

**BSCS 22A    Second Semester    2024 – 2025**



## **PAMBAYANG DALUBHASAAN NG MARILAO**

### **STATISTICAL ANALYSIS REPORT on the RESEARCH STUDY:**

#### **AI Tool Usage and College of Computer Studies Students'**

#### **Academic Performance**

Earl Ruzzle S. Cruz, Lyka Anne E. Canillo, Joeremy B. Donato,  
Auriell A. Esquillo, Angelie Mae V. Largo, Vince Leinnard C. Pascua

College of Computer Studies,  
Pambayang Dalubhasaan ng Marilao  
GEE – PStat

Mrs. Evelyn D. Villalon, LPT, MAEd

May 19, 2025

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## Introduction

This research study aims to explore in detail the connection between the usage of Artificial Intelligence (AI) tools and the academic performance of students who are currently enrolled in the College of Computer Studies, recognizing the growing influence of advanced digital technologies in the educational environment and how these tools are becoming an integral part of modern learning, particularly for students pursuing courses that are closely related to computing, programming, and other technology-driven disciplines where AI is not only present but increasingly essential.

In recent years, the integration of Artificial Intelligence (AI) tools into educational settings has transformed traditional learning paradigms, particularly within higher education. AI-powered platforms, such as intelligent tutoring systems, adaptive learning environments, and AI-based chatbots, have been increasingly adopted to enhance personalized learning experiences, provide immediate feedback, and improve student engagement (Yao et al., 2022; Ceballos & Hernández, 2023; Zaw et al., 2023).

Studies have demonstrated that the utilization of AI tools can lead to improved academic outcomes. For instance, the incorporation of AI-based chatbots in after-class reviews has been shown to bolster students' academic performance, self-efficacy, learning attitudes, and motivation (Yao et al., 2022). Similarly, AI-driven educational tools have been linked to increased student engagement and enhanced learning outcomes in higher education contexts (Ceballos & Hernández, 2023).

However, the adoption of AI in education is not without challenges. Concerns have been raised regarding over-reliance on AI technologies, which may impede the development of critical

thinking and problem-solving skills (Zaw et al., 2023). Moreover, the accuracy of AI-generated content and the potential for academic dishonesty are issues that necessitate careful consideration (Ceballos & Hernández, 2023).

Despite the growing body of research on AI in education, there remains a paucity of studies focusing specifically on the impact of AI tool usage on the academic performance of students in computer studies programs. Given the technical proficiency and frequent interaction with AI technologies among these students, it is imperative to investigate how AI tool usage influences their academic outcomes.

This study explores the relationship between AI tool usage and students' academic performance in the College of Computer Studies. By examining students' perceptions, usage patterns, and academic results, the research seeks to provide insights into the benefits and potential drawbacks of AI integration in computer studies education. The findings are expected to inform educators, policymakers, and stakeholders on best practices for incorporating AI tools to enhance learning while mitigating associated risks.

## Statistical Treatment

### **z-test for two Sample Means**

The two-sample z-test is used to determine if there is a significant difference between the means of two independent groups. This test is applicable when the population standard deviations are known and the sample sizes are large. It assumes that the data are normally distributed and that the samples are independent. The z-test is commonly used in cases like comparing two population means or sample means to determine statistical significance (Khan, 2023).

### **z-test for two Sample Means Formula:**

Type equation here.

### **t-test for two dependent Sample Means**

The paired sample t-test (or dependent sample t-test) compares the means of two related groups. This test is typically used when the same subjects are measured at two different times or under two different conditions. It helps assess whether the average difference between paired observations is statistically significant. This method is particularly useful in experimental and longitudinal research (AlmaBetter, 2023).

### **t-test for two dependent Sample Means Formula:**

Type equation here.

### **Pearson r**

The Pearson correlation coefficient quantifies the degree to which two continuous variables are linearly related. It ranges from -1 to +1, where +1 indicates a perfect positive correlation, -1 represents a perfect negative correlation, and 0 indicates no linear relationship. This statistic is



widely used in research to understand and measure relationships between variables (Sheposh, 2025).

#### **Pearson r Formula:**

Type equation here.

#### **Correlation and Its Significance**

To determine whether the observed Pearson correlation coefficient is statistically significant, researchers use a t-test. The significance test evaluates if the correlation is significantly different from zero, helping confirm that the relationship is not due to random chance. This test is essential for validating correlations observed in data analysis (Scribbr, n.d.).

#### **Correlation and Its Significance Formula:**

Type equation here.

#### **ANOVA**

This is a statistical method used to compare the means of three or more independent groups. It assesses whether at least one group mean is significantly different from the others by analyzing the variation within groups and between groups. This technique is widely used in experimental designs where multiple treatments or conditions are being compared (Investopedia, 2023).

#### **ANOVA Formula:**

Type equation here.

## z-test for Two Sample Means

I. z – test: **FOU 1st Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> Year</b>	
	Male	Female
1	3	3
2	4	3
3	3	4
4	3	4
5	4	4
6	3	3
7	4	4
8	4	3
9	4	3
10	3	4
11	3	4
12	3	4
13	2	4
14	4	3
15	3	3
16	3	4
17	4	3
18	2	4
19	4	4
20	4	4
21	2	3
22	4	4
23	4	4
24	3	3
25	2	4
26	4	4
27	2	4
28	4	4
29	3	3
30	2	3

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the FOU of 1st year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

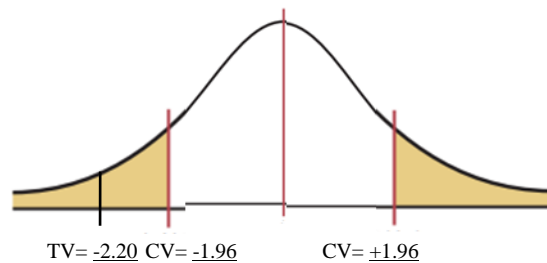
**Step 2:**

$$\alpha = 0.05 ; CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.23 - 3.60}{\sqrt{\frac{0.60}{30} + \frac{0.25}{30}}}$$

$$= \underline{-2.20}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in the average frequency of use (FOU) of AI tools between first-year male and female students.

I. z – test: **FOU 2nd Year** of Male & Female Students

Respondent No.	<b>2<sup>nd</sup> Year</b>	
	Male	Female
1	2	3
2	3	3
3	2	2
4	3	4
5	4	3
6	3	3
7	4	4
8	4	4
9	4	4
10	4	4
11	2	4
12	3	3
13	2	4
14	4	4
15	3	4
16	4	3
17	4	4
18	2	3
19	3	4
20	4	4
21	2	4
22	4	4
23	4	3
24	3	4
25	2	3
26	4	4
27	2	4
28	4	4
29	2	4
30	2	4

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the FOU of 2nd year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

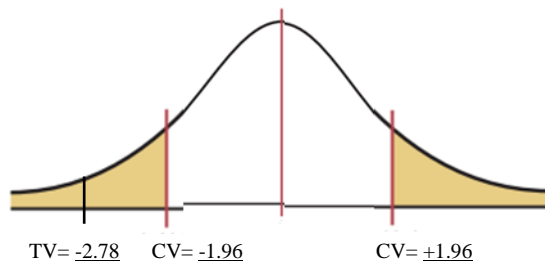
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.10 - 3.63}{\sqrt{\frac{0.78}{30} + \frac{0.31}{30}}}$$

$$= \underline{\underline{-2.78}}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in the average frequency of use (FOU) of AI tools between second-year male and female students.

I. z – test: **FOU 3rd Year** of Male & Female Students

Respondent No.	<b>3<sup>rd</sup> Year</b>	
	Male	Female
1	3	2
2	3	3
3	3	2
4	4	3
5	4	4
6	2	3
7	3	4
8	3	4
9	3	4
10	4	4
11	4	2
12	4	3
13	4	2
14	4	4
15	4	3
16	4	4
17	4	4
18	3	2
19	3	3
20	3	4
21	4	2
22	4	4
23	4	4
24	4	3
25	4	2
26	4	4
27	4	2
28	4	4
29	3	2
30	4	2

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the FOU of 3rd year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

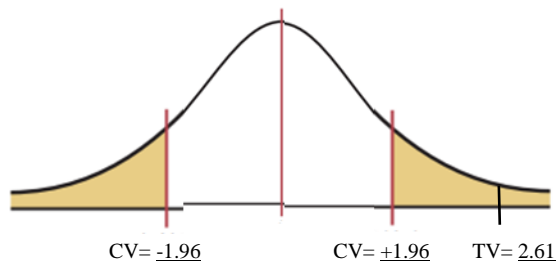
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.60 - 3.10}{\sqrt{\frac{0.32}{30} + \frac{0.78}{30}}}$$

$$= \underline{2.61}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in the average frequency of use (FOU) of AI tools between third-year male and female students.

I. z – test: **FOU 4th Year** of Male & Female Students

Respondent No.	<b>4<sup>th</sup> Year</b>	
	Male	Female
1	3	3
2	3	3
3	4	3
4	4	3
5	4	4
6	3	4
7	4	3
8	3	4
9	3	4
10	4	4
11	4	4
12	4	4
13	4	4
14	3	2
15	3	4
16	4	4
17	3	4
18	4	3
19	4	3
20	4	4
21	3	4
22	4	4
23	4	3
24	3	4
25	4	4
26	4	4
27	4	4
28	4	4
29	3	3
30	3	4



**HYPOTHESES TESTING:**

**z-test for Significance of difference between the FOU of 4th year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

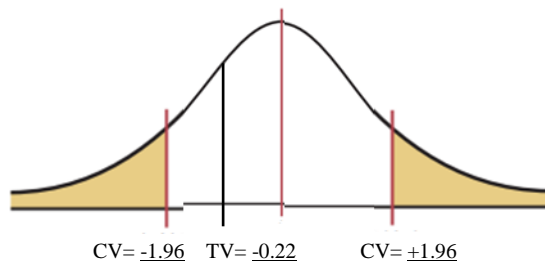
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.60 - 3.63}{\sqrt{\frac{0.25}{30} + \frac{0.31}{30}}}$$

$$= \underline{-0.22}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average frequency of use (FOU) of AI tools between fourth-year male and female students.

I. z – test: **FOU 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
1	3	3
2	4	3
3	3	4
4	3	4
5	4	4
6	3	3
7	4	4
8	4	3
9	4	3
10	3	4
11	3	4
12	3	4
13	2	4
14	4	3
15	3	3
16	3	4
17	4	3
18	2	4
19	4	4
20	4	4
21	2	3
22	4	4
23	4	4
24	3	3
25	2	4
26	4	4
27	2	4
28	4	4
29	3	3
30	2	3

I. z – test: **FOU 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
31	2	3
32	3	3
33	2	2
34	3	4
35	4	3
36	3	3
37	4	4
38	4	4
39	4	4
40	4	4
41	2	4
42	3	3
43	2	4
44	4	4
45	3	4
46	4	3
47	4	4
48	2	3
49	3	4
50	4	4
51	2	4
52	4	4
53	4	3
54	3	4
55	2	3
56	4	4
57	2	4
58	4	4
59	2	4
60	2	4

I. z – test: **FOU 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
61	3	2
62	3	3
63	3	2
64	4	3
65	4	4
66	2	3
67	3	4
68	3	4
69	3	4
70	4	4
71	4	2
72	4	3
73	4	2
74	4	4
75	4	3
76	4	4
77	4	4
78	3	2
79	3	3
80	3	4
81	4	2
82	4	4
83	4	4
84	4	3
85	4	2
86	4	4
87	4	2
88	4	4
89	3	2
90	4	2

I. z – test: **FOU 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
91	3	3
92	3	3
93	4	3
94	4	3
95	4	4
96	3	4
97	4	3
98	3	4
99	3	4
100	4	4
101	4	4
102	4	4
103	4	4
104	3	2
105	3	4
106	4	4
107	3	4
108	4	3
109	4	3
110	4	4
111	3	4
112	4	4
113	4	3
114	3	4
115	4	4
116	4	4
117	4	4
118	4	4
119	3	3
120	3	4

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the FOU of 1<sup>st</sup>- 4<sup>th</sup> year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

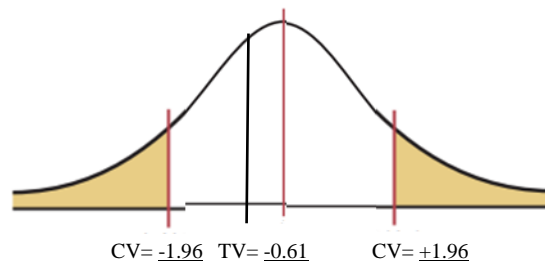
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.38 - 3.49}{\sqrt{\frac{0.52}{30} + \frac{0.45}{30}}}$$

$$= \underline{-0.61}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average frequency of use (FOU) of AI tools between first-year to fourth-year male and female students.

I. z – test: **APB 1st Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> Year</b>	
	Male	Female
1	3	4
2	3	3
3	4	2
4	3	3
5	4	4
6	3	4
7	4	4
8	4	3
9	4	4
10	3	4
11	4	3
12	3	4
13	4	4
14	4	3
15	3	4
16	1	4
17	4	3
18	3	3
19	4	3
20	4	3
21	4	4
22	4	3
23	4	3
24	4	3
25	4	4
26	4	2
27	3	4
28	4	3
29	3	3
30	3	3

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APB of 1st year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

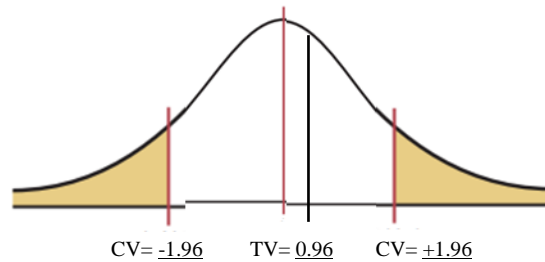
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.53 - 3.37}{\sqrt{\frac{0.46}{30} + \frac{0.38}{30}}}$$

$$= \underline{0.96}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average of academic performance before (APB) use of AI tools between first-year male and female students.



I. z – test: **APB 2nd Year** of Male & Female Students

Respondent No.	<b>2<sup>nd</sup> Year</b>	
	Male	Female
1	4	3
2	3	4
3	4	2
4	3	4
5	4	3
6	3	4
7	4	4
8	4	3
9	4	4
10	3	3
11	4	3
12	4	4
13	3	4
14	4	4
15	3	3
16	3	4
17	4	3
18	3	4
19	4	3
20	3	2
21	4	4
22	4	4
23	3	3
24	4	2
25	4	3
26	4	4
27	4	4
28	4	3
29	3	4
30	3	4

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APB of 2nd year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

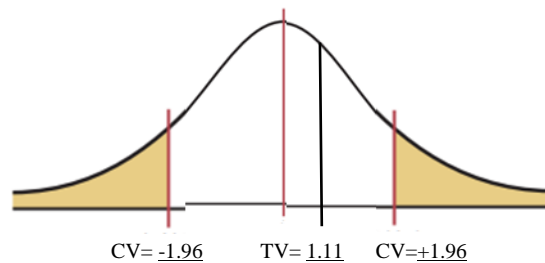
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.60 - 3.43}{\sqrt{\frac{0.25}{30} + \frac{0.46}{30}}}$$

$$= \underline{\underline{1.11}}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average of academic performance before (APB) use of AI tools between second-year male and female students.

