

SURVEY ANALYSIS FOR ROTARACT CLUB OF BOMBAY AND VYF NGO



THIS ANALYSIS IS FOR

- This survey analysis was done for the organizations, Rotaract Club of Bombay and Vivekanand Youth Foundation.
- Rotaract is an international service organization whose stated purpose is to bring together youth in order to provide humanitarian service. Rotaract is now of over 10,904 clubs spread around the world and 250,792 members in 184 countries. It is a service, leadership, professional and community service organization.
- Vivekanand Youth Forum is a 1987 established Mumbai based NGO working for underprivileged children and youth.



OUR PROCESS

After getting approval for our chosen topic we went to Jamanabai Narsee School where the NGO students come for daily after school sessions.

We had a talk with the NGO head and finally convinced her to give sometime out of their schedule for us.

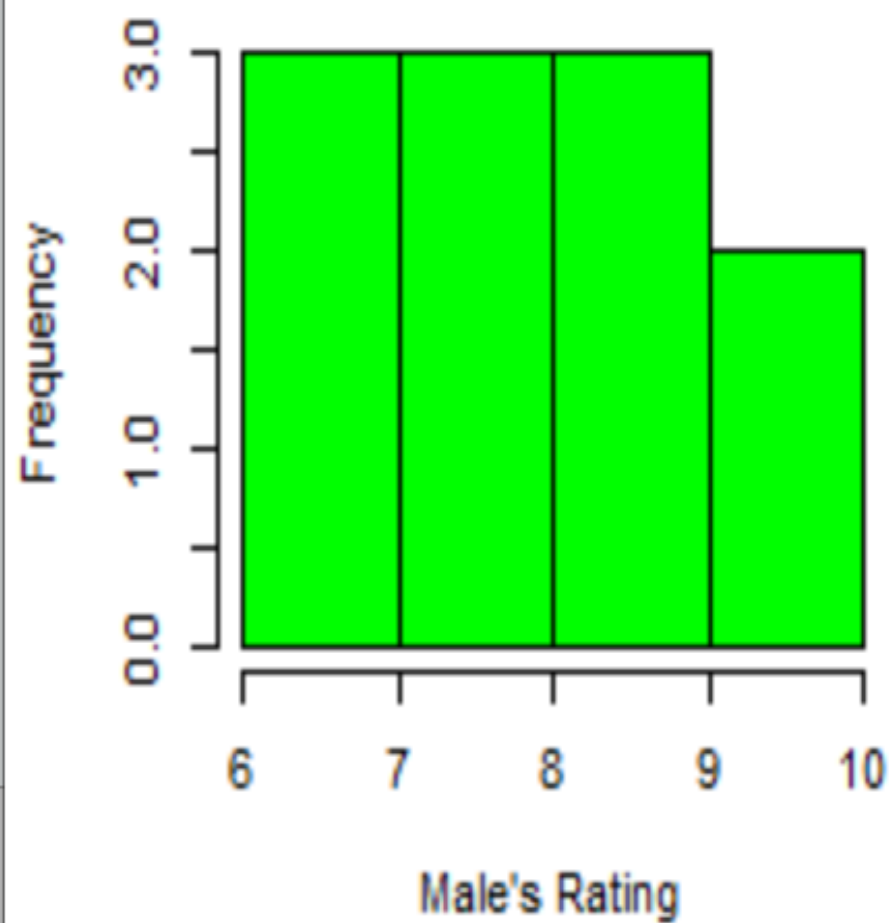
Our survey followed the process where we personally took inputs from the younger kids and gave the Google form to be filled on their own to the older kids. We did this to have as unbiased data as possible.

One of our questions needed the students to do an activity. So after taking the initial rating we made them do a small 10 min exercise and with one final rating input we ended our survey.

