14
37.1

Max value=	37.1	T (max)=	1.500788
Min value=	30.1	T (min)=	1.874478
Mean=	33.99	critical=	2.1266
St. dev.=	2.073911		

Both calculated values are lower tl
Therefore, the null hypothesis is a

$$G = \frac{\max |Y_i - \bar{Y}|}{s} \qquad G = \frac{\bar{Y} - Y_{min}}{s}$$

CONCLUSION:

Non-parametric tests are more suitable as there is a small sample of data and it is not normally distributed

Confidence interval:

Data set sorted		
30.1	N=	8
32.56		<30,1;35,14>
33.33		
34.1		
34.45		
35.12		
35.14		
37.1		

ıe 0,526.
sent.

n	j	k	p
$n \leq 5$: no confidence interval possible.			
6	1	6	0.969
7	1	7	0.984
8	1	7	0.961
9	2	8	0.961
10	2	9	0.979
11	2	10	0.988
12	3	10	0.961
13	3	11	0.978
14	3	11	0.965
15	4	12	0.965
16	4	12	0.951
17	5	13	0.951
18	5	14	0.969
19	5	15	0.981
20	6	15	0.959

Confidence interval - Student:

$$\left\langle \bar{x} - t_{(\alpha, n-1)} * \frac{s}{\sqrt{n}} \right.$$

Data set	
30.1	
32.56	N=
33.33	Mean=
34.1	St. dev.=
34.45	
35.12	t=
35.14	alpha=
37.1	

han the critical value 2,1266.
ccepted, there is no outlier.

l.

$$\left\langle \bar{x} - t_{(\alpha, n-1)} * \frac{s}{\sqrt{n}} \; ; \; \bar{x} + t_{(\alpha, n-1)} * \frac{s}{\sqrt{n}} \right\rangle$$

8		s.e.m.=	0.73
33.99		L1=	32.25
2.07		L2=	35.72
2.36		<32,25;35,72>	
0.05			