I. z – test: **APB 3rd Year** of Male & Female Students

Respondent No.	<b>3<sup>rd</sup> Year</b>	
	Male	Female
1	3	4
2	4	3
3	3	4
4	4	3
5	3	4
6	3	3
7	3	4
8	4	4
9	3	4
10	4	3
11	3	4
12	4	4
13	3	3
14	4	4
15	3	3
16	2	3
17	2	4
18	4	3
19	4	4
20	4	3
21	2	4
22	4	4
23	3	3
24	2	4
25	4	4
26	4	4
27	4	4
28	4	4
29	2	3
30	4	3

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APB of 3rd year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

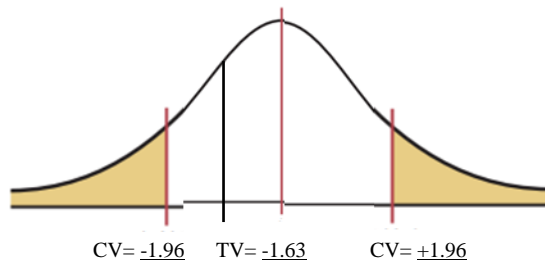
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.33 - 3.60}{\sqrt{\frac{0.57}{30} + \frac{0.25}{30}}}$$

$$= \underline{\underline{-1.63}}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average of academic performance before (APB) use of AI tools between third-year male and female students.

I. z – test: **APB 4th Year** of Male & Female Students

Respondent No.	<b>4<sup>th</sup> Year</b>	
	Male	Female
1	4	2
2	3	3
3	2	2
4	3	3
5	4	4
6	4	3
7	4	4
8	3	4
9	4	4
10	4	4
11	3	2
12	4	3
13	4	2
14	3	4
15	4	3
16	4	4
17	3	4
18	3	2
19	3	3
20	3	4
21	4	2
22	3	4
23	3	4
24	3	3
25	4	2
26	2	4
27	4	2
28	3	4
29	3	2
30	3	2

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APB of 4th year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

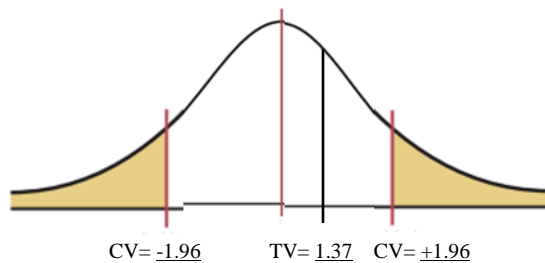
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.37 - 3.10}{\sqrt{\frac{0.38}{30} + \frac{0.78}{30}}}$$

$$= \underline{1.37}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average of academic performance before (APB) use of AI tools between fourth-year male and female students.

I. z – test: **APB 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
1	3	4
2	3	3
3	4	2
4	3	3
5	4	4
6	3	4
7	4	4
8	4	3
9	4	4
10	3	4
11	4	3
12	3	4
13	4	4
14	4	3
15	3	4
16	1	4
17	4	3
18	3	3
19	4	3
20	4	3
21	4	4
22	4	3
23	4	3
24	4	3
25	4	4
26	4	2
27	3	4
28	4	3
29	3	3
30	3	3

I. z – test: **APB 1st-4th Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
31	4	3
32	3	4
33	4	2
34	3	4
35	4	3
36	3	4
37	4	4
38	4	3
39	4	4
40	3	3
41	4	3
42	4	4
43	3	4
44	4	4
45	3	3
46	3	4
47	4	3
48	3	4
49	4	3
50	3	2
51	4	4
52	4	4
53	3	3
54	4	2
55	4	3
56	4	4
57	4	4
58	4	3
59	3	4
60	3	4



I. z – test: **APB 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
61	3	4
62	4	3
63	3	4
64	4	3
65	3	4
66	3	3
67	3	4
68	4	4
69	3	4
70	4	3
71	3	4
72	4	4
73	3	3
74	4	4
75	3	3
76	2	3
77	2	4
78	4	3
79	4	4
80	4	3
81	2	4
82	4	4
83	3	3
84	2	4
85	4	4
86	4	4
87	4	4
88	4	4
89	2	3
90	4	3

I. z – test: **APB 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
91	4	2
92	3	3
93	2	2
94	3	3
95	4	4
96	4	3
97	4	4
98	3	4
99	4	4
100	4	4
101	3	2
102	4	3
103	4	2
104	3	4
105	4	3
106	4	4
107	3	4
108	3	2
109	3	3
110	3	4
111	4	2
112	3	4
113	3	4
114	3	3
115	4	2
116	2	4
117	4	2
118	3	4
119	3	2
120	3	2

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APB of 1<sup>st</sup>-4<sup>th</sup> year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

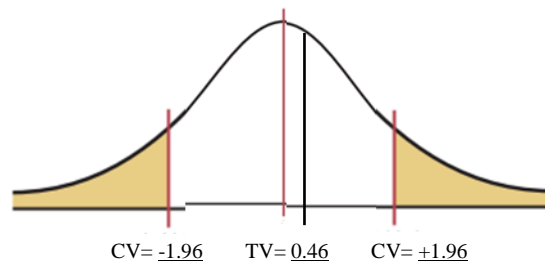
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.46 - 3.38}{\sqrt{\frac{0.42}{30} + \frac{0.49}{30}}}$$

$$= \underline{0.46}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average of academic performance before (APB) use of AI tools between first-year to fourth-year male and female students.

I. z – test: APA 1st Year of Male & Female Students

Respondent No.	1 <sup>st</sup> Year	
	Male	Female
1	3	4
2	3	4
3	4	3
4	4	3
5	3	4
6	3	2
7	3	4
8	4	3
9	3	2
10	3	3
11	4	4
12	3	3
13	4	3
14	4	4
15	4	2
16	4	3
17	4	4
18	3	3
19	4	3
20	3	3
21	4	4
22	4	2
23	3	3
24	3	3
25	4	3
26	3	4
27	4	3
28	4	3
29	3	3
30	4	3

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APA of 1st year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

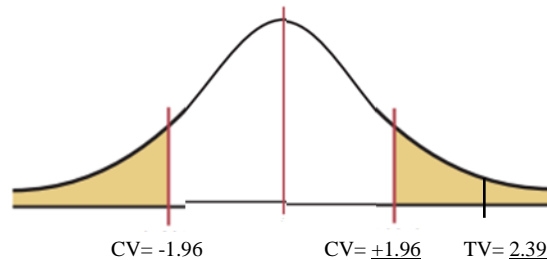
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.53 - 3.17}{\sqrt{\frac{0.26}{30} + \frac{0.42}{30}}}$$

$$= \underline{2.39}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in the average of academic performance after (APA) use of AI tools between first-year male and female students.

I. z – test: APA 2nd Year of Male & Female Students

Respondent No.	2 <sup>nd</sup> Year	
	Male	Female
1	3	4
2	3	4
3	3	2
4	3	4
5	4	3
6	4	4
7	3	4
8	4	3
9	4	4
10	4	4
11	4	4
12	4	3
13	4	4
14	2	4
15	4	4
16	4	4
17	4	4
18	3	4
19	3	4
20	4	4
21	4	3
22	4	3
23	3	3
24	4	2
25	4	4
26	4	2
27	4	4
28	4	4
29	3	4
30	4	4

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APA of 2nd year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

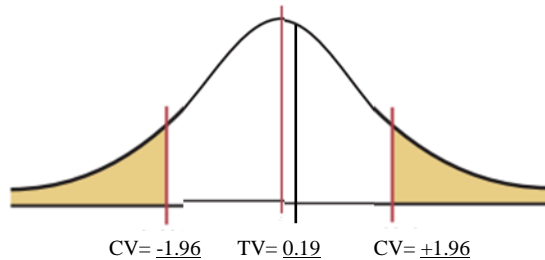
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.63 - 3.60}{\sqrt{\frac{0.31}{30} + \frac{0.46}{30}}}$$

$$= \underline{\underline{0.19}}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average of academic performance after (APA) use of AI tools between second-year male and female students.

I. z – test: APA 3rd Year of Male & Female Students

Respondent No.	3 <sup>rd</sup> Year	
	Male	Female
1	4	3
2	3	3
3	3	3
4	4	3
5	3	4
6	3	4
7	3	3
8	3	4
9	4	4
10	4	4
11	3	4
12	4	4
13	4	4
14	4	2
15	2	4
16	3	4
17	4	4
18	4	3
19	3	3
20	4	4
21	4	4
22	4	4
23	4	3
24	4	4
25	4	4
26	4	4
27	4	4
28	4	4
29	3	3
30	4	4



**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APA of 3rd year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

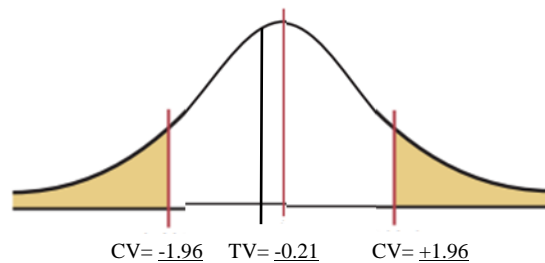
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.60 - 3.63}{\sqrt{\frac{0.32}{30} + \frac{0.31}{30}}}$$

$$= \underline{-0.21}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average of academic performance after (APA) use of AI tools between third-year male and female students.

I. z – test: APA 4th Year of Male & Female Students

Respondent No.	4 <sup>th</sup> Year	
	Male	Female
1	4	4
2	4	3
3	3	4
4	3	3
5	4	4
6	2	3
7	4	4
8	3	4
9	2	4
10	3	3
11	4	4
12	3	4
13	3	3
14	4	4
15	2	3
16	3	3
17	4	4
18	3	3
19	3	4
20	3	3
21	4	4
22	2	4
23	3	3
24	3	4
25	3	4
26	4	4
27	3	4
28	3	4
29	3	3
30	3	3

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APA of 4th year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

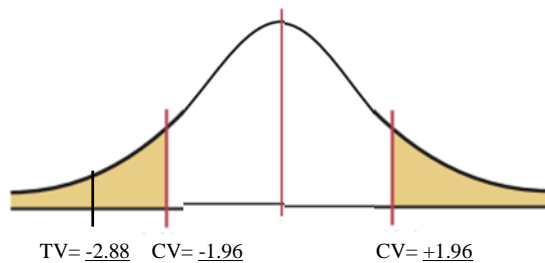
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.17 - 3.60}{\sqrt{\frac{0.42}{30} + \frac{0.25}{30}}}$$

$$= \underline{-2.88}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in the average of academic performance after (APA) use of AI tools between third-year male and female students.

I. z – test: APA 1<sup>st</sup>-4<sup>th</sup> Year of Male & Female Students

Respondent No.	1 <sup>st</sup> – 4 <sup>th</sup> Year	
	Male	Female
1	3	4
2	3	4
3	4	3
4	4	3
5	3	4
6	3	2
7	3	4
8	4	3
9	3	2
10	3	3
11	4	4
12	3	3
13	4	3
14	4	4
15	4	2
16	4	3
17	4	4
18	3	3
19	4	3
20	3	3
21	4	4
22	4	2
23	3	3
24	3	3
25	4	3
26	3	4
27	4	3
28	4	3
29	3	3
30	4	3

I. z – test: **APA 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
31	3	4
32	3	4
33	3	2
34	3	4
35	4	3
36	4	4
37	3	4
38	4	3
39	4	4
40	4	4
41	4	4
42	4	3
43	4	4
44	2	4
45	4	4
46	4	4
47	4	4
48	3	4
49	3	4
50	4	4
51	4	3
52	4	3
53	3	3
54	4	2
55	4	4
56	4	2
57	4	4
58	4	4
59	3	4
60	4	4

I. z – test: **APA 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
61	4	3
62	3	3
63	3	3
64	4	3
65	3	4
66	3	4
67	3	3
68	3	4
69	4	4
70	4	4
71	3	4
72	4	4
73	4	4
74	4	2
75	2	4
76	3	4
77	4	4
78	4	3
79	3	3
80	4	4
81	4	4
82	4	4
83	4	3
84	4	4
85	4	4
86	4	4
87	4	4
88	4	4
89	3	3
90	4	4

I. z – test: **APA 1<sup>st</sup>-4<sup>th</sup> Year** of Male & Female Students

Respondent No.	<b>1<sup>st</sup> – 4<sup>th</sup> Year</b>	
	Male	Female
91	4	4
92	4	3
93	3	4
94	3	3
95	4	4
96	2	3
97	4	4
98	3	4
99	2	4
100	3	3
101	4	4
102	3	4
103	3	3
104	4	4
105	2	3
106	3	3
107	4	4
108	3	3
109	3	4
110	3	3
111	4	4
112	2	4
113	3	3
114	3	4
115	3	4
116	4	4
117	3	4
118	3	4
119	3	3
120	3	3

**HYPOTHESES TESTING:**

**z-test for Significance of difference between the APA of 1<sup>st</sup> – 4<sup>th</sup> year Male & Female Students**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu$$

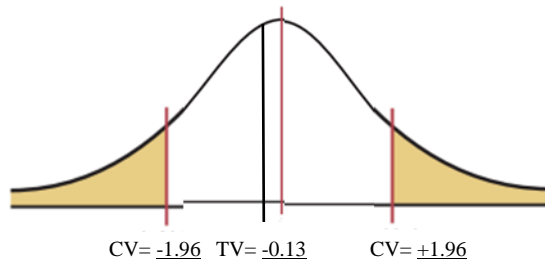
**Step 2:**

$$\alpha = 0.05; \quad CV = \pm 1.96$$

**Step 3: Computation of test value:**

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = \frac{3.48 - 3.50}{\sqrt{\frac{0.35}{120} + \frac{0.39}{120}}}$$

$$= \underline{-0.13}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in the average of academic performance after (APA) use of AI tools between third-year male and female students.