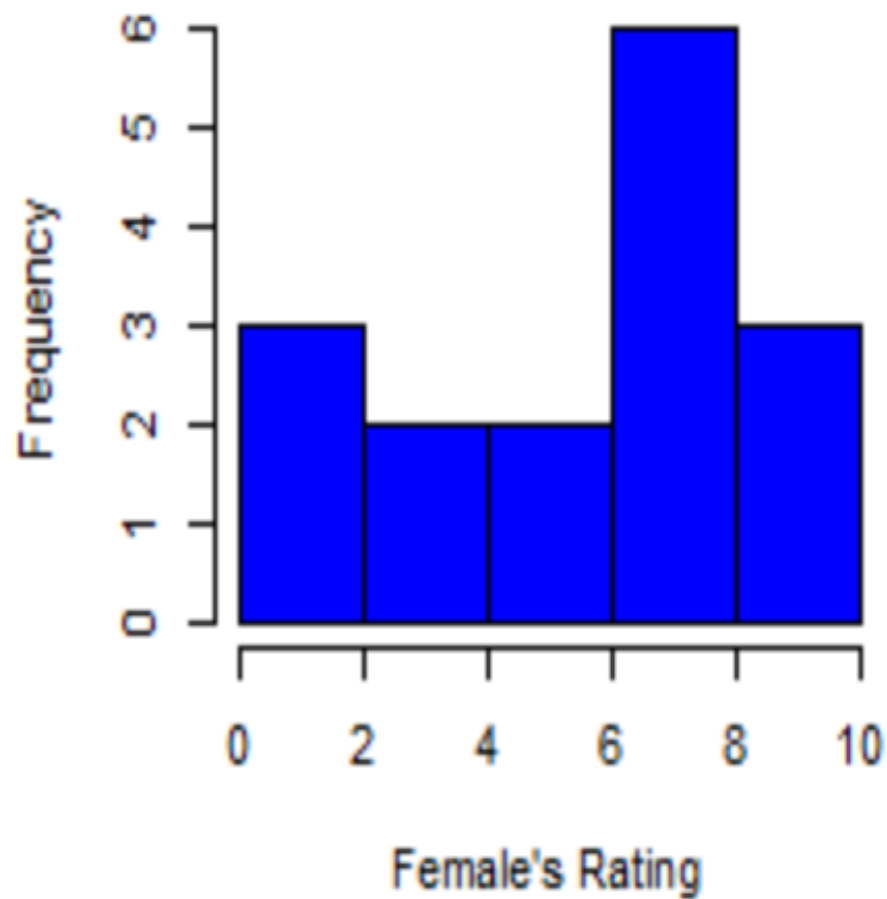


ANALYSIS

Technical Rating of Male




Technical Rating of Female

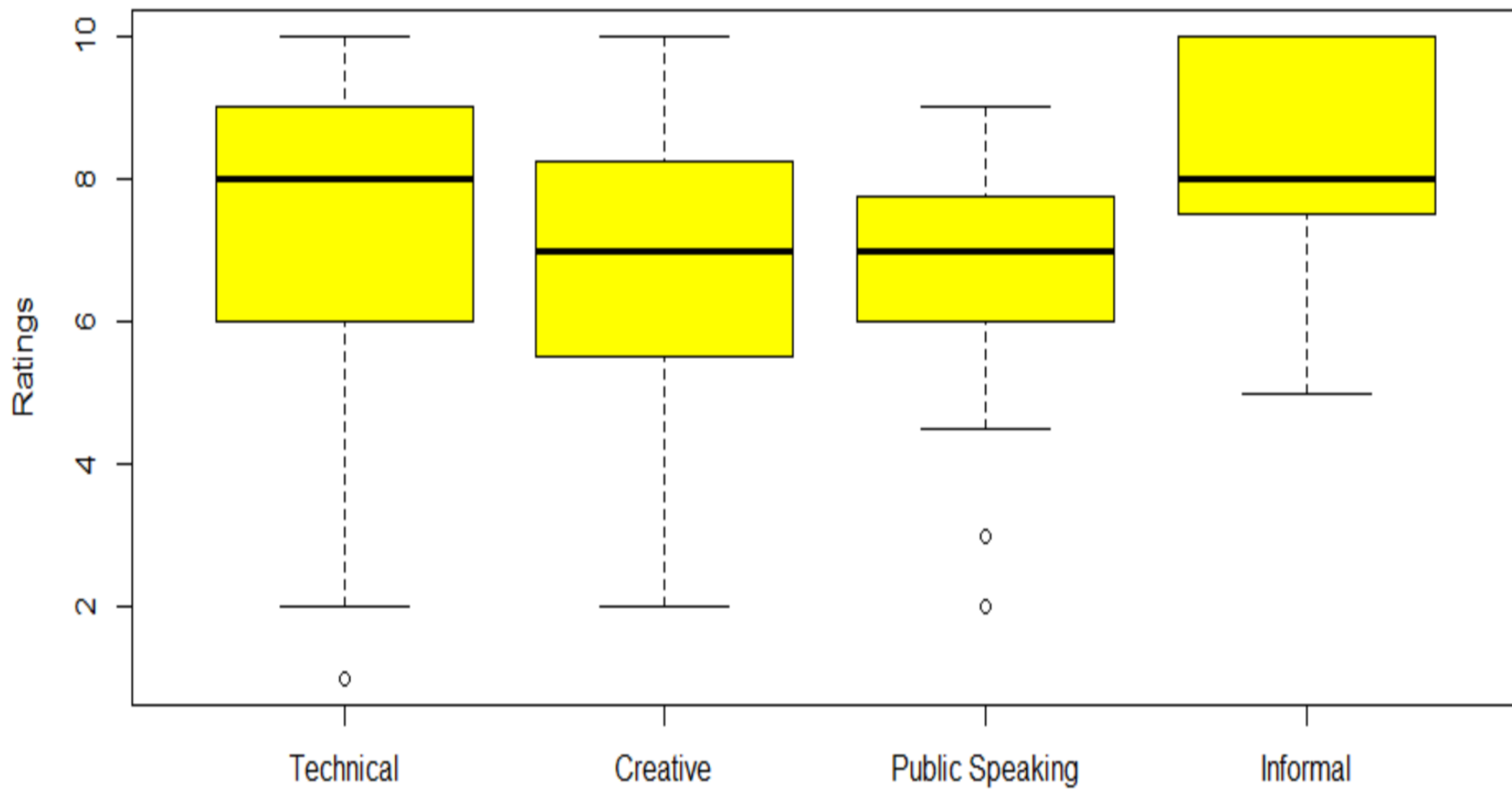


This is a histogram for both male's rating and female's rating with respect to technical (whether they are interested to learn computers or not).