### Templates for t-test for Two Dependent Sample Means

#### II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First Year Male

Respondent	<u>First Year Male</u>			
No.	APB	APA	$D$	$D^2$
1			0	0
	3	3		
2			0	0
	3	3		
3			0	0
	4	4		
4			1	1
	3	4		
5			-1	1
	4	3		
6			0	0
	3	3		
7			-1	1
	4	3		
8			0	0
	4	4		
9			-1	1
	4	3		
10			0	0
	3	3		
11			0	0
	4	4		
12			0	0
	3	3		
13			0	0
	4	4		
14			0	0
	4	4		
15			1	1
	3	4		
16			3	9
	1	4		
17			0	0
	4	4		
18			0	0
	3	3		
19			0	0
	4	4		
20			-1	1
	4	3		
21			0	0
	4	4		
22			0	0
	4	4		
23			-1	1
	4	3		
24			-1	1
	4	3		

## II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First Year Male

Respondent		<u>First Year Male</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
25	4	4	0	0
26	4	3	-1	1
27	3	4	1	1
28	4	4	0	0
29	3	3	0	0
30	3	4	1	1
			$\Sigma D = 0$	$\Sigma D^2 = 20$

### HYPOTHESES TESTING:

t-test for Dependent Sample Means: APB & APA – Male 1st Year Students

#### Step 1: Hypotheses

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

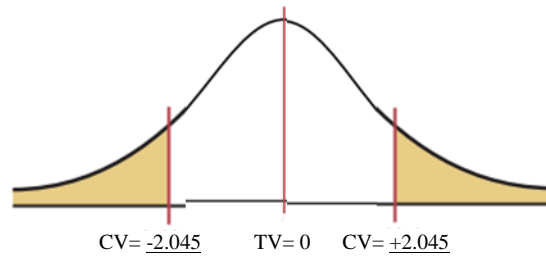
#### Step 2:

$$\bullet \alpha = 0.05 \quad df = 30-1 = 29 \quad CV = \pm 2.045$$

#### Step 3: Computation of test value:

$$t = \frac{\Sigma D}{\sqrt{\frac{n \Sigma D^2 - (\Sigma D)^2}{(n-1)}}} = \frac{0}{\sqrt{\frac{(30 \times 20) - (0)^2}{(30-1)}}}$$

$$TV = \underline{0}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among first-year male students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Second Year Male**

Respondent	<u>Second Year Male</u>			
No.	APB	APA	$D$	$D^2$
1	4	3	-1	1
2	3	3	0	0
3	4	3	-1	1
4	3	3	0	0
5	4	4	0	0
6	3	4	1	1
7	4	3	-1	1
8	4	4	0	0
9	4	4	0	0
10	3	4	1	1
11	4	4	0	0
12	4	4	0	0
13	3	4	1	1
14	4	2	-2	4
15	3	4	1	1
16	3	4	1	1
17	4	4	0	0
18	3	3	0	0
19	4	3	-1	1
20	3	4	1	1
21	4	4	0	0
22	4	4	0	0
23	3	3	0	0
24	4	4	0	0
25	4	4	0	0
26	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Second Year Male**

Respondent		<u>Second Year Male</u>		
No.	APB	APA	$D$	$D^2$
27	4	4	0	0
28	4	4	0	0
29	3	3	0	0
30	3	4	1	1
			$\Sigma D = 1$	$\Sigma D^2 = 15$

**HYPOTHESES TESTING:****t-test for Dependent Sample Means: APB & APA – Male 2<sup>nd</sup> Year Students****Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

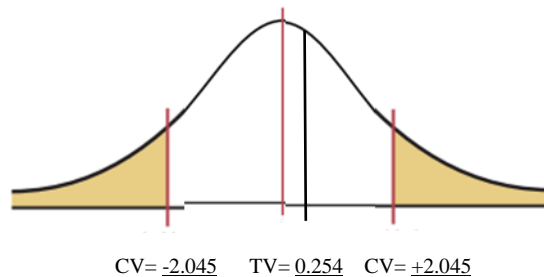
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 30-1=29 \quad CV = \pm 2.045$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{1}{\sqrt{\frac{(30 \times 15) - (1)^2}{(30-1)}}}$$

$$TV = \underline{0.254}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among second-year male students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Third Year Male**

Respondent	<u>Third Year Male</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
1	3	4	1	1
2	4	3	-1	1
3	3	3	0	0
4	4	4	0	0
5	3	3	0	0
6	3	3	0	0
7	3	3	0	0
8	4	3	-1	1
9	3	4	1	1
10	4	4	0	0
11	3	3	0	0
12	4	4	0	0
13	3	4	1	1
14	4	4	0	0
15	3	2	-1	1
16	2	3	1	1
17	2	4	2	4
18	4	4	0	0
19	4	3	-1	1
20	4	4	0	0
21	2	4	2	4
22	4	4	0	0
23	3	4	1	1
24	2	4	2	4
25	4	4	0	0
26	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Third Year Male**

Respondent		<u>Third Year Male</u>		
No.	APB	APA	$D$	$D^2$
27	4	4	0	0
28	4	4	0	0
29	2	3	1	1
30	4	4	0	0
			$\Sigma D = 8$	$\Sigma D^2 = 22$



**HYPOTHESES TESTING:****t-test for Dependent Sample Means: APB & APA – Male 3<sup>rd</sup> Year Students****Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

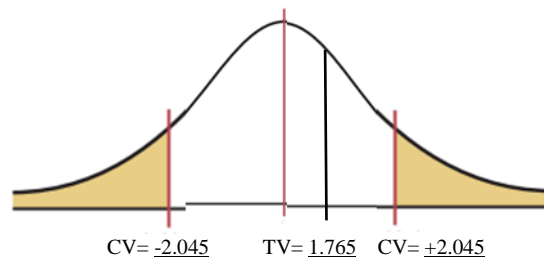
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 30-1 = 29 \quad CV = \pm 2.045$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{8}{\sqrt{\frac{(30 \times 22) - (8)^2}{(30-1)}}}$$

$$TV = \underline{1.765}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among third-year male students.



**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Fourth Year Male**

Respondent	<u>Fourth Year Male</u>			
No.	APB	APA	$D$	$D^2$
1	4	4	0	0
2	3	4	1	1
3	2	3	1	1
4	3	3	0	0
5	4	4	0	0
6	4	2	-2	4
7	4	4	0	0
8	3	3	0	0
9	4	2	-2	4
10	4	3	-1	1
11	3	4	1	1
12	4	3	-1	1
13	4	3	-1	1
14	3	4	1	1
15	4	2	-2	4
16	4	3	-1	1
17	3	4	1	1
18	3	3	0	0
19	3	3	0	0
20	3	3	0	0
21	4	4	0	0
22	3	2	-1	1
23	3	3	0	0
24	3	3	0	0
25	4	3	-1	1
26	2	4	2	4

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Fourth Year Male**

Respondent		<u>Fourth Year Male</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
27	4	3	-1	1
28	3	3	0	0
29	3	3	0	0
30	3	3	0	0
			$\sum D = -6$	$\sum D^2 = 28$

**HYPOTHESES TESTING:****t-test for Dependent Sample Means: APB & APA – Male 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

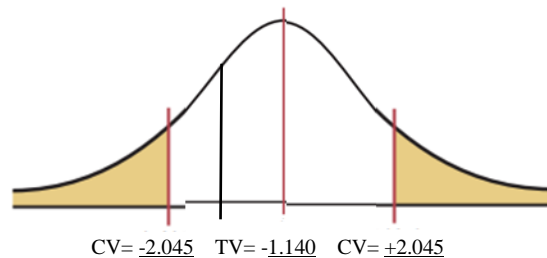
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 30-1 = 29 \quad CV = \pm 2.045$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{-6}{\sqrt{\frac{(30 \times 28) - (-6)^2}{(30-1)}}}$$

$$TV = \underline{-1.140}$$

**Step 4: Decision:**Do not Reject  $H_0$ .**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among fourth-year male students.



**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male**

Respondent	<u>First to Fourth Year Male</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
1			0	0
2	3	3	0	0
3	3	3	0	0
4	4	4	0	0
5	3	4	1	1
6	4	3	-1	1
7	3	3	0	0
8	4	3	-1	1
9	4	4	0	0
10	4	3	-1	1
11	3	3	0	0
12	4	4	0	0
13	3	3	0	0
14	4	4	0	0
15	4	4	0	0
16	3	4	1	1
17	1	4	3	9
18	4	4	0	0
19	4	4	0	0
20	3	3	0	0
21	4	4	0	0
22	4	3	-1	1
23	4	4	0	0
24	4	4	0	0
25	4	3	-1	1
26	4	3	-1	1
	4	3	-1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male**

Respondent		<u>First to Fourth Year Male</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
27	3	4	1	1
28	4	4	0	0
29	3	3	0	0
30	3	4	1	1



**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male**

Respondent		<u>First to Fourth Year Male</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
31	4	3	-1	1
32	3	3	0	0
33	4	3	-1	1
34	3	3	0	0
35	4	4	0	0
36	3	4	1	1
37	4	3	-1	1
38	4	4	0	0
39	4	4	0	0
40	3	4	1	1
41	4	4	0	0
42	4	4	0	0
43	3	4	1	1
44	4	2	-2	4
45	3	4	1	1
46	3	4	1	1
47	4	4	0	0
48	3	3	0	0
49	4	3	-1	1
50	3	4	1	1
51	4	4	0	0
52	4	4	0	0
53	3	3	0	0
54	4	4	0	0
55	4	4	0	0
56	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male**

Respondent		<u>First to Fourth Year Male</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
57	4	4	0	0
58	4	4	0	0
59	3	3	0	0
60	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male**

Respondent		<u>First to Fourth Year Male</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
61	3	4	1	1
62	4	3	-1	1
63	3	3	0	0
64	4	4	0	0
65	3	3	0	0
66	3	3	0	0
67	3	3	0	0
68	4	3	-1	1
69	3	4	1	1
70	4	4	0	0
71	3	3	0	0
72	4	4	0	0
73	3	4	1	1
74	4	4	0	0
75	3	2	-1	1
76	2	3	1	1
77	2	4	2	4
78	4	4	0	0
79	4	3	-1	1
80	4	4	0	0
81	2	4	2	4
82	4	4	0	0
83	3	4	1	1
84	2	4	2	4
85	4	4	0	0
86	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male**

Respondent		<u>First to Fourth Year Male</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
87	4	4	0	0
88	4	4	0	0
89	2	3	1	1
90	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male**

Respondent		<u>First to Fourth Year Male</u>		
No.	APB	APA	$D$	$D^2$
91	4	4	0	0
92	3	4	1	1
93	2	3	1	1
94	3	3	0	0
95	4	4	0	0
96	4	2	-2	4
97	4	4	0	0
98	3	3	0	0
99	4	2	-2	4
100	4	3	-1	1
101	3	4	1	1
102	4	3	-1	1
103	4	3	-1	1
104	3	4	1	1
105	4	2	-2	4
106	4	3	-1	1
107	3	4	1	1
108	3	3	0	0
109	3	3	0	0
110	3	3	0	0
111	4	4	0	0
112	3	2	-1	1
113	3	3	0	0
114	3	3	0	0
115	4	3	-1	1
116	2	4	2	4

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male**

Respondent		<u>First to Fourth Year Male</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
117	4	3	-1	1
118	3	3	0	0
119	3	3	0	0
120	3	3	0	0
			$\Sigma D = 3$	$\Sigma D^2 = 85$

**HYPOTHESES TESTING:****t-test for Dependent Sample Means: APB & APA – Male 1<sup>st</sup> – 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

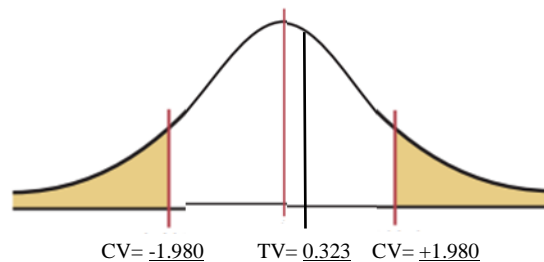
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 120 - 1 = 119 \quad CV = \pm 1.980$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{3}{\sqrt{\frac{(60 \times 85) - (3)^2}{(60-1)}}}$$

$$TV = \underline{0.323}$$

**Step 4: Decision:**Do not Reject  $H_0$ .**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among first-year to fourth-year male students.





**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First Year Female**

Respondent	<b>First Year Female</b>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
1	4	4	0	0
2	3	4	1	1
3	2	3	1	1
4	3	3	0	0
5	4	4	0	0
6	4	2	-2	4
7	4	4	0	0
8	3	3	0	0
9	4	2	-2	4
10	4	3	-1	1
11	3	4	1	1
12	4	3	-1	1
13	4	3	-1	1
14	3	4	1	1
15	4	2	-2	4
16	4	3	-1	1
17	3	4	1	1
18	3	3	0	0
19	3	3	0	0
20	3	3	0	0
21	4	4	0	0
22	3	2	-1	1
23	3	3	0	0
24	3	3	0	0
25	4	3	-1	1
26	2	4	2	4

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First Year Female**

Respondent		<u>First Year Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
27	4	3	-1	1
28	3	3	0	0
29	3	3	0	0
30	3	3	0	0
			$\sum D = -6$	$\sum D^2 = 28$

**HYPOTHESES TESTING:****t-test for Dependent Sample Means: APB & APA – Female 1st Year Students****Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

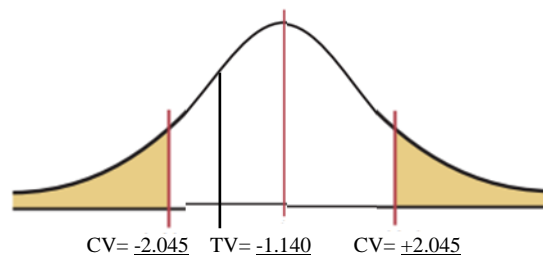
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 30-1 = 29 \quad CV = \pm 2.045$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{-6}{\sqrt{\frac{(30 \times 28) - (-6)^2}{(30-1)}}}$$

$$TV = \underline{-1.140}$$

**Step 4: Decision:**Do not Reject  $H_0$ .**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among first-year female students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Second Year Female**

Respondent	<u>Second Year Female</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
1	3	4	1	1
2	4	4	0	0
3	2	2	0	0
4	4	4	0	0
5	3	3	0	0
6	4	4	0	0
7	4	4	0	0
8	3	3	0	0
9	4	4	0	0
10	3	4	1	1
11	3	4	1	1
12	4	3	-1	1
13	4	4	0	0
14	4	4	0	0
15	3	4	1	1
16	4	4	0	0
17	3	4	1	1
18	4	4	0	0
19	3	4	1	1
20	2	4	2	4
21	4	3	-1	1
22	4	3	-1	1
23	3	3	0	0
24	2	2	0	0
25	3	4	1	1
26	4	2	-2	4

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Second Year Female**

Respondent		<u>Second Year Female</u>		
No.	APB	APA	$D$	$D^2$
27	4	4	0	0
28	3	4	1	1
29	4	4	0	0
30	4	4	0	0
			$\Sigma D = 5$	$\Sigma D^2 = 19$

**HYPOTHESES TESTING:****t-test for Dependent Sample Means: APB & APA – Female 2<sup>nd</sup> Year Students****Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

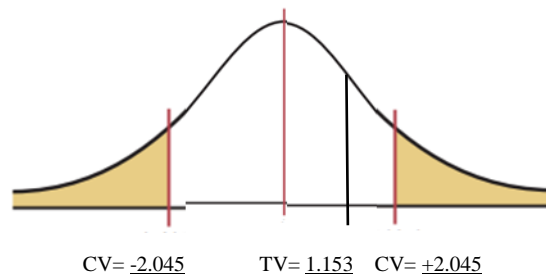
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 30-1 = 29 \quad CV = \pm 2.045$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{5}{\sqrt{\frac{(30 \times 19) - (5)^2}{(30-1)}}}$$

$$TV = \underline{1.153}$$

**Step 4: Decision:**Do not Reject  $H_0$ .**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among second-year female students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Third Year Female**

Respondent		<u>Third Year Female</u>		
No.	APB	APA	$D$	$D^2$
1	4	3	-1	1
2	3	3	0	0
3	4	3	-1	1
4	3	3	0	0
5	4	4	0	0
6	3	4	1	1
7	4	3	-1	1
8	4	4	0	0
9	4	4	0	0
10	3	4	1	1
11	4	4	0	0
12	4	4	0	0
13	3	4	1	1
14	4	2	-2	4
15	3	4	1	1
16	3	4	1	1
17	4	4	0	0
18	3	3	0	0
19	4	3	-1	1
20	3	4	1	1
21	4	4	0	0
22	4	4	0	0
23	3	3	0	0
24	4	4	0	0
25	4	4	0	0
26	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Third Year Female**

Respondent		<u>Third Year Female</u>		
No.	APB	APA	$D$	$D^2$
27	4	4	0	0
28	4	4	0	0
29	3	3	0	0
30	3	4	1	1
			$\Sigma D = 1$	$\Sigma D^2 = 15$



**HYPOTHESES TESTING:****t-test for Dependent Sample Means: APB & APA – Female 3<sup>rd</sup> Year Students****Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

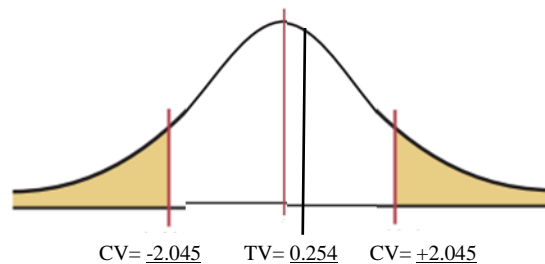
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 30-1 = 29 \quad CV = \pm 2.045$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{1}{\sqrt{\frac{(30 \times 15) - (1)^2}{(30-1)}}}$$

$$TV = \underline{0.254}$$

**Step 4: Decision:**Do not Reject  $H_0$ **Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among third-year female students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Fourth Year Female**

Respondent		<u>Fourth Year Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
1	2	4	2	4
2	3	3	0	0
3	2	4	2	4
4	3	3	0	0
5	4	4	0	0
6	3	3	0	0
7	4	4	0	0
8	4	4	0	0
9	4	4	0	0
10	4	3	-1	1
11	2	4	2	4
12	3	4	1	1
13	2	3	1	1
14	4	4	0	0
15	3	3	0	0
16	4	3	-1	1
17	4	4	0	0
18	2	3	1	1
19	3	4	1	1
20	4	3	-1	1
21	2	4	2	4
22	4	4	0	0
23	4	3	-1	1
24	3	4	1	1
25	2	4	2	4
26	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Fourth Year Female**

Respondent		<u>Fourth Year Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
27	2	4	2	4
28	4	4	0	0
29	2	3	1	1
30	2	3	1	1
			$\Sigma D = 15$	$\Sigma D^2 = 35$

**HYPOTHESES TESTING:****t-test for Dependent Sample Means: APB & APA – Female 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

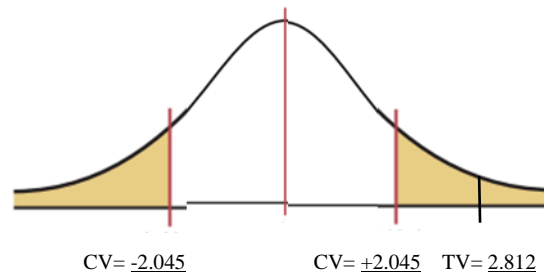
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 30-1 = 29 \quad CV = \pm 2.045$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{15}{\sqrt{\frac{(30 \times 35) - (15)^2}{(30-1)}}}$$

$$TV = \underline{2.812}$$

**Step 4: Decision:**Reject  $H_0$ .**Step 5: Conclusion:**

There is a significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among fourth-year female students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Female**

<b>Respondent</b>	<b><u>First to Fourth Year Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
1	4	4	0	0
2	3	4	1	1
3	2	3	1	1
4	3	3	0	0
5	4	4	0	0
6	4	2	-2	4
7	4	4	0	0
8	3	3	0	0
9	4	2	-2	4
10	4	3	-1	1
11	3	4	1	1
12	4	3	-1	1
13	4	3	-1	1
14	3	4	1	1
15	4	2	-2	4
16	4	3	-1	1
17	3	4	1	1
18	3	3	0	0
19	3	3	0	0
20	3	3	0	0
21	4	4	0	0
22	3	2	-1	1
23	3	3	0	0
24	3	3	0	0
25	4	3	-1	1
26	2	4	2	4

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Female**

<b>Respondent</b>				
<b><u>First to Fourth Year Female</u></b>				
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
27	4	3	-1	1
28	3	3	0	0
29	3	3	0	0
30	3	3	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Female**

Respondent		<u>First to Fourth Year Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
31	3	4	1	1
32	4	4	0	0
33	2	2	0	0
34	4	4	0	0
35	3	3	0	0
36	4	4	0	0
37	4	4	0	0
38	3	3	0	0
39	4	4	0	0
40	3	4	1	1
41	3	4	1	1
42	4	3	-1	1
43	4	4	0	0
44	4	4	0	0
45	3	4	1	1
46	4	4	0	0
47	3	4	1	1
48	4	4	0	0
49	3	4	1	1
50	2	4	2	4
51	4	3	-1	1
52	4	3	-1	1
53	3	3	0	0
54	2	2	0	0
55	3	4	1	1
56	4	2	-2	4

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Female**

Respondent		<u>First to Fourth Year Female</u>		
No.	APB	APA	$D$	$D^2$
57	4	4	0	0
58	3	4	1	1
59	4	4	0	0
60	4	4	0	0



**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Female**

Respondent		<u>First to Fourth Year Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
61	4	3	-1	1
62	3	3	0	0
63	4	3	-1	1
64	3	3	0	0
65	4	4	0	0
66	3	4	1	1
67	4	3	-1	1
68	4	4	0	0
69	4	4	0	0
70	3	4	1	1
71	4	4	0	0
72	4	4	0	0
73	3	4	1	1
74	4	2	-2	4
75	3	4	1	1
76	3	4	1	1
77	4	4	0	0
78	3	3	0	0
79	4	3	-1	1
80	3	4	1	1
81	4	4	0	0
82	4	4	0	0
83	3	3	0	0
84	4	4	0	0
85	4	4	0	0
86	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Female**

<b>Respondent</b>				
<b><u>First to Fourth Year Female</u></b>				
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
87	4	4	0	0
88	4	4	0	0
89	3	3	0	0
90	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Female**

Respondent		<u>First to Fourth Year Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
91	2	4	2	4
92	3	3	0	0
93	2	4	2	4
94	3	3	0	0
95	4	4	0	0
96	3	3	0	0
97	4	4	0	0
98	4	4	0	0
99	4	4	0	0
100	4	3	-1	1
101	2	4	2	4
102	3	4	1	1
103	2	3	1	1
104	4	4	0	0
105	3	3	0	0
106	4	3	-1	1
107	4	4	0	0
108	2	3	1	1
109	3	4	1	1
110	4	3	-1	1
111	2	4	2	4
112	4	4	0	0
113	4	3	-1	1
114	3	4	1	1
115	2	4	2	4
116	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Female**

Respondent		<u>First to Fourth Year Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
117	2	4	2	4
118	4	4	0	0
119	2	3	1	1
120	2	3	1	1
			$\Sigma D = 15$	$\Sigma D^2 = 97$

**HYPOTHESES TESTING:**

**t-test for Dependent Sample Means: APB & APA – Female 1<sup>st</sup> – 4<sup>th</sup> Year Students**

**Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

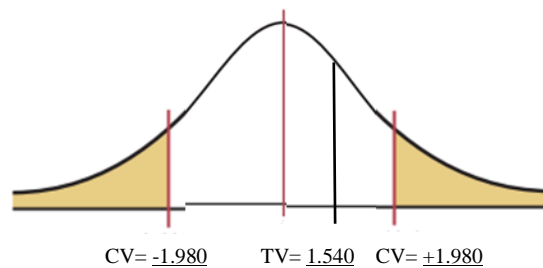
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 120-1 = 119 \quad CV = \pm 1.980$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{15}{\sqrt{\frac{(60 \times 97) - (15)^2}{(60-1)}}}$$

$$TV = \underline{1.540}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among first-year to fourth-year male students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First Year Male and Female**

Respondent	<u>First Year Male and Female</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
1			0	0
	3	3		
2			0	0
	3	3		
3			0	0
	4	4		
4			1	1
	3	4		
5			-1	1
	4	3		
6			0	0
	3	3		
7			-1	1
	4	3		
8			0	0
	4	4		
9			-1	1
	4	3		
10			0	0
	3	3		
11			0	0
	4	4		
12			0	0
	3	3		
13			0	0
	4	4		
14			0	0
	4	4		
15			1	1
	3	4		
16			3	9
	1	4		
17			0	0
	4	4		
18			0	0
	3	3		
19			0	0
	4	4		
20			-1	1
	4	3		
21			0	0
	4	4		
22			0	0
	4	4		
23			-1	1
	4	3		
24			-1	1
	4	3		
25			0	0
	4	4		
26			-1	1
	4	3		

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First Year Male and Female**

Respondent		<u>First Year Male and Female</u>		
No.	APB	APA	$D$	$D^2$
27	3	4	1	1
28	4	4	0	0
29	3	3	0	0
30	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First Year Male and Female**

Respondent No.	<u>First Year Male and Female</u>			$D^2$
	APB	APA	$D$	
31	4	4	0	0
32	3	4	1	1
33	2	3	1	1
34	3	3	0	0
35	4	4	0	0
36	4	2	-2	4
37	4	4	0	0
38	3	3	0	0
39	4	2	-2	4
40	4	3	-1	1
41	3	4	1	1
42	4	3	-1	1
43	4	3	-1	1
44	3	4	1	1
45	4	2	-2	4
46	4	3	-1	1
47	3	4	1	1
48	3	3	0	0
49	3	3	0	0
50	3	3	0	0
51	4	4	0	0
52	3	2	-1	1
53	3	3	0	0
54	3	3	0	0
55	4	3	-1	1
56	2	4	2	4



**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First Year Male and Female**

Respondent		<u>First Year Male and Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
57	4	3	-1	1
58	3	3	0	0
59	3	3	0	0
60	3	3	0	0
			$\Sigma D = -6$	$\Sigma D^2 = 48$

**HYPOTHESES TESTING:**

**t-test for Dependent Sample Means: APB & APA – Male and Female 1st Year Students**

**Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

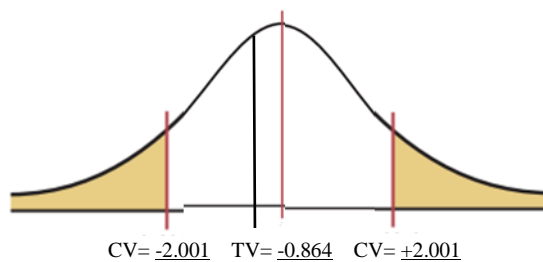
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 60-1 = 59 \quad CV = \pm 2.001$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{-6}{\sqrt{\frac{(60 \times 48) - (-6)^2}{(60-1)}}}$$

$$TV = \underline{-0.864}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among first-year male and female students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Second Year Male and Female**

Respondent	<u>Second Year Male and Female</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
1	4	3	-1	1
2	3	3	0	0
3	4	3	-1	1
4	3	3	0	0
5	4	4	0	0
6	3	4	1	1
7	4	3	-1	1
8	4	4	0	0
9	4	4	0	0
10	3	4	1	1
11	4	4	0	0
12	4	4	0	0
13	3	4	1	1
14	4	2	-2	4
15	3	4	1	1
16	3	4	1	1
17	4	4	0	0
18	3	3	0	0
19	4	3	-1	1
20	3	4	1	1
21	4	4	0	0
22	4	4	0	0
23	3	3	0	0
24	4	4	0	0
25	4	4	0	0
26	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Second Year Male and Female**

<b>Respondent</b>				
<b><u>Second Year Male and Female</u></b>				
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
27	4	4	0	0
28	4	4	0	0
29	3	3	0	0
30	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Second Year Male and Female**

Respondent No.	<u>Second Year Male and Female</u>			$D^2$
	APB	APA	$D$	
31	3	4	1	1
32	4	4	0	0
33	2	2	0	0
34	4	4	0	0
35	3	3	0	0
36	4	4	0	0
37	4	4	0	0
38	3	3	0	0
39	4	4	0	0
40	3	4	1	1
41	3	4	1	1
42	4	3	-1	1
43	4	4	0	0
44	4	4	0	0
45	3	4	1	1
46	4	4	0	0
47	3	4	1	1
48	4	4	0	0
49	3	4	1	1
50	2	4	2	4
51	4	3	-1	1
52	4	3	-1	1
53	3	3	0	0
54	2	2	0	0
55	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Second Year Male and Female**

Respondent		<u>Second Year Male and Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
56	4	2	-2	4
57	4	4	0	0
58	3	4	1	1
59	4	4	0	0
60	4	4	0	0
			$\Sigma D = 6$	$\Sigma D^2 = 34$

**HYPOTHESES TESTING:**

**t-test for Dependent Sample Means: APB & APA – Male and Female 2<sup>nd</sup> Year Students**

**Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

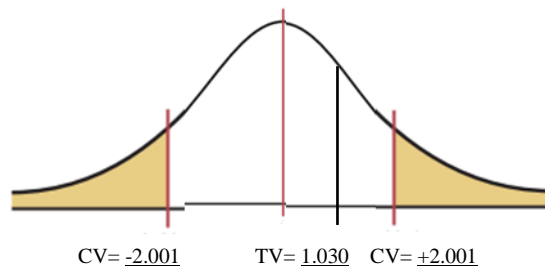
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 60-1=59 \quad CV = \pm 2.001$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{6}{\sqrt{\frac{(60 \times 34) - (6)^2}{(60-1)}}}$$

$$TV = \underline{1.030}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among second-year male and female students.





**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Third Year Male and Female**

Respondent	<u>Third Year Male and Female</u>			
No.	APB	APA	$D$	$D^2$
1	3	4	1	1
2	4	3	-1	1
3	3	3	0	0
4	4	4	0	0
5	3	3	0	0
6	3	3	0	0
7	3	3	0	0
8	4	3	-1	1
9	3	4	1	1
10	4	4	0	0
11	3	3	0	0
12	4	4	0	0
13	3	4	1	1
14	4	4	0	0
15	3	2	-1	1
16	2	3	1	1
17	2	4	2	4
18	4	4	0	0
19	4	3	-1	1
20	4	4	0	0
21	2	4	2	4
22	4	4	0	0
23	3	4	1	1
24	2	4	2	4
25	4	4	0	0
26	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Third Year Male and Female**

<b>Respondent</b>				
<b><u>Third Year Male and Female</u></b>				
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
27	4	4	0	0
28	4	4	0	0
29	2	3	1	1
30	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Third Year Male and Female**

Respondent		<u>Third Year Male and Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
31	4	3	-1	1
32	3	3	0	0
33	4	3	-1	1
34	3	3	0	0
35	4	4	0	0
36	3	4	1	1
37	4	3	-1	1
38	4	4	0	0
39	4	4	0	0
40	3	4	1	1
41	4	4	0	0
42	4	4	0	0
43	3	4	1	1
44	4	2	-2	4
45	3	4	1	1
46	3	4	1	1
47	4	4	0	0
48	3	3	0	0
49	4	3	-1	1
50	3	4	1	1
51	4	4	0	0
52	4	4	0	0
53	3	3	0	0
54	4	4	0	0
55	4	4	0	0
56	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Third Year Male and Female**

Respondent		<u>Third Year Male and Female</u>		
No.	APB	APA	$D$	$D^2$
57	4	4	0	0
58	4	4	0	0
59	3	3	0	0
60	3	4	1	1
			$\Sigma D = 9$	$\Sigma D^2 = 37$

**HYPOTHESES TESTING:**

**t-test for Dependent Sample Means: APB & APA – Male and Female 3<sup>rd</sup> Year Students**

**Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

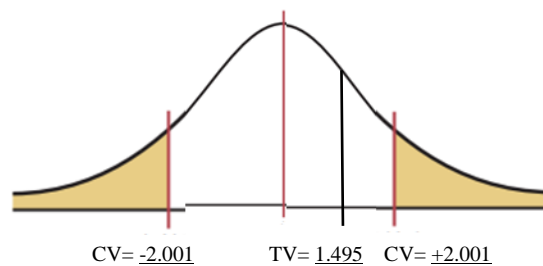
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 60-1 = 59 \quad CV = \pm 2.001$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{9}{\sqrt{\frac{(60 \times 37) - (9)^2}{(60-1)}}}$$

$$TV = \underline{1.495}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among third-year male and female students.