Here we see, Male's rating ranges from 6-10. Female's rating ranges from 0-10

 We can infer that mostly males are interested to learn technical things. But this is not the case for females. Some female are very interested and some females are not at all. 6 of the female's have ratings between 6-8.

Male's rating ranges are very less whereas female's ratings range more.



By this boxplot we see ratings (ranging from 1-10) plotted with respect to different fields like Technical, Creatives, Public Speaking and Informal.

- In Technical we see, the median lies near to 8. And most of the ratings lie below the median, one outlier lies below the plot, so we can infer that less people are interested in technical. 50% of the people have given ratings between 6-9. 25% people have given ratings between 9-10 and the other 25% people have given their ratings between 2-6.
- In Creatives, median lies near 7. Approximately equal ratings are there on both the ends. 50% of the people have given ratings between 6-8. 25% of the people have given ratings between 8-10. And the rest 25% of the people have given ratings between 2-5

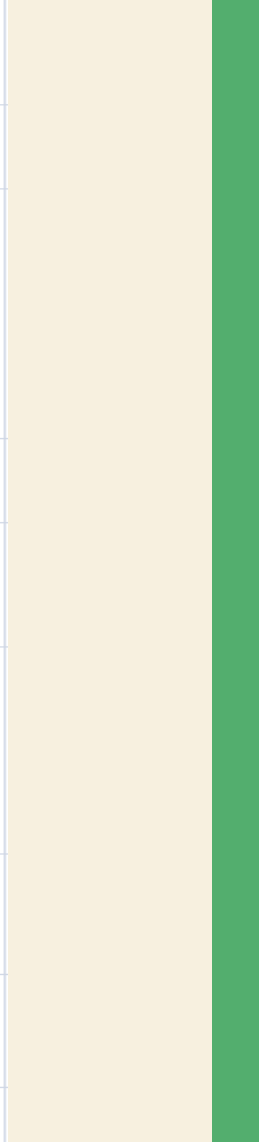
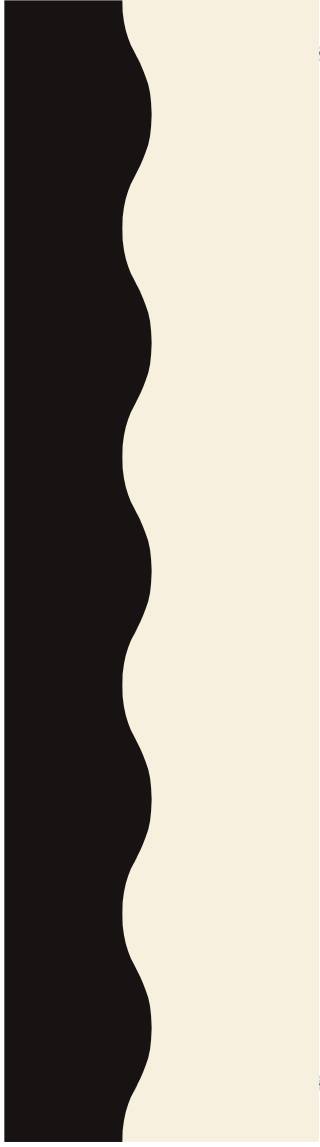
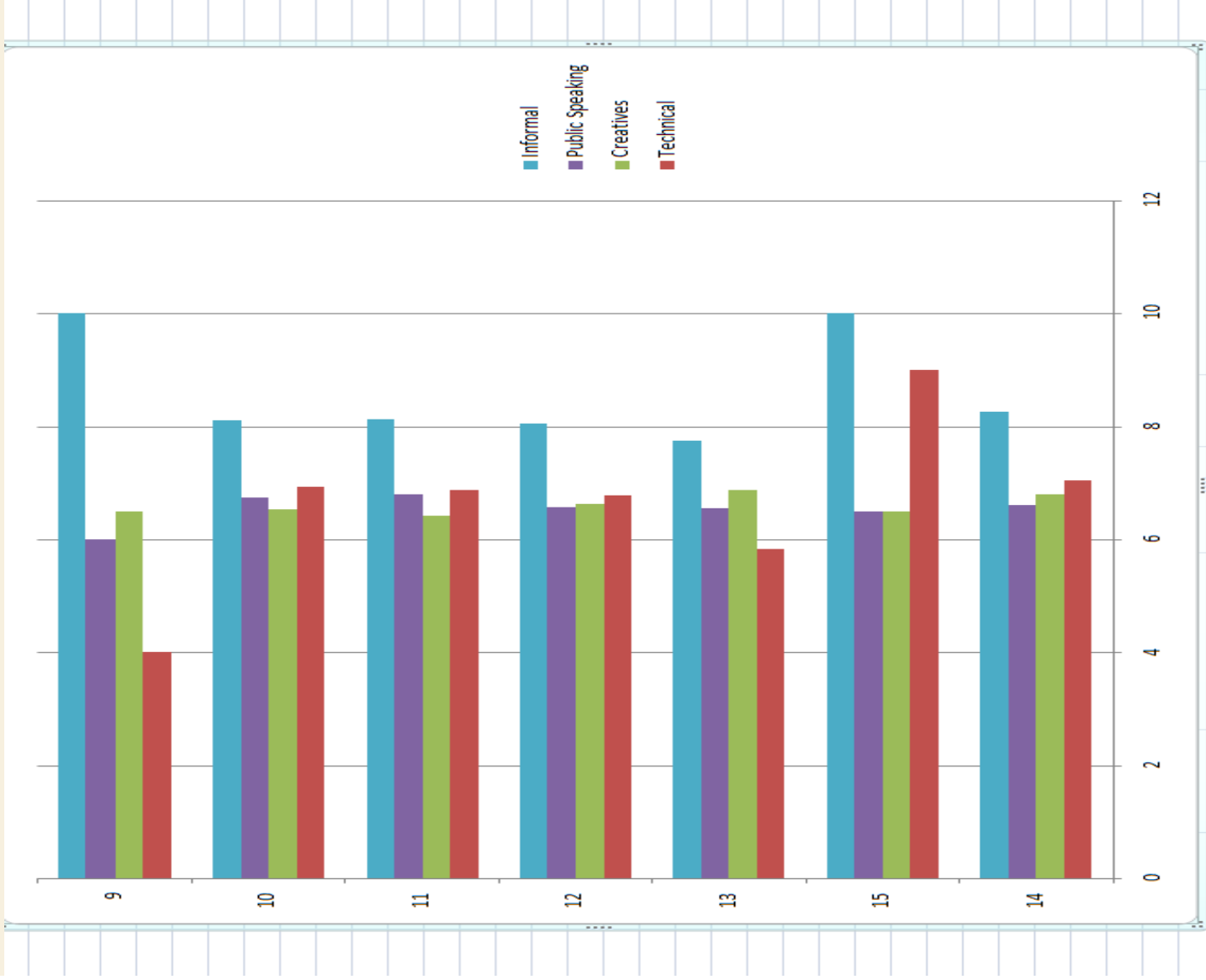
- In Public Speaking, median lies near 7. Approximately equal ratings are there on both the sides of the box plot. 50% of the people have given the ratings between 6-8. 25% of the people have given ratings between 7-9 and the other 25% of the people have given ratings between 5-6. 2 outliers lie in between 2-4 ratings.
- In informals activities, median lies around 8. 75% people have given ratings between 8-10. Other 25% people have given ratings between 5-8.



From the graph we can infer that technical and informal activities interest people more. Informal activities is loved by everyone but there are a few people who are not interested in technical. Creatives are comparatively less liked by the people and public speaking even lesser.

Maybe if we start teaching them technical, it will grow their interest. Same for public speaking, people have given less ratings probably because they are scared of it. Once they are comfortable, it might interest them more.

Hence we decided to perform Hypothesis testing to know that out of Technical and Informal which is more liked by the students. We decided that our NULL hypothesis would be that students would want to learn technical more than having informal activities.




This is a bar graph of age vs ratings for different fields- Informal, Public speaking, Creatives and Technical

In all the age groups, informal activities are loved by everyone. In age group 9 and 15, informal activities are of rating 10. In all the other age groups, they lie in between 8

Public speaking ranges around 6 for all age groups, age 13 being the highest for public speaking rating

Creatives also range around 6 for all age groups, age 13 being the highest for creatives rating

Technical is liked very less by age group 9. The other age groups range around 6 except age 15 children. Age 15 children are more interested in technical

By  this bar graph we can see that age 13 is very moderate. They differ very less in all the fields. This is probably because of their teen age. They have just entered the teen and they try everything to find their interest.



TESTING OF HYPOTHESIS



1 SAMPLE T - TEST

HYPOTHESIS ASSUMED

- We had the ratings of students about how much they liked the Technical Activities on the scale of 1 to 10.
- We assumed that the mean rating is less than equal to 6. We did not have population standard deviation (necessary condition) and had a sample size of 27, that is less than 30 (adequate condition) hence we decided to do 1 sample T-test.
- We have taken the value of confidence interval (α) = 0.05
- So our hypothesis is :-
 - H_0 : μ less than equal to 6 ($\mu \leq 6$)
 - H_a : μ greater than 6 ($\mu > 6$)


```
1 ## R ICA Assignment
2
3
4 # 1 Sample T Test
5
6 Technical<-c(10,8,6,3,8,9,4,8,1,6,7,2,10,6,8,9,9,7,10,10,8,7,8,1,8,7,10)
7 Technical
8
9 t.test(Technical, mu = 6, alternative = "greater")
10 |
11
```

10:1 (Top Level) ▾

R Script ▾

Console

Terminal ×

Jobs ×

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```
> Technical
[1] 10  8  6  3  8  9  4  8  1  6  7  2 10  6  8  9  9  7 10 10  8  7  8  1  8  7 10
>
> t.test(Technical, mu = 6, alternative = "greater")
```

One Sample t-test

```
data: Technical
t = 1.9988, df = 26, p-value = 0.02809
alternative hypothesis: true mean is greater than 6
95 percent confidence interval:
 6.152122      Inf
sample estimates:
mean of x
 7.037037
```