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Fourth Year Male and Female**

Respondent		<u>Fourth Year Male and Female</u>		
No.	APB	APA	$D$	$D^2$
1	4	4	0	0
2	3	4	1	1
3	2	3	1	1
4	3	3	0	0
5	4	4	0	0
6	4	2	-2	4
7	4	4	0	0
8	3	3	0	0
9	4	2	-2	4
10	4	3	-1	1
11	3	4	1	1
12	4	3	-1	1
13	4	3	-1	1
14	3	4	1	1
15	4	2	-2	4
16	4	3	-1	1
17	3	4	1	1
18	3	3	0	0
19	3	3	0	0
20	3	3	0	0
21	4	4	0	0
22	3	2	-1	1
23	3	3	0	0
24	3	3	0	0
25	4	3	-1	1
26	2	4	2	4

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Fourth Year Male and Female**

Respondent		<u>Fourth Year Male and Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
27	4	3	-1	1
28	3	3	0	0
29	3	3	0	0
30	3	3	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Fourth Year Male and Female**

Respondent		<u>Fourth Year Male and Female</u>		
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
31	2	4	2	4
32	3	3	0	0
33	2	4	2	4
34	3	3	0	0
35	4	4	0	0
36	3	3	0	0
37	4	4	0	0
38	4	4	0	0
39	4	4	0	0
40	4	3	-1	1
41	2	4	2	4
42	3	4	1	1
43	2	3	1	1
44	4	4	0	0
45	3	3	0	0
46	4	3	-1	1
47	4	4	0	0
48	2	3	1	1
49	3	4	1	1
50	4	3	-1	1
51	2	4	2	4
52	4	4	0	0
53	4	3	-1	1
54	3	4	1	1
55	2	4	2	4
56	4	4	0	0



**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of Fourth Year Male and Female**

Respondent		<u>Fourth Year Male and Female</u>		
No.	APB	APA	$D$	$D^2$
57	2	4	2	4
58	4	4	0	0
59	2	3	1	1
60	2	3	1	1
			$\Sigma D = 9$	$\Sigma D^2 = 63$

**HYPOTHESES TESTING:**

**t-test for Dependent Sample Means: APB & APA – Male and Female 4<sup>th</sup> Year Students**

**Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

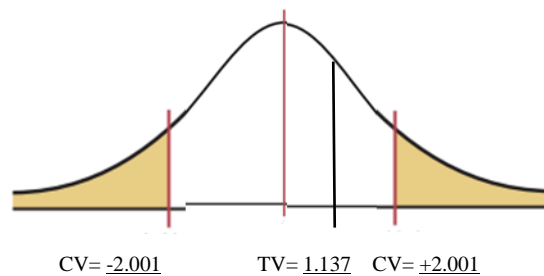
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = 60-1 = 59 \quad CV = \pm 2.001$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{9}{\sqrt{\frac{(60 \times 63) - (9)^2}{(60-1)}}}$$

$$TV = \underline{1.137}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among fourth-year male and female students.



**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>	<b><u>First to Fourth Year Male and Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
1	3	3	0	0
2	3	3	0	0
3	4	4	0	0
4	3	4	1	1
5	4	3	-1	1
6	3	3	0	0
7	4	3	-1	1
8	4	4	0	0
9	4	3	-1	1
10	3	3	0	0
11	4	4	0	0
12	3	3	0	0
13	4	4	0	0
14	4	4	0	0
15	3	4	1	1
16	1	4	3	9
17	4	4	0	0
18	3	3	0	0
19	4	4	0	0
20	4	3	-1	1
21	4	4	0	0
22	4	4	0	0
23	4	3	-1	1
24	4	3	-1	1
25	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>		<b><u>First to Fourth Year Male and Female</u></b>		
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
26	4	3	-1	1
27	3	4	1	1
28	4	4	0	0
29	3	3	0	0
30	3	4	1	1
31	4	4	0	0
32	3	4	1	1
33	2	3	1	1
34	3	3	0	0
35	4	4	0	0
36	4	2	-2	4
37	4	4	0	0
38	3	3	0	0
39	4	2	-2	4
40	4	3	-1	1
41	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>		<b><u>First to Fourth Year Male and Female</u></b>		
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
42	4	3	-1	1
43	4	3	-1	1
44	3	4	1	1
45	4	2	-2	4
46	4	3	-1	1
47	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>	<b><u>First to Fourth Year Male and Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
48	3	3	0	0
49	3	3	0	0
50	3	3	0	0
51	4	4	0	0
52	3	2	-1	1
53	3	3	0	0
54	3	3	0	0
55	4	3	-1	1
56	2	4	2	4
57	4	3	-1	1
58	3	3	0	0
59	3	3	0	0
60	3	3	0	0
61	4	3	-1	1
62	3	3	0	0
63	4	3	-1	1
64	3	3	0	0
65	4	4	0	0
66	3	4	1	1
67	4	3	-1	1
68	4	4	0	0
69	4	4	0	0
70	3	4	1	1
71	4	4	0	0
72	4	4	0	0
73	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

Respondent	<u>First to Fourth Year Male and Female</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
74	4	2	-2	4
75	3	4	1	1
76	3	4	1	1
77	4	4	0	0
78	3	3	0	0
79	4	3	-1	1
80	3	4	1	1
81	4	4	0	0
82	4	4	0	0
83	3	3	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

Respondent	<u>First to Fourth Year Male and Female</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
84	4	4	0	0
85	4	4	0	0
86	4	4	0	0
87	4	4	0	0
88	4	4	0	0
89	3	3	0	0
90	3	4	1	1
91	3	4	1	1
92	4	4	0	0
93	2	2	0	0
94	4	4	0	0
95	3	3	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>	<b><u>First to Fourth Year Male and Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
96	4	4	0	0
97	4	4	0	0
98	3	3	0	0
99	4	4	0	0
100	3	4	1	1
101	3	4	1	1
102	4	3	-1	1
103	4	4	0	0
104	4	4	0	0
105	3	4	1	1
106	4	4	0	0
107	3	4	1	1
108	4	4	0	0
109	3	4	1	1
110	2	4	2	4
111	4	3	-1	1
112	4	3	-1	1
113	3	3	0	0
114	2	2	0	0
115	3	4	1	1
116	4	2	-2	4
117	4	4	0	0
118	3	4	1	1
119	4	4	0	0
120	4	4	0	0
121	3	4	1	1



**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

Respondent	<u>First to Fourth Year Male and Female</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
122	4	3	-1	1
123	3	3	0	0
124	4	4	0	0
125	3	3	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

Respondent	<u>First to Fourth Year Male and Female</u>			
No.	APB	APA	<i>D</i>	<i>D</i> <sup>2</sup>
126	3	3	0	0
127	3	3	0	0
128	4	3	-1	1
129	3	4	1	1
130	4	4	0	0
131	3	3	0	0
132	4	4	0	0
133	3	4	1	1
134	4	4	0	0
135	3	2	-1	1
136	2	3	1	1
137	2	4	2	4
138	4	4	0	0
139	4	3	-1	1
140	4	4	0	0
141	2	4	2	4
142	4	4	0	0
143	3	4	1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>	<b><u>First to Fourth Year Male and Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
144	2	4	2	4
145	4	4	0	0
146	4	4	0	0
147	4	4	0	0
148	4	4	0	0
149	2	3	1	1
150	4	4	0	0
151	4	3	-1	1
152	3	3	0	0
153	4	3	-1	1
154	3	3	0	0
155	4	4	0	0
156	3	4	1	1
157	4	3	-1	1
158	4	4	0	0
159	4	4	0	0
160	3	4	1	1
161	4	4	0	0
162	4	4	0	0
163	3	4	1	1
164	4	2	-2	4
165	3	4	1	1
166	3	4	1	1
167	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>	<b><u>First to Fourth Year Male and Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
168	3	3	0	0
169	4	3	-1	1
170	3	4	1	1
171	4	4	0	0
172	4	4	0	0
173	3	3	0	0
174	4	4	0	0
175	4	4	0	0
176	4	4	0	0
177	4	4	0	0
178	4	4	0	0
179	3	3	0	0
180	3	4	1	1
181	4	4	0	0
182	3	4	1	1
183	2	3	1	1
184	3	3	0	0
185	4	4	0	0
186	4	2	-2	4
187	4	4	0	0
188	3	3	0	0
189	4	2	-2	4
190	4	3	-1	1
191	3	4	1	1
192	4	3	-1	1
193	4	3	-1	1

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>	<b><u>First to Fourth Year Male and Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
194	3	4	1	1
195	4	2	-2	4
196	4	3	-1	1
197	3	4	1	1
198	3	3	0	0
199	3	3	0	0
200	3	3	0	0
201	4	4	0	0
202	3	2	-1	1
203	3	3	0	0
204	3	3	0	0
205	4	3	-1	1
206	2	4	2	4
207	4	3	-1	1
208	3	3	0	0
209	3	3	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>	<b><u>First to Fourth Year Male and Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
210	3	3	0	0
211	2	4	2	4
212	3	3	0	0
213	2	4	2	4
214	3	3	0	0
215	4	4	0	0

**II. t-test for Two Dependent Sample Means: Academic Performance Before & After Use of AI Tools of First to Fourth Year Male and Female**

<b>Respondent</b>	<b><u>First to Fourth Year Male and Female</u></b>			
<b>No.</b>	<b>APB</b>	<b>APA</b>	<b><i>D</i></b>	<b><i>D</i><sup>2</sup></b>
216	3	3	0	0
217	4	4	0	0
218	4	4	0	0
219	4	4	0	0
220	4	3	-1	1
221	2	4	2	4
222	3	4	1	1
223	2	3	1	1
224	4	4	0	0
225	3	3	0	0
226	4	3	-1	1
227	4	4	0	0
228	2	3	1	1
229	3	4	1	1
230	4	3	-1	1
231	2	4	2	4
232	4	4	0	0
233	4	3	-1	1
234	3	4	1	1
235	2	4	2	4
236	4	4	0	0
237	2	4	2	4
238	4	4	0	0
239	2	3	1	1
240	2	3	1	1

**HYPOTHESES TESTING:**

**t-test for Dependent Sample Means: APB & APA – Male and Female 1<sup>st</sup> – 4<sup>th</sup> Year Students**

**Step 1: Hypotheses**

$$H_0 : \mu_D = 0$$

$$H_1 : \mu_D \neq 0$$

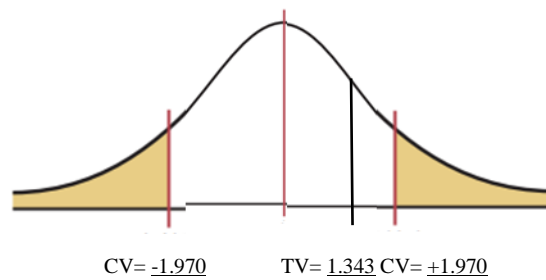
**Step 2:**

$$\bullet \alpha = 0.05 \quad df = \underline{240-1=239} \quad CV = \underline{\pm 1.970}$$

**Step 3: Computation of test value:**

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{(n-1)}}} = \frac{18}{\sqrt{\frac{(240 \times 182) - (18)^2}{(240-1)}}}$$

$$TV = \underline{1.343}$$



**Step 4: Decision:**

Do not Reject Ho.

**Step 5: Conclusion:**

There is no significant difference in academic performance before (APB) and academic performance after (APA) use of AI tools among first-year to fourth-year male and female students.

**Correlation & Hypothesis Testing****III. CORRELATION: FOU & APA – Male 1<sup>st</sup> Year Students**

<b>Respondent</b>		<b>Male 1<sup>st</sup> Year</b>	
<b>No.</b>		<b>FOU</b>	<b>APA</b>
1		3	3
2		4	3
3		3	4
4		3	4
5		4	3
6		3	3
7		4	3
8		4	4
9		4	3
10		3	3
11		3	4
12		3	3
13		2	4
14		4	4
15		3	4
16		3	4
17		4	4
18		2	3
19		4	4
20		4	3
21		2	4
22		4	4
23		4	3
24		3	3
25		2	4
26		4	3
27		2	4
28		4	4
29		3	3
30		2	4

$r = -0.240$  (Low negative relationship)

### HYPOTHESES TESTING:

#### IV. t-test for Significance of Correlation between FOU & APA – Male 1<sup>st</sup> Year Students

##### Step 1: Hypotheses

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

##### Step 2:

$$\alpha = 0.05$$

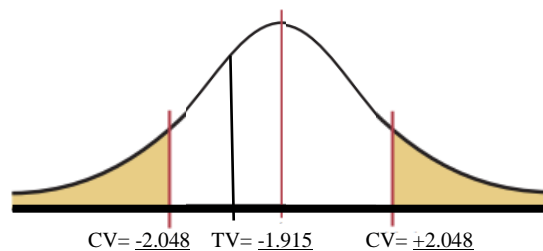
$$df = n - 2 = 30 - 2 = 28$$

$$CV = \pm 2.048$$

##### Step 3: Computation of test value:

$$t = r \sqrt{\frac{n-2}{1-r^2}} = -0.240 \sqrt{\frac{30-2}{1-(-0.240)^2}}$$

$$= \underline{-1.915}$$



##### Step 4: Decision:

Do not Reject  $H_0$ .

##### Step 5: Conclusion:

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among first-year male students.





### III. CORRELATION: FOU & APA – Male 2<sup>nd</sup> Year Students

Respondent No.	Male 2 <sup>nd</sup> Year	
	FOU	APA
1	2	3
2	3	3
3	2	3
4	3	3
5	4	4
6	3	4
7	4	3
8	4	4
9	4	4
10	4	4
11	2	4
12	3	4
13	2	4
14	4	2
15	3	4
16	4	4
17	4	4
18	2	3
19	3	3
20	4	4
21	2	4
22	4	4
23	4	3
24	3	4
25	2	4
26	4	4
27	2	4
28	4	4
29	2	3
30	2	4

$r = 0.077$  (Very low positive relationship)

**HYPOTHESES TESTING:****V. t-test for Significance of Correlation between FOU & APA – Male 2<sup>nd</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

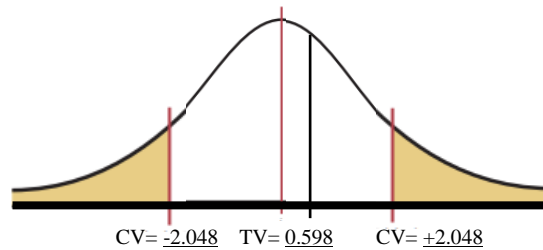
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 30 - 2 = 28 \quad CV = \pm 2.048$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.077 \sqrt{\frac{30-2}{1-(0.077)^2}}$$

$$= \underline{\underline{0.598}}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among second-year male students.

### III. CORRELATION: FOU & APA – Male 3<sup>rd</sup> Year Students

Respondent No.	Male 3 <sup>rd</sup> Year	
	FOU	APA
1	3	4
2	3	3
3	3	3
4	4	4
5	4	3
6	2	3
7	3	3
8	3	3
9	3	4
10	4	4
11	4	3
12	4	4
13	4	4
14	4	4
15	4	2
16	4	3
17	4	4
18	3	4
19	3	3
20	3	4
21	4	4
22	4	4
23	4	4
24	4	4
25	4	4
26	4	4
27	4	4
28	4	4
29	3	3
30	4	4

$r = 0.348$  (Low positive relationship)

**HYPOTHESES TESTING:****VI. t-test for Significance of Correlation between FOU & APA – Male 3<sup>rd</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

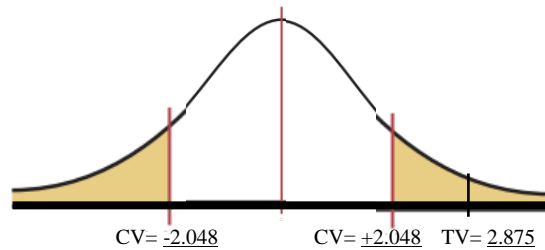
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 30 - 2 = 28 \quad CV = \pm 2.048$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.348 \sqrt{\frac{30-2}{1-(0.348)^2}}$$

$$= \underline{2.875}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among third-year male students.