```
> |
```

AFTER T-TEST IN R

- We entered the value as vector in one variable
- Passed variable in the function `t.test()`
- Passed the mu value as 6 because according to our hypothesis, $\mu \leq 6$, Is our null hypothesis.
- We passed “greater” to alternative, as in our alternative hypothesis, we have the `>` (greater) operator.

After running we see that the p-value (0.02809) is less than alpha (0.05),

Hence, we reject the null hypothesis H_0 .

1 Sample T - Test							
How much are the students interested to learn Computers		Rating scale 1-10					
Hypothesis :							
Ho :	Mu less than equal to	6					
Ha :	Mu greater than	6					
Alfa	0.05						
Name	Technical Learning (Rating)						
Komal	10						
Simran	8		Sample mean :	7.037037			
Rehan	6		Sample SD :	2.695887			
Shalini	3						
Nikita	8		sd error	0.518824			
Shubham	9						
Mariservi	4		t calc	1.998824			
Zaid	8						
Anjali	1		t tabular	1.705618			
Minakshi	6						
Subhan	7		We reject the Hypothesis as it is outside the confidence interval				
Archana	2						
Nuran	10						
Tulsi	6						
Bheem	8						
Jeevan	9						
Anjaneya	9						
Rudresh	7						
Farhaan	10						
Parmeshw	10						
Farhat	8						
Nandini	7						
Venitha	8						
Priya	1						
Asmita	8						
Arya	7						
Sabrisan	10						
count	27						

AFTER T-TEST IN EXCEL

- We calculated the mean and standard deviation for data set. After which we calculated sigma X, and then T calculated, which we compared with T tabular.
- We observed that our T calculated (1.998) is more than our T tabular (1.705) hence it supports the rejection of Null Hypothesis.

Hence we conclude that the students rated the Technical Activity more than just 6.

2 SAMPLE T – TEST WITH EQUAL VARIANCE

[DIYA PAINTING VS ENVELOPE MAKING]

HYPOTHESIS ASSUMED

- Till now the students had performed two activities which involved them using their creative skills. Diya Painting (μ_1) and Envelope Making (μ_2) were those two activities. We classify them under “Creative Skills” category.
- We wanted to compare that of these two activities which was more liked by the students. As they belonged to one category and we did not have population standard deviation (necessary condition) and had a sample size of 27, that is less than 30 (adequate condition) hence we decided to do 2 sample T-test for equal variance.
- We have taken the value of confidence interval (α) = 0.05
- So our hypothesis is :-
 - H_0 : μ_1 less than or equal μ_2 ($\mu_1 \leq \mu_2$)
 - H_a : μ_1 greater than μ_2 ($\mu_1 > \mu_2$)

```

17
18 # 2 Sample Equal Variance (Diya Painting vs Envelope Making)
19
20 DiyaPainting<-c(5,10,10,7,9,4,8,6,8,9,10,8,7,3,5,6,6,5,1,9,8,8,4,6,8,10,8)
21 DiyaPainting
22
23 EnvelopeMaking<-c(10,1,9,10,10,1,5,7,8,9,2,8,6,1,2,9,7,5,10,9,3,8,5,8,7,10,9)
24 EnvelopeMaking
25
26 t.test(DiyaPainting, EnvelopeMaking, mu = 0, var.equal = T, alternative = "greater")
27 |

```

27:1 (Top Level) ▾

R Script ▾

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```

> EnvelopeMaking
[1] 10  1  9 10 10  1  5  7  8  9  2  8  6  1  2  9  7  5 10  9  3  8  5  8  7 10  9
>
> t.test(DiyaPainting, EnvelopeMaking, mu = 0, var.equal = T, alternative = "greater")

```

Two Sample t-test

```

data: DiyaPainting and EnvelopeMaking
t = 0.44536, df = 52, p-value = 0.329
alternative hypothesis: true difference in means is greater than 0
95 percent confidence interval:
 -0.9201112      Inf
sample estimates:
mean of x mean of y
 6.962963  6.629630
> |

```

AFTER T-TEST IN R

- We entered the values as vector in two different variables
- Passed both the data variables in the function `t.test()`
- Passed the mu value as 0 because according to our hypothesis, $\mu_1 - \mu_2 \leq 0$, Is our null hypothesis.
- We passed `var.equal = T`, as this is the case of equal variance
- We passed “greater” to alternative, as in our alternative hypothesis, we have the `>` (greater) operator.

After running we see that the p-value (0.329) is more than alpha (0.05),

Hence, we accept the null hypothesis H_0 .