### III. CORRELATION: FOU & APA – Male 4<sup>th</sup> Year Students

Respondent	Male 4 <sup>th</sup> Year	
No.	FOU	APA
1	3	4
2	3	4
3	4	3
4	4	3
5	4	4
6	3	2
7	4	4
8	3	3
9	3	2
10	4	3
11	4	4
12	4	3
13	4	3
14	3	4
15	3	2
16	4	3
17	3	4
18	4	3
19	4	3
20	4	3
21	3	4
22	4	2
23	4	3
24	3	3
25	4	3
26	4	4
27	4	3
28	4	3
29	3	3
30	3	3

$r = 0.000$  (No relationship)

**HYPOTHESES TESTING:****VII. t-test for Significance of Correlation between FOU & APA – Male 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

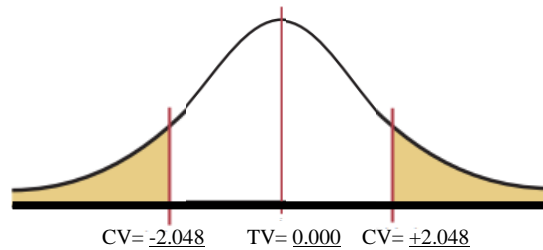
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 30 - 2 = 8 \quad CV = \pm 2.048$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.000 \sqrt{\frac{30-2}{1-(0.000)^2}}$$

$$= \underline{\underline{0.000}}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among fourth-year male students.

### III. CORRELATION: FOU & APA – Male 1<sup>st</sup> to 4<sup>th</sup> Year Students

Respondent	Male 1 <sup>st</sup> to 4 <sup>th</sup> Year	
No.	FOU	APA
1	3	3
2	4	3
3	3	4
4	3	4
5	4	3
6	3	3
7	4	3
8	4	4
9	4	3
10	3	3
11	3	4
12	3	3
13	2	4
14	4	4
15	3	4
16	3	4
17	4	4
18	2	3
19	4	4
20	4	3
21	2	4
22	4	4
23	4	3
24	3	3
25	2	4
26	4	3
27	2	4
28	4	4
29	3	3
30	2	4
31	2	3
32	3	3
33	2	3
34	3	3
35	4	4
36	3	4
37	4	3
38	4	4
39	4	4
40	4	4
41	2	4
42	3	4



### III. CORRELATION: FOU & APA – Male 1<sup>st</sup> to 4<sup>th</sup> Year Students

Respondent No.	Male 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
43	2	4
44	4	2
45	3	4
46	4	4
47	4	4
48	2	3
49	3	3
50	4	4
51	2	4
52	4	4
53	4	3
54	3	4
55	2	4
56	4	4
57	2	4
58	4	4
59	2	3
60	2	4
61	3	4
62	3	3
63	3	3
64	4	4
65	4	3
66	2	3
67	3	3
68	3	3
69	3	4
70	4	4
71	4	3
72	4	4
73	4	4
74	4	4
75	4	2
76	4	3
77	4	4
78	3	4
79	3	3
80	3	4
81	4	4
82	4	4
83	4	4
84	4	4
85	4	4
86	4	4

### III. CORRELATION: FOU & APA – Male 1<sup>st</sup> to 4<sup>th</sup> Year Students

Respondent No.	Male 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
87	4	4
88	4	4
89	3	3
90	4	4
91	3	4
92	3	4
93	4	3
94	4	3
95	4	4
96	3	2
97	4	4
98	3	3
99	3	2
100	4	3
101	4	4
102	4	3
103	4	3
104	3	4
105	3	2
106	4	3
107	3	4
108	4	3
109	4	3
110	4	3
111	3	4
112	4	2
113	4	3
114	3	3
115	4	3
116	4	4
117	4	3
118	4	3
119	3	3
120	3	3

$r = -0.024$  (Very low negative relationship)

**HYPOTHESES TESTING:****VIII. t-test for Significance of Correlation between FOU & APA – Male 1<sup>st</sup> to 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0 \quad \underline{\hspace{10em}}$$

$$H_1: \rho \neq 0 \quad \underline{\hspace{10em}}$$

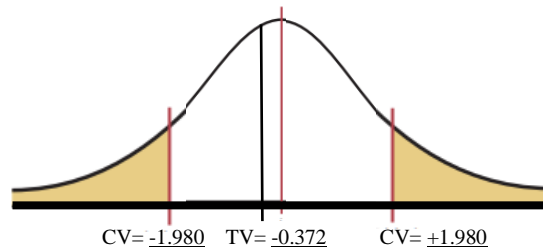
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 120 - 2 = 118 \quad CV = \pm 1.980$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = -0.024 \sqrt{\frac{120-2}{1-(-0.024)^2}}$$

$$= \underline{-0.372}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among first-year to fourth-year male students.

### III. CORRELATION: FOU & APA – Female 1<sup>st</sup> Year Students

Respondent	Female 1 <sup>st</sup> Year	
No.	FOU	APA
1	3	4
2	3	4
3	4	3
4	4	3
5	4	4
6	3	2
7	4	4
8	3	3
9	3	2
10	4	3
11	4	4
12	4	3
13	4	3
14	3	4
15	3	2
16	4	3
17	3	4
18	4	3
19	4	3
20	4	3
21	3	4
22	4	2
23	4	3
24	3	3
25	4	3
26	4	4
27	4	3
28	4	3
29	3	3
30	3	3

$r = 0.000$  (No relationship)

**HYPOTHESES TESTING:****IX. t-test for Significance of Correlation between FOU & APA –Female 1<sup>st</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0 \quad \underline{\hspace{10em}}$$

$$H_1: \rho \neq 0 \quad \underline{\hspace{10em}}$$

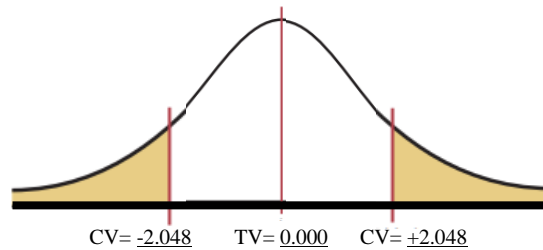
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = \underline{30-2=28} \quad CV = \underline{\pm 2.048}$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.000 \sqrt{\frac{30-2}{1-(0.000)^2}}$$

$$= \underline{0.000}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among first-year female students.

### III. CORRELATION: FOU & APA – **Female 2<sup>nd</sup> Year Students**

Respondent No.	FOU	APA
1	3	4
2	3	4
3	2	2
4	4	4
5	3	3
6	3	4
7	4	4
8	4	3
9	4	4
10	4	4
11	4	4
12	3	3
13	4	4
14	4	4
15	4	4
16	3	4
17	4	4
18	3	4
19	4	4
20	4	4
21	4	3
22	4	3
23	3	3
24	4	2
25	3	4
26	4	2
27	4	4
28	4	4
29	4	4
30	4	4

$r = 0.239$  (Low positive relationship)

**HYPOTHESES TESTING:****X. t-test for Significance of Correlation between FOU & APA – Female 2<sup>nd</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0 \quad \underline{\hspace{10em}}$$

$$H_1: \rho \neq 0 \quad \underline{\hspace{10em}}$$

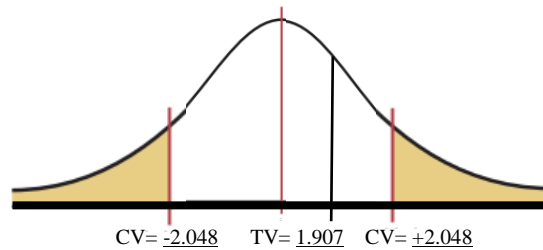
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = \underline{30-2=28} \quad CV = \underline{\pm 2.048}$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.239 \sqrt{\frac{30-2}{1-(0.239)^2}}$$

$$= \underline{\underline{1.907}}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among second-year female students.

### III. CORRELATION: FOU & APA – **Female 3<sup>rd</sup> Year Students**

Respondent No.	FOU	APA
1	2	3
2	3	3
3	2	3
4	3	3
5	4	4
6	3	4
7	4	3
8	4	4
9	4	4
10	4	4
11	2	4
12	3	4
13	2	4
14	4	2
15	3	4
16	4	4
17	4	4
18	2	3
19	3	3
20	4	4
21	2	4
22	4	4
23	4	3
24	3	4
25	2	4
26	4	4
27	2	4
28	4	4
29	2	3
30	2	4

$r = 0.077$  (Very low positive relationship)



**HYPOTHESES TESTING:****XI. t-test for Significance of Correlation between FOU & APA – Female 3<sup>rd</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

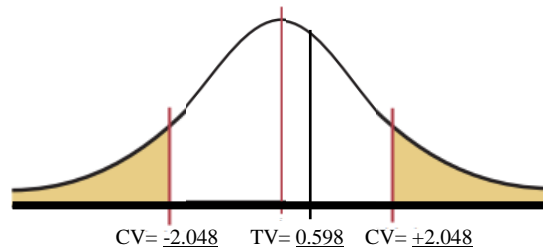
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 30 - 2 = 28 \quad CV = \pm 2.048$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.077 \sqrt{\frac{30-2}{1-(0.077)^2}}$$

$$= \underline{\underline{0.598}}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among third-year female students.

### III. CORRELATION: FOU & APA – **Female 4<sup>th</sup> Year Students**

Respondent	<b>Female 4<sup>th</sup> Year</b>	
No.	FOU	APA
1	3	4
2	3	3
3	3	4
4	3	3
5	4	4
6	4	3
7	3	4
8	4	4
9	4	4
10	4	3
11	4	4
12	4	4
13	4	3
14	2	4
15	4	3
16	4	3
17	4	4
18	3	3
19	3	4
20	4	3
21	4	4
22	4	4
23	3	3
24	4	4
25	4	4
26	4	4
27	4	4
28	4	4
29	3	3
30	4	3

$r = 0.075$  (Very low positive relationship)

**HYPOTHESES TESTING:****XII. t-test for Significance of Correlation between FOU & APA – Female 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

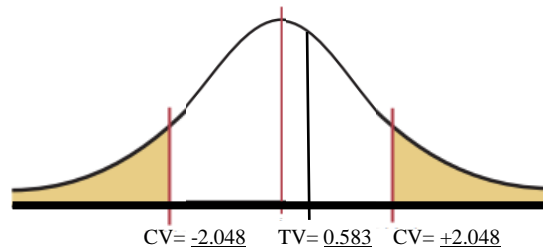
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 30 - 2 = 28 \quad CV = \pm 2.048$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.075 \sqrt{\frac{30-2}{1-(0.075)^2}}$$

$$= \underline{\underline{0.583}}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among fourth-year female students.

### III. CORRELATION: FOU & APA – **Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent	<b>Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
No.	FOU	APA
1	3	4
2	3	4
3	4	3
4	4	3
5	4	4
6	3	2
7	4	4
8	3	3
9	3	2
10	4	3
11	4	4
12	4	3
13	4	3
14	3	4
15	3	2
16	4	3
17	3	4
18	4	3
19	4	3
20	4	3
21	3	4
22	4	2
23	4	3
24	3	3
25	4	3
26	4	4
27	4	3
28	4	3
29	3	3
30	3	3
31	3	4
32	3	4
33	2	2
34	4	4
35	3	3
36	3	4
37	4	4
38	4	3
39	4	4
40	4	4
41	4	4
42	3	3

### III. CORRELATION: FOU & APA – **Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	<b>Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
	FOU	APA
43	4	4
44	4	4
45	4	4
46	3	4
47	4	4
48	3	4
49	4	4
50	4	4
51	4	3
52	4	3
53	3	3
54	4	2
55	3	4
56	4	2
57	4	4
58	4	4
59	4	4
60	4	4
61	2	3
62	3	3
63	2	3
64	3	3
65	4	4
66	3	4
67	4	3
68	4	4
69	4	4
70	4	4
71	2	4
72	3	4
73	2	4
74	4	2
75	3	4
76	4	4
77	4	4
78	2	3
79	3	3
80	4	4
81	2	4
82	4	4
83	4	3
84	3	4
85	2	4
86	4	4

### III. CORRELATION: FOU & APA – **Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent	<b>Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
No.	FOU	APA
87	2	4
88	4	4
89	2	3
90	2	4
91	3	4
92	3	3
93	3	4
94	3	3
95	4	4
96	4	3
97	3	4
98	4	4
99	4	4
100	4	3
101	4	4
102	4	4
103	4	3
104	2	4
105	4	3
106	4	3
107	4	4
108	3	3
109	3	4
110	4	3
111	4	4
112	4	4
113	3	3
114	4	4
115	4	4
116	4	4
117	4	4
118	4	4
119	3	3
120	4	3

$r = 0.050$  (Very low positive relationship)

**HYPOTHESES TESTING:****XIII. t-test for Significance of Correlation between FOU & APA – Female 1<sup>st</sup> to 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0 \quad \underline{\hspace{10cm}}$$

$$H_1: \rho \neq 0 \quad \underline{\hspace{10cm}}$$

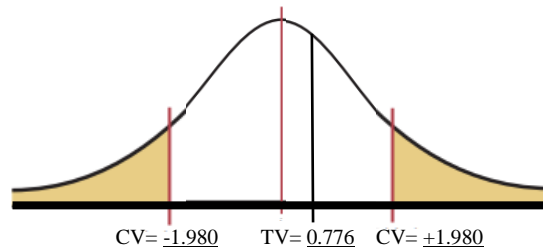
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 120 - 2 = 118 \quad CV = \pm 1.980$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.050 \sqrt{\frac{120-2}{1-(0.050)^2}}$$

$$= \underline{0.776}$$

**Step 4: Decision:**

Do not Reject  $H_0$ .

**Step 5: Conclusion:**

There is no significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among first-year to fourth-year female students.

### III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> Year Students

Respondent No.	Male and Female 1 <sup>st</sup> Year	
	FOU	APA
1	3	3
2	4	3
3	3	4
4	3	4
5	4	3
6	3	3
7	4	3
8	4	4
9	4	3
10	3	3
11	3	4
12	3	3
13	2	4
14	4	4
15	3	4
16	3	4
17	4	4
18	2	3
19	4	4
20	4	3
21	2	4
22	4	4
23	4	3
24	3	3
25	2	4
26	4	3
27	2	4
28	4	4
29	3	3
30	2	4
31	3	4
32	3	4
33	4	3
34	4	3
35	4	4
36	3	2
37	4	4
38	3	3
39	3	2
40	4	3
41	4	4
42	4	3



### III. CORRELATION: FOU & APA – **Male and Female 1<sup>st</sup> Year Students**

Respondent No.	<b>Male and Female 1<sup>st</sup> Year</b>	
	FOU	APA
43	4	3
44	3	4
45	3	2
46	4	3
47	3	4
48	4	3
49	4	3
50	4	3
51	3	4
52	4	2
53	4	3
54	3	3
55	4	3
56	4	4
57	4	3
58	4	3
59	3	3
60	3	3

$r = 0.949$  (Very strong positive relationship)

**HYPOTHESES TESTING:****XIV. t-test for Significance of Correlation between FOU & APA – Male and Female 1<sup>st</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0 \quad \underline{\hspace{10em}}$$

$$H_1: \rho \neq 0 \quad \underline{\hspace{10em}}$$

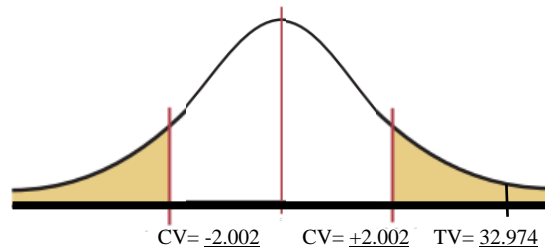
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = \underline{60-2=58} \quad CV = \underline{\pm 2.002}$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.949 \sqrt{\frac{60-2}{1-(0.949)^2}}$$

$$= \underline{32.974}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among first-year male and female students.

### III. CORRELATION: FOU & APA – **Male and Female 2<sup>nd</sup> Year Students**

Respondent No.	<b>Male and Female 2<sup>nd</sup> Year</b>	
	FOU	APA
1	2	3
2	3	3
3	2	3
4	3	3
5	4	4
6	3	4
7	4	3
8	4	4
9	4	4
10	4	4
11	2	4
12	3	4
13	2	4
14	4	2
15	3	4
16	4	4
17	4	4
18	2	3
19	3	3
20	4	4
21	2	4
22	4	4
23	4	3
24	3	4
25	2	4
26	4	4
27	2	4
28	4	4
29	2	3
30	2	4
31	3	4
32	3	4
33	2	2
34	4	4
35	3	3
36	3	4
37	4	4
38	4	3
39	4	4
40	4	4
41	4	4
42	3	3

### III. CORRELATION: FOU & APA – **Male and Female 2<sup>nd</sup> Year Students**

Respondent No.	<b>Male and Female 2<sup>nd</sup> Year</b>	
	FOU	APA
43	4	4
44	4	4
45	4	4
46	3	4
47	4	4
48	3	4
49	4	4
50	4	4
51	4	3
52	4	3
53	3	3
54	4	2
55	3	4
56	4	2
57	4	4
58	4	4
59	4	4
60	4	4

$r = 0.958$  (Very strong positive relationship)

**HYPOTHESES TESTING:****XV. t-test for Significance of Correlation between FOU & APA – Male and Female 2<sup>nd</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0 \quad \underline{\hspace{10em}}$$

$$H_1: \rho \neq 0 \quad \underline{\hspace{10em}}$$

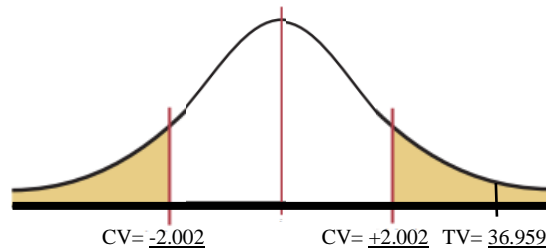
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 60 - 2 = 58 \quad CV = \underline{\pm 2.002}$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.958 \sqrt{\frac{60-2}{1-(0.958)^2}}$$

$$= \underline{36.959}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among second-year male and female students.

### III. CORRELATION: FOU & APA – Male and Female 3<sup>rd</sup> Year Students

Respondent No.	Male and Female 3 <sup>rd</sup> Year	
	FOU	APA
1	3	4
2	3	3
3	3	3
4	4	4
5	4	3
6	2	3
7	3	3
8	3	3
9	3	4
10	4	4
11	4	3
12	4	4
13	4	4
14	4	4
15	4	2
16	4	3
17	4	4
18	3	4
19	3	3
20	3	4
21	4	4
22	4	4
23	4	4
24	4	4
25	4	4
26	4	4
27	4	4
28	4	4
29	3	3
30	4	4
31	2	3
32	3	3
33	2	3
34	3	3
35	4	4
36	3	4
37	4	3
38	4	4
39	4	4
40	4	4
41	2	4
42	3	4

### III. CORRELATION: FOU & APA – **Male and Female 3<sup>rd</sup> Year Students**

Respondent No.	<b>Male and Female 3<sup>rd</sup> Year</b>	
	FOU	APA
43	2	4
44	4	2
45	3	4
46	4	4
47	4	4
48	2	3
49	3	3
50	4	4
51	2	4
52	4	4
53	4	3
54	3	4
55	2	4
56	4	4
57	2	4
58	4	4
59	2	3
60	2	4

$r = 0.959$  (Very strong positive relationship)

**HYPOTHESES TESTING:****XVI. t-test for Significance of Correlation between FOU & APA – Male and Female 3<sup>rd</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

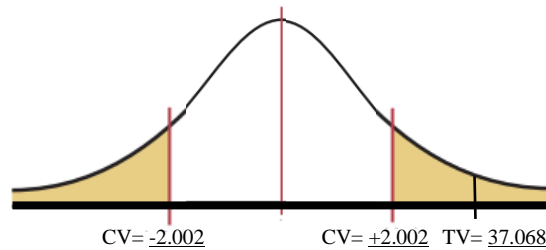
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 60 - 2 = 58 \quad CV = \pm 2.002$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.959 \sqrt{\frac{60-2}{1-(0.959)^2}}$$

$$= 37.068$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among third-year male and female students.



### III. CORRELATION: FOU & APA – Male and Female 4<sup>th</sup> Year Students

Respondent No.	Male and Female 4 <sup>th</sup> Year	
	FOU	APA
1	3	4
2	3	4
3	4	3
4	4	3
5	4	4
6	3	2
7	4	4
8	3	3
9	3	2
10	4	3
11	4	4
12	4	3
13	4	3
14	3	4
15	3	2
16	4	3
17	3	4
18	4	3
19	4	3
20	4	3
21	3	4
22	4	2
23	4	3
24	3	3
25	4	3
26	4	4
27	4	3
28	4	3
29	3	3
30	3	3
31	3	4
32	3	3
33	3	4
34	3	3
35	4	4
36	4	3
37	3	4
38	4	4
39	4	4
40	4	3
41	4	4
42	4	4

### III. CORRELATION: FOU & APA – **Male and Female 4<sup>th</sup> Year Students**

Respondent No.	<b>Male and Female 4<sup>th</sup> Year</b>	
	FOU	APA
43	4	3
44	2	4
45	4	3
46	4	3
47	4	4
48	3	3
49	3	4
50	4	3
51	4	4
52	4	4
53	3	3
54	4	4
55	4	4
56	4	4
57	4	4
58	4	4
59	3	3
60	4	3

$r = 0.969$  (Very strong positive relationship)

**HYPOTHESES TESTING:****XVII. t-test for Significance of Correlation between FOU & APA – Male and Female 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

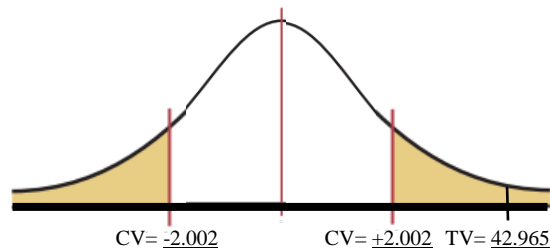
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = 60 - 2 = 58 \quad CV = \pm 2.002$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = 0.969 \sqrt{\frac{60-2}{1-(0.969)^2}}$$

$$= 42.965$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among fourth-year male and female students.

### III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students

Respondent No.	Male and Female 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
1	3	3
2	4	3
3	3	4
4	3	4
5	4	3
6	3	3
7	4	3
8	4	4
9	4	3
10	3	3
11	3	4
12	3	3
13	2	4
14	4	4
15	3	4
16	3	4
17	4	4
18	2	3
19	4	4
20	4	3
21	2	4
22	4	4
23	4	3
24	3	3
25	2	4
26	4	3
27	2	4
28	4	4
29	3	3
30	2	4
31	3	4
32	3	4
33	4	3
34	4	3
35	4	4
36	3	2
37	4	4
38	3	3
39	3	2
40	4	3
41	4	4
42	4	3

### III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students

Respondent No.	Male and Female 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
43	4	3
44	3	4
45	3	2
46	4	3
47	3	4
48	4	3
49	4	3
50	4	3
51	3	4
52	4	2
53	4	3
54	3	3
55	4	3
56	4	4
57	4	3
58	4	3
59	3	3
60	3	3
61	2	3
62	3	3
63	2	3
64	3	3
65	4	4
66	3	4
67	4	3
68	4	4
69	4	4
70	4	4
71	2	4
72	3	4
73	2	4
74	4	2
75	3	4
76	4	4
77	4	4
78	2	3
79	3	3
80	4	4
81	2	4
82	4	4
83	4	3
84	3	4
85	2	4
86	4	4

### III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students

Respondent	Male and Female 1 <sup>st</sup> to 4 <sup>th</sup> Year	
No.	FOU	APA
87	2	4
88	4	4
89	2	3
90	2	4
91	3	4
92	3	4
93	2	2
94	4	4
95	3	3
96	3	4
97	4	4
98	4	3
99	4	4
100	4	4
101	4	4
102	3	3
103	4	4
104	4	4
105	4	4
106	3	4
107	4	4
108	3	4
109	4	4
110	4	4
111	4	3
112	4	3
113	3	3
114	4	2
115	3	4
116	4	2
117	4	4
118	4	4
119	4	4
120	4	4
121	3	4
122	3	3
123	3	3
124	4	4
125	4	3
126	2	3
127	3	3
128	3	3
129	3	4
130	4	4
131	4	3

### **III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>

### **III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
132	4	4
133	4	4
134	4	4
135	4	2
136	4	3
137	4	4
138	3	4
139	3	3
140	3	4
141	4	4
142	4	4
143	4	4
144	4	4
145	4	4
146	4	4
147	4	4
148	4	4
149	3	3
150	4	4
151	2	3
152	3	3
153	2	3
154	3	3
155	4	4
156	3	4
157	4	3
158	4	4
159	4	4
160	4	4
161	2	4
162	3	4
163	2	4
164	4	2
165	3	4
166	4	4
167	4	4
168	2	3
169	3	3
170	4	4
171	2	4
172	4	4

### **III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
173	4	3
174	3	4
175	2	4
176	4	4

### **III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
177	2	4
178	4	4
179	2	3
180	2	4
181	3	4
182	3	4
183	4	3
184	4	3
185	4	4
186	3	2
187	4	4
188	3	3
189	3	2
190	4	3
191	4	4
192	4	3
193	4	3
194	3	4
195	3	2
196	4	3
197	3	4
198	4	3
199	4	3
200	4	3
201	3	4
202	4	2
203	4	3
204	3	3
205	4	3
206	4	4
207	4	3
208	4	3
209	3	3
210	3	3
211	3	4
212	3	3
213	3	4



### III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students

Respondent	<u>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</u>	
No.	FOU	APA
214	3	3
215	4	4
216	4	3
217	3	4
218	4	4
219	4	4
220	4	3
221	4	4

### III. CORRELATION: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students

Respondent	<u>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</u>	
No.	FOU	APA
222	4	4
223	4	3
224	2	4
225	4	3
226	4	3
227	4	4
228	3	3
229	3	4
230	4	3
231	4	4
232	4	4
233	3	3
234	4	4
235	4	4
236	4	4
237	4	4
238	4	4
239	3	3
240	4	3

r = -0.226 (description)

**HYPOTHESES TESTING:****XVIII. t-test for Significance of Correlation between FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students****Step 1: Hypotheses**

$$H_0: \rho = 0$$

$$H_1: \rho \neq 0$$

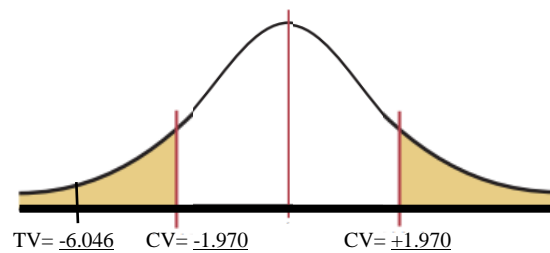
**Step 2:**

$$\alpha = 0.05 \quad df = n - 2 = \underline{240-2=238} \quad CV = \underline{\pm 1.970}$$

**Step 3: Computation of test value:**

$$t = r \sqrt{\frac{n-2}{1-r^2}} = -0.266 \sqrt{\frac{240-2}{1-(-0.266)^2}}$$

$$= \underline{-6.046}$$

**Step 4: Decision:**

Reject  $H_0$ .

**Step 5: Conclusion:**

There is a significant difference in frequency of use (FOU) and academic performance after (APA) use of AI tools among first-year to fourth-year male and female students.

### Application of Simple Regression Analysis

#### V. Simple Regression Analysis: FOU & APA – Male 1<sup>st</sup> Year Students

Respondent	<u>Male 1<sup>st</sup> Year</u>	
No.	FOU	APA
1	3	3
2	4	3
3	3	4
4	3	4
5	4	3
6	3	3
7	4	3
8	4	4
9	4	3
10	3	3
11	3	4
12	3	3
13	2	4
14	4	4
15	3	4
16	3	4
17	4	4
18	2	3
19	4	4
20	4	3
21	2	4
22	4	4
23	4	3
24	3	3
25	2	4
26	4	3
27	2	4
28	4	4
29	3	3
30	2	4

**a** = \_\_\_\_\_

**b** = \_\_\_\_\_

$$y = \text{_____} + \text{_____}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.



### V. Simple Regression Analysis: FOU & APA – Male 2<sup>nd</sup> Year Students

Respondent No.	Male 2 <sup>nd</sup> Year	
	FOU	APA
1	2	3
2	3	3
3	2	3
4	3	3
5	4	4
6	3	4
7	4	3
8	4	4
9	4	4
10	4	4
11	2	4
12	3	4
13	2	4
14	4	2
15	3	4
16	4	4
17	4	4
18	2	3
19	3	3
20	4	4
21	2	4
22	4	4
23	4	3
24	3	4
25	2	4
26	4	4
27	2	4
28	4	4
29	2	3
30	2	4

**a =** \_\_\_\_\_

**b =** \_\_\_\_\_

$$y = \text{_____} + \text{_____}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.



### V. Simple Regression Analysis: FOU & APA – **Male 3<sup>rd</sup> Year Students**

Respondent No.	<b>Male 3<sup>rd</sup> Year</b>	
	FOU	APA
1	3	4
2	3	3
3	3	3
4	4	4
5	4	3
6	2	3
7	3	3
8	3	3
9	3	4
10	4	4
11	4	3
12	4	4
13	4	4
14	4	4
15	4	2
16	4	3
17	4	4
18	3	4
19	3	3
20	3	4
21	4	4
22	4	4
23	4	4
24	4	4
25	4	4
26	4	4
27	4	4
28	4	4
29	3	3
30	4	4

$$a = \underline{2.35}$$

$$b = \underline{0.35}$$

$$y = \underline{2.35} + \underline{0.35}x$$



### V. Simple Regression Analysis: FOU & APA – Male 4<sup>th</sup> Year Students

Respondent	<u>Male 4<sup>th</sup> Year</u>	
No.	FOU	APA
1	3	4
2	3	4
3	4	3
4	4	3
5	4	4
6	3	2
7	4	4
8	3	3
9	3	2
10	4	3
11	4	4
12	4	3
13	4	3
14	3	4
15	3	2
16	4	3
17	3	4
18	4	3
19	4	3
20	4	3
21	3	4
22	4	2
23	4	3
24	3	3
25	4	3
26	4	4
27	4	3
28	4	3
29	3	3
30	3	3

**a** = \_\_\_\_\_

**b** = \_\_\_\_\_

$$y = \text{___} + \text{___}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.