2 Sample T-Test (Equal Variance)							
Creatives	1) Diya Painting	Mu1	Rating scale 1-10				
	2) Envelope Making	Mu2					
Hypothesis			t-Test: Two-Sample Assuming Equal Variances				
Ho :	Mu1<=Mu2			Variable 1	Variable 2		
Ha :	Mu1>Mu2			Mean	6.962963	6.62963	
Alfa	0.05			Variance	5.421652	9.703704	
Name	Diya Painting (Rating) Mu1	Envelope Making activity? (Rating) Mu2		Observations	27	27	
Komal	5	10		Pooled Variance	7.562678		
Simran	10	1		Hypothesized Std. Dev.	0		
Rehan	10	9		df	52		
Shalini	7	10		t Stat	0.445357		
Nikita	9	10		P(T<=t) one-tail	0.328955	Accept Ho	
Shubham	4	1		t Critical one-tail	1.674689		
Mariselvi	8	5		P(T<=t) two-tail	0.657911		
Zaid	6	7		t Critical two-tail	2.006647		
Anjali	8	8					
Minakshi	9	9					
Subhan	10	2					
Archana	8	8					
Nuran	7	6					
Tulsi	3	1					
Bheem	5	2					
Ieevan	6	9					
Anjaneya	6	7					
Rudresh	5	5					
Farhaan	1	10					
Parmeshwari	9	9					
Farhat	8	3					
Nandini	8	8					
Venitha	4	5					
Priya	6	8					
Asmita	8	7					
Arya	10	10					
Sabrisan	8	9					
Sample mean	6.962962963	6.62962963					
Sample SD	2.328444206	3.115076838					
Sample size	27	27					
df	26	26					
	Polled SD	2.750032375					
	SD error	0.74846401					
	T calc	0.445356528					
	T tabular	1.674689154					
	Accept Ho						

AFTER T-TEST IN EXCEL

- We calculated the mean and standard deviation for each data set. After which we calculated sigma X, and then T calculated, which we compared with T tabular.
- We observed that our T calculated (0.445) is less than our T tabular (1.674) hence it supports the acceptance of Null Hypothesis.
- When we use the in-built function in Excel to perform the T-test, we get the same results.

Hence we conclude that the students liked Envelope Making (μ_2) more than the Diya Painting (μ_1).

2 SAMPLE T – TEST WITH EQUAL VARIANCE

[GRAM PANCHAYAT VS JAM ACTIVITY]

HYPOTHESIS ASSUMED

- Till now the students had performed two activities which involved them using to use their Public Speaking skills. Gram Panchayat (Mu 1) and JAM Activity (Mu 2) were those two activities. We classify them under “Public Speaking Skills” category.
- We wanted to compare that of these two activities which was more liked by the students. As they belonged to one category and we did not have population standard deviation (necessary condition) and had a sample size of 27, that is less than 30 (adequate condition) hence we decided to do 2 sample T-test for equal variance.
- We have taken the value of confidence interval (α) = 0.05
- So our hypothesis is :-
 - H_0 : Mu 1 greater than or equal Mu 2 ($\mu_1 \geq \mu_2$)
 - H_a : Mu 1 less than Mu 2 ($\mu_1 < \mu_2$)

```

31
32 # 2 Sample Equal Variance (Gram Panchayat vs Jam Sessions)
33
34 GramPanchayat<-c(2,9,6,6,10,2,5,9,8,8,1,9,7,6,7,7,3,9,10,8,7,5,5,9,8,5,5)
35 GramPanchayat
36
37 JamSessions<-c(9,8,7,10,1,7,7,8,9,10,3,3,7,8,8,9,10,1,5,5,7,7,9,8,5,1,9)
38 JamSessions
39
40 t.test(GramPanchayat, JamSessions, mu = 0, var.equal = T, alternative = "less")
41 |
42

```

41:1 (Top Level) ▾

R Script ▾

Console

Terminal x

Jobs x

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```

> JamSessions
[1] 9 8 7 10 1 7 7 8 9 10 3 3 7 8 8 9 10 1 5 5 7 7 9 8 5 1 9
>
> t.test(GramPanchayat, JamSessions, mu = 0, var.equal = T, alternative = "less")

```

Two Sample t-test

```

data: GramPanchayat and JamSessions
t = -0.25775, df = 52, p-value = 0.3988
alternative hypothesis: true difference in means is less than 0
95 percent confidence interval:
 -Inf 1.018026
sample estimates:
mean of x mean of y
 6.518519  6.703704

```

> |

AFTER T-TEST IN R

- We entered the values as vector in two different variables
- Passed both the data variables in the function `t.test()`
- Passed the mu value as 0 because according to our hypothesis, $\mu_1 - \mu_2 \geq 0$, Is our null hypothesis.
- We passed `var.equal = T`, as this is the case of equal variance
- We passed “less” to alternative, as in our alternative hypothesis, we have the `<` (less) operator.

After running we see that the p-value (0.3988) is more than alpha (0.05),

Hence, we accept the null hypothesis H_0 .

2 Sample T-Test (Equal Variance)							
Public Speaking	1) Gram Panchayat	Mu1	Rating scale 1-10				
	2) Jam Sessions	Mu2					
Hypothesis							
Ho :	Mu1>=Mu2						
Ha :	Mu1<Mu2						
Alfa	0.05						
Name	Gram Panchayat activity (Rating) Mu1	JAM activity (Rating) Mu2	t-Test: Two-Sample Assuming Equal Variances				
Komal	2	9					
Simran	9	8					
Rehan	6	7					
Shalini	6	10					
Nikita	10	1					
Shubham	2	7					
Mariselvi	5	7					
Zaid	9	8					
Anjali	8	9					
Minakshi	8	10					
Subhan	1	3					
Archana	9	3					
Nuran	7	7					
Tulsi	6	8					
Bheem	7	8					
Jeevan	7	9					
Anjaneya	3	10					
Rudresh	9	1					
Farhaan	10	5					
Parmeshwari	8	5					
Farhat	7	7					
Nandini	5	7					
Venitha	5	9					
Priya	9	8					
Asmita	8	5					
Arya	5	1					
Sabrisan	5	9					
sample mean	6.518518519	6.703703704					
sample SD	2.48643041	2.784777505					
count	27	27					
DF	26	26					
	polled SD	2.639822147					
	SD Error	0.718468586					
	T cal	-0.257749871					
	T table	1.674689154					
		-1.674689154					
		Accept Ho					

AFTER T-TEST IN EXCEL

- We calculated the mean and standard deviation for each data set. After which we calculated sigma X, and then T calculated, which we compared with T tabular.
- We observed that our T calculated (-0.257) is less than our T tabular (1.674) hence it supports the acceptance of Null Hypothesis.
- When we use the in-built function in Excel to perform the T-test, we get the same results.

Hence we conclude that the students liked Gram Panchayat (μ_1) more than the JAM Activity (μ_2).

2 SAMPLE T – TEST WITH UNEQUAL VARIANCE

[INFORMAL VS TECHNICAL]

HYPOTHESIS ASSUMED

- We had rating which told us that how much the students were looking forward to the technical activities(μ_2) and how much they enjoyed the informal activities(μ_1).
- Technical activities included the use of computers and informal activities included dance, movie and such activities.
- We wanted to compare that of these two activities which was more liked by the students. As they did not belong to one category and we did not have population standard deviation (necessary condition) and had a sample size of 27, that is less than 30 (adequate condition) hence we decided to do 2 sample T-test for unequal variance.
- We have taken the value of confidence interval (α) = 0.05
- So our hypothesis is :-
 - $H_0 : \mu_1 \leq \mu_2$ ($\mu_1 \leq \mu_2$)
 - $H_a : \mu_1 > \mu_2$ ($\mu_1 > \mu_2$)

```

45
46 # 2 Sample unequal variance (Informal vs Technical)
47
48 Informal<-c(10,10,8,8,6,7,10,8,8,5,7,8,9,9,7,5,10,9,10,10,8,8,10,7,8,8,10)
49 Informal
50
51 Technical<-c(10,8,6,3,8,9,4,8,1,6,7,2,10,6,8,9,9,7,10,10,8,7,8,1,8,7,10)
52 Technical
53
54 t.test(Informal, Technical, mu = 0, var.equal = F, alternative = "greater")
55

```

54:76

(Top Level) ▾

R Script ▾

Console

Terminal ×

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> Technical

[1] 10 8 6 3 8 9 4 8 1 6 7 2 10 6 8 9 9 7 10 10 8 7 8 1 8 7 10

>

> t.test(Informal, Technical, mu = 0, var.equal = F, alternative = "greater")

Welch Two Sample t-test

data: Informal and Technical

t = 2.0557, df = 40.832, p-value = 0.02312

alternative hypothesis: true difference in means is greater than 0

95 percent confidence interval:

0.2215752 Inf

sample estimates:

mean of x mean of y

8.259259 7.037037

> |

AFTER T-TEST IN R

- We entered the values as vector in two different variables
- Passed both the data variables in the function `t.test()`
- Passed the mu value as 0 because according to our hypothesis, $\mu_1 - \mu_2 \geq 0$, Is our null hypothesis.
- We passed `var.equal = F`, as this is the case of unequal variance
- We passed “greater” to alternative, as in our alternative hypothesis, we have the `>` (greater) operator.

After running we see that the p-value (0.02312) is less than alpha (0.05),

Hence, we reject the null hypothesis H_0 .

Informal Activity		Mu1	Rating scale 1-10				
Technical Learning		Mu2					
Hypothesis				t-Test: Two-Sample Assuming Unequal Variances			
Ho :	Mu1<=Mu2						
Ha :	Mu1>Mu2						
Alfa	0.05						
Name	Informal Activity (Rating)	Technical Learning (Rating)		Mean	Variable 1	Variable 2	
Komal	10	10		8.259259	7.037037		
Simran	10	8		Variance	2.276353	7.267806	
Rehan	8	6		Observations	27	27	
Shalini	8	3		Hypothesized	0		
Nikita	6	8		df	41		
Shubham	7	9		t Stat	2.055716		
Mariselvi	10	4		P(T<=t) one	0.023108	Reject Ho	
Zaid	8	8		t Critical one	1.682878		
Anjali	8	1		P(T<=t) two	0.046215		
Minakshi	5	6		t Critical two	2.019541		
Subhan	7	7					
Archana	8	2					
Nuran	9	10					
Tulsi	9	6					
Bheem	7	8					
Jeevan	5	9					
Anjaneya	10	9					
Rudresh	9	7					
Farhaan	10	10					
Parmeshwari	10	10					
Farhat	8	8					
Nandini	8	7					
Venitha	10	8					
Priya	7	1					
Asmita	8	8					
Arya	8	7					
Sabrisan	10	10					
sample mean	8.259259259	7.037037037					
sample SD	1.508758853	2.695886917					
count	27	27					
DF	26	26					
SD error	0.594548056	0.594548056					
t calc	2.055716456	2.055716456					
t tabular	1.674689154	1.674689154					
		Reject Ho					

AFTER T-TEST IN EXCEL

- We calculated the mean and standard deviation for each data set. After which we calculated sigma X, and then T calculated, which we compared with T tabular.
- We observed that our T calculated (2.0557) is more than our T tabular (1.674) hence it supports the rejection of Null Hypothesis.
- When we use the in-built function in Excel to perform the T-test, we get the same results.

Hence we REJECT the NULL HYPOTHESIS and conclude that the students liked Informal Activities (μ_1) more than the Technical Activities (μ_2).



PAIRED DEPENDENT T – TEST

HYPOTHESIS ASSUMED

- We recorded the ratings by asking the students how active they felt before the activity we made them do.
- We then made them do a few Zumba moves and a little exercise.
- After the activity we asked them to rate in a scale of 1 to 10 how active they felt and recorded those.
- The rating of after the activity depended on the activity done, whereas the ratings before were independent ratings. We did not have population standard deviation (necessary condition) and had a sample size of 27, that is less than 30 (adequate condition) hence taking everything in consideration we decided to do a dependent T-test.

- We have taken the value of confidence interval (α) = 0.05
- We assumed that the difference in the before and after ratings would differ by 2 points.
- So our hypothesis is :-
 - H_0 : μ_2 less than or equal ($\mu_1 + 2$)
($\mu_2 - \mu_1 \leq 2$)
 - H_a : μ_2 greater than ($\mu_1 + 2$)
($\mu_2 - \mu_1 > 2$)

```

60
61 # Dependent
62
63 Before<-c(5,1,3,5,5,1,3,3,7,3,5,10,2,2,2,1,1,4,5,4,4,2,3,3,7,8,7)
64 Before
65
66 After<-c(8,9,10,7,7,4,5,9,5,8,6,10,4,4,7,5,7,5,8,10,9,10,5,5,7,5,9)
67 After
68
69 t.test(Before, After, mu = 2, paired = T, alternative = "greater")
70

```

69:67

(Top Level) ▾

R Script ▾

Console

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> After

```
[1] 8 9 10 7 7 4 5 9 5 8 6 10 4 4 7 5 7 5 8 10 9 10 5 5 7 5 9
```

>

```
> t.test(Before, After, mu = 2, paired = T, alternative = "greater")
```

Paired t-test

data: Before and After

t = -9.4142, df = 26, p-value = 1

alternative hypothesis: true difference in means is greater than 2

95 percent confidence interval:

```
-3.949618      Inf
```

sample estimates:

mean of the differences

```
-3.037037
```

> |

AFTER T-TEST IN R

- We entered the values as vector in two different variables
- Passed both the data variables in the function `t.test()`
- Passed the mu value as 2 because according to our hypothesis, $\mu_2 - \mu_1 \leq 2$, Is our null hypothesis.
- We passed `paired = T`, as this is the case of dependent T-test.
- We passed “greater” to alternative, as in our alternative hypothesis, we have the `>` (greater) operator.

After running we see that the p-value (1) is greater than alpha (0.05),

Hence, we accept the null hypothesis H_0 .

Dependant T test							
Activeness level before doing the physical activity and after doing the physical activity							
Hypothesis							
Ho :	Mu2<=Mu1+2	Mu2-Mu1 <=	2	t-Test: Paired Two Sample for Means			
Ha :	Mu2>Mu1+2	Mu2-Mu1 >	2				
alfa	0.05						
Physical Exercise							
Name	Active level (Before)Mu1	Active level (After) Mu2	Difference				
Komal	5	8	-3				
Simran	1	9	-8				
Rehan	3	10	-7				
Shalini	5	7	-2				
Nikita	5	7	-2				
Shubham	1	4	-3				
Mariselvi	3	5	-2				
Zaid	3	9	-6				
Anjali	7	5	2				
Minakshi	3	8	-5				
Subhan	5	6	-1				
Archana	10	10	0				
Nuran	2	4	-2				
Tulsi	2	4	-2				
Bheem	2	7	-5				
Jeevan	1	5	-4				
Anjaneya	1	7	-6				
Rudresh	4	5	-1				
Farhaan	5	8	-3				
Parmeshwari	4	10	-6				
Farhat	4	9	-5				
Nandini	2	10	-8				
Venitha	3	5	-2				
Priya	3	5	-2				
Asmita	7	7	0				
Arya	8	5	3				
Sabrisan	7	9	-2				
sample mean	3.925925926	6.962962963	-3.03704				
sample SD	2.335774059	2.065866953	2.78017				
count	27	27	27				
DF	26	26	26				
SD Error	0.535043949						
T cal	-9.414249146						
T table	1.70561792						

AFTER T-TEST IN EXCEL

- We calculated the mean and standard deviation for each data set. After which we calculated sigma X, and then T calculated, which we compared with T tabular.
- We observed that our T calculated (-9.414) is more than our T tabular (1.705) hence it supports the acceptance of Null Hypothesis.
- When we use the in-built function in Excel to perform the T-test, we get the same results.

Hence we ACCEPT the NULL HYPOTHESIS and conclude that $\mu_2 - \mu_1 \leq 2$ is true.



THANK YOU!

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