**V. Simple Regression Analysis: FOU & APA – Male 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	Male 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
1	3	3
2	4	3
3	3	4
4	3	4
5	4	3
6	3	3
7	4	3
8	4	4
9	4	3
10	3	3
11	3	4
12	3	3
13	2	4
14	4	4
15	3	4
16	3	4
17	4	4
18	2	3
19	4	4
20	4	3
21	2	4
22	4	4
23	4	3
24	3	3
25	2	4
26	4	3
27	2	4
28	4	4
29	3	3
30	2	4
31	2	3
32	3	3
33	2	3
34	3	3
35	4	4
36	3	4
37	4	3
38	4	4
39	4	4
40	4	4
41	2	4
42	3	4

**V. Simple Regression Analysis: FOU & APA – Male 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	Male 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
43	2	4
44	4	2
45	3	4
46	4	4
47	4	4
48	2	3
49	3	3
50	4	4
51	2	4
52	4	4
53	4	3
54	3	4
55	2	4
56	4	4
57	2	4
58	4	4
59	2	3
60	2	4
61	3	4
62	3	3
63	3	3
64	4	4
65	4	3
66	2	3
67	3	3
68	3	3
69	3	4
70	4	4
71	4	3
72	4	4
73	4	4
74	4	4
75	4	2
76	4	3
77	4	4
78	3	4
79	3	3
80	3	4
81	4	4
82	4	4
83	4	4
84	4	4
85	4	4
86	4	4

**V. Simple Regression Analysis: FOU & APA – Male 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	Male 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
87	4	4
88	4	4
89	3	3
90	4	4
91	3	4
92	3	4
93	4	3
94	4	3
95	4	4
96	3	2
97	4	4
98	3	3
99	3	2
100	4	3
101	4	4
102	4	3
103	4	3
104	3	4
105	3	2
106	4	3
107	3	4
108	4	3
109	4	3
110	4	3
111	3	4
112	4	2
113	4	3
114	3	3
115	4	3
116	4	4
117	4	3
118	4	3
119	3	3
120	3	3

**a =** \_\_\_\_\_

**b =** \_\_\_\_\_

$$y = \text{____} + \text{____}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.



### V. Simple Regression Analysis: FOU & APA – **Female 1<sup>st</sup> Year Students**

Respondent No.	<b>Female 1<sup>st</sup> Year</b>	
	FOU	APA
1	3	4
2	3	4
3	4	3
4	4	3
5	4	4
6	3	2
7	4	4
8	3	3
9	3	2
10	4	3
11	4	4
12	4	3
13	4	3
14	3	4
15	3	2
16	4	3
17	3	4
18	4	3
19	4	3
20	4	3
21	3	4
22	4	2
23	4	3
24	3	3
25	4	3
26	4	4
27	4	3
28	4	3
29	3	3
30	3	3

**a** = \_\_\_\_\_

**b** = \_\_\_\_\_

$$y = \text{___} + \text{___}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.

### V. Simple Regression Analysis: FOU & APA – Female 2<sup>nd</sup> Year Students

Respondent No.	Female 2 <sup>nd</sup> Year	
	FOU	APA
1	3	4
2	3	4
3	2	2
4	4	4
5	3	3
6	3	4
7	4	4
8	4	3
9	4	4
10	4	4
11	4	4
12	3	3
13	4	4
14	4	4
15	4	4
16	3	4
17	4	4
18	3	4
19	4	4
20	4	4
21	4	3
22	4	3
23	3	3
24	4	2
25	3	4
26	4	2
27	4	4
28	4	4
29	4	4
30	4	4

**a =** \_\_\_\_\_

**b =** \_\_\_\_\_

$$y = \text{____} + \text{____}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.



### V. Simple Regression Analysis: FOU & APA – **Female 3<sup>rd</sup> Year Students**

Respondent	<b>Female 3<sup>rd</sup> Year</b>	
No.	FOU	APA
1	2	3
2	3	3
3	2	3
4	3	3
5	4	4
6	3	4
7	4	3
8	4	4
9	4	4
10	4	4
11	2	4
12	3	4
13	2	4
14	4	2
15	3	4
16	4	4
17	4	4
18	2	3
19	3	3
20	4	4
21	2	4
22	4	4
23	4	3
24	3	4
25	2	4
26	4	4
27	2	4
28	4	4
29	2	3
30	2	4

**a** = \_\_\_\_\_

**b** = \_\_\_\_\_

$$y = \text{___} + \text{___}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.

**V. Simple Regression Analysis: FOU & APA – Female 4<sup>th</sup> Year Students**

Respondent No.	Female 4 <sup>th</sup> Year	
	FOU	APA
1	3	4
2	3	3
3	3	4
4	3	3
5	4	4
6	4	3
7	3	4
8	4	4
9	4	4
10	4	3
11	4	4
12	4	4
13	4	3
14	2	4
15	4	3
16	4	3
17	4	4
18	3	3
19	3	4
20	4	3
21	4	4
22	4	4
23	3	3
24	4	4
25	4	4
26	4	4
27	4	4
28	4	4
29	3	3
30	4	3

**a =** \_\_\_\_\_

**b =** \_\_\_\_\_

$$y = \text{___} + \text{___}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.

**V. Simple Regression Analysis: FOU & APA – Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	Female 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
1	3	4
2	3	4
3	4	3
4	4	3
5	4	4
6	3	2
7	4	4
8	3	3
9	3	2
10	4	3
11	4	4
12	4	3
13	4	3
14	3	4
15	3	2
16	4	3
17	3	4
18	4	3
19	4	3
20	4	3
21	3	4
22	4	2
23	4	3
24	3	3
25	4	3
26	4	4
27	4	3
28	4	3
29	3	3
30	3	3
31	3	4
32	3	4
33	2	2
34	4	4
35	3	3
36	3	4
37	4	4
38	4	3
39	4	4
40	4	4
41	4	4
42	3	3

**V. Simple Regression Analysis: FOU & APA – Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	Female 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
43	4	4
44	4	4
45	4	4
46	3	4
47	4	4
48	3	4
49	4	4
50	4	4
51	4	3
52	4	3
53	3	3
54	4	2
55	3	4
56	4	2
57	4	4
58	4	4
59	4	4
60	4	4
61	2	3
62	3	3
63	2	3
64	3	3
65	4	4
66	3	4
67	4	3
68	4	4
69	4	4
70	4	4
71	2	4
72	3	4
73	2	4
74	4	2
75	3	4
76	4	4
77	4	4
78	2	3
79	3	3
80	4	4
81	2	4
82	4	4
83	4	3
84	3	4
85	2	4
86	4	4

**V. Simple Regression Analysis: FOU & APA – Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	Female 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
87	2	4
88	4	4
89	2	3
90	2	4
91	3	4
92	3	3
93	3	4
94	3	3
95	4	4
96	4	3
97	3	4
98	4	4
99	4	4
100	4	3
101	4	4
102	4	4
103	4	3
104	2	4
105	4	3
106	4	3
107	4	4
108	3	3
109	3	4
110	4	3
111	4	4
112	4	4
113	3	3
114	4	4
115	4	4
116	4	4
117	4	4
118	4	4
119	3	3
120	4	3

**a =** \_\_\_\_\_

**b =** \_\_\_\_\_

$$y = \text{____} + \text{____}x$$

**Note:**

There is no significant relationship hence simple regression analysis is not applicable for this data.



**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> Year Students**

Respondent No.	Male and Female 1 <sup>st</sup> Year	
	FOU	APA
1	3	3
2	4	3
3	3	4
4	3	4
5	4	3
6	3	3
7	4	3
8	4	4
9	4	3
10	3	3
11	3	4
12	3	3
13	2	4
14	4	4
15	3	4
16	3	4
17	4	4
18	2	3
19	4	4
20	4	3
21	2	4
22	4	4
23	4	3
24	3	3
25	2	4
26	4	3
27	2	4
28	4	4
29	3	3
30	2	4
31	3	4
32	3	4
33	4	3
34	4	3
35	4	4
36	3	2
37	4	4
38	3	3
39	3	2
40	4	3
41	4	4
42	4	3
43	4	3

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> Year Students**

Respondent No.	<b>Male and Female 1<sup>st</sup> Year</b>	
	FOU	APA
44	3	4
45	3	2
46	4	3
47	3	4
48	4	3
49	4	3
50	4	3
51	3	4
52	4	2
53	4	3
54	3	3
55	4	3
56	4	4
57	4	3
58	4	3
59	3	3
60	3	3

$$a = \underline{0.88}$$

$$b = \underline{0.82}$$

$$y = \underline{0.88} + \underline{0.82}x$$



**V. Simple Regression Analysis: FOU & APA – Male and Female 2<sup>nd</sup> Year Students**

Respondent No.	Male and Female 2 <sup>nd</sup> Year	
	FOU	APA
1	2	3
2	3	3
3	2	3
4	3	3
5	4	4
6	3	4
7	4	3
8	4	4
9	4	4
10	4	4
11	2	4
12	3	4
13	2	4
14	4	2
15	3	4
16	4	4
17	4	4
18	2	3
19	3	3
20	4	4
21	2	4
22	4	4
23	4	3
24	3	4
25	2	4
26	4	4
27	2	4
28	4	4
29	2	3
30	2	4
31	3	4
32	3	4
33	2	2
34	4	4
35	3	3
36	3	4
37	4	4
38	4	3
39	4	4
40	4	4
41	4	4
42	3	3
43	4	4

**V. Simple Regression Analysis: FOU & APA – Male and Female 2<sup>nd</sup> Year Students**

Respondent No.	<b>Male and Female 2<sup>nd</sup> Year</b>	
	FOU	APA
44	4	4
45	4	4
46	3	4
47	4	4
48	3	4
49	4	4
50	4	4
51	4	3
52	4	3
53	3	3
54	4	2
55	3	4
56	4	2
57	4	4
58	4	4
59	4	4
60	4	4

$$a = \underline{0.76}$$

$$b = \underline{0.93}$$

$$y = \underline{0.76} + \underline{0.93}x$$

**V. Simple Regression Analysis: FOU & APA – Male and Female 3<sup>rd</sup> Year Students**

Respondent No.	Male and Female 3 <sup>rd</sup> Year	
	FOU	APA
1	3	4
2	3	3
3	3	3
4	4	4
5	4	3
6	2	3
7	3	3
8	3	3
9	3	4
10	4	4
11	4	3
12	4	4
13	4	4
14	4	4
15	4	2
16	4	3
17	4	4
18	3	4
19	3	3
20	3	4
21	4	4
22	4	4
23	4	4
24	4	4
25	4	4
26	4	4
27	4	4
28	4	4
29	3	3
30	4	4
31	2	3
32	3	3
33	2	3
34	3	3
35	4	4
36	3	4
37	4	3
38	4	4
39	4	4
40	4	4
41	2	4
42	3	4

**V. Simple Regression Analysis: FOU & APA – Male and Female 3<sup>rd</sup> Year Students**

Respondent No.	<b>Male and Female 3<sup>rd</sup> Year</b>	
	FOU	APA
43	2	4
44	4	2
45	3	4
46	4	4
47	4	4
48	2	3
49	3	3
50	4	4
51	2	4
52	4	4
53	4	3
54	3	4
55	2	4
56	4	4
57	2	4
58	4	4
59	2	3
60	2	4

$$a = \underline{-0.25}$$

$$b = \underline{1.07}$$

$$y = \underline{-0.25} + \underline{1.07}x$$

**V. Simple Regression Analysis: FOU & APA – Male and Female 4<sup>th</sup> Year Students**

Respondent No.	Male and Female 4 <sup>th</sup> Year	
	FOU	APA
1	3	4
2	3	4
3	4	3
4	4	3
5	4	4
6	3	2
7	4	4
8	3	3
9	3	2
10	4	3
11	4	4
12	4	3
13	4	3
14	3	4
15	3	2
16	4	3
17	3	4
18	4	3
19	4	3
20	4	3
21	3	4
22	4	2
23	4	3
24	3	3
25	4	3
26	4	4
27	4	3
28	4	3
29	3	3
30	3	3
31	3	4
32	3	3
33	3	4
34	3	3
35	4	4
36	4	3
37	3	4
38	4	4
39	4	4
40	4	3
41	4	4
42	4	4
43	4	3

**V. Simple Regression Analysis: FOU & APA – Male and Female 4<sup>th</sup> Year Students**

Respondent No.	<b>Male and Female 4<sup>th</sup> Year</b>	
	FOU	APA
44	2	4
45	4	3
46	4	3
47	4	4
48	3	3
49	3	4
50	4	3
51	4	4
52	4	4
53	3	3
54	4	4
55	4	4
56	4	4
57	4	4
58	4	4
59	3	3
60	4	3

$$a = \underline{-0.27}$$

$$b = \underline{0.95}$$

$$y = \underline{-0.27} + \underline{0.95x}$$

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	Male and Female 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
1	3	3
2	4	3
3	3	4
4	3	4
5	4	3
6	3	3
7	4	3
8	4	4
9	4	3
10	3	3
11	3	4
12	3	3
13	2	4
14	4	4
15	3	4
16	3	4
17	4	4
18	2	3
19	4	4
20	4	3
21	2	4
22	4	4
23	4	3
24	3	3
25	2	4
26	4	3
27	2	4
28	4	4
29	3	3
30	2	4
31	3	4
32	3	4
33	4	3
34	4	3
35	4	4
36	3	2
37	4	4
38	3	3
39	3	2
40	4	3
41	4	4

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent No.	Male and Female 1 <sup>st</sup> to 4 <sup>th</sup> Year	
	FOU	APA
42	4	3
43	4	3
44	3	4
45	3	2
46	4	3
47	3	4
48	4	3
49	4	3
50	4	3
51	3	4
52	4	2
53	4	3
54	3	3
55	4	3
56	4	4
57	4	3
58	4	3
59	3	3
60	3	3
61	2	3
62	3	3
63	2	3
64	3	3
65	4	4
66	3	4
67	4	3
68	4	4
69	4	4
70	4	4
71	2	4
72	3	4
73	2	4
74	4	2
75	3	4
76	4	4
77	4	4
78	2	3
79	3	3
80	4	4
81	2	4
82	4	4
83	4	3
84	3	4



**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
85	2	4
86	4	4
87	2	4
88	4	4
89	2	3
90	2	4
91	3	4
92	3	4
93	2	2
94	4	4
95	3	3
96	3	4
97	4	4
98	4	3
99	4	4
100	4	4
101	4	4
102	3	3
103	4	4
104	4	4
105	4	4
106	3	4
107	4	4
108	3	4
109	4	4
110	4	4
111	4	3
112	4	3
113	3	3
114	4	2
115	3	4
116	4	2
117	4	4
118	4	4
119	4	4
120	4	4
121	3	4
122	3	3
123	3	3

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
124	4	4
125	4	3
126	2	3
127	3	3

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
128	3	3
129	3	4
130	4	4
131	4	3
132	4	4
133	4	4
134	4	4
135	4	2
136	4	3
137	4	4
138	3	4
139	3	3
140	3	4
141	4	4
142	4	4
143	4	4
144	4	4
145	4	4
146	4	4
147	4	4
148	4	4
149	3	3
150	4	4
151	2	3
152	3	3
153	2	3
154	3	3
155	4	4
156	3	4
157	4	3
158	4	4
159	4	4
160	4	4
161	2	4
162	3	4

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
163	2	4
164	4	2
165	3	4
166	4	4
167	4	4
168	2	3
169	3	3
170	4	4

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
171	2	4
172	4	4
173	4	3
174	3	4
175	2	4
176	4	4
177	2	4
178	4	4
179	2	3
180	2	4
181	3	4
182	3	4
183	4	3
184	4	3
185	4	4
186	3	2
187	4	4
188	3	3
189	3	2
190	4	3
191	4	4
192	4	3
193	4	3
194	3	4
195	3	2
196	4	3
197	3	4
198	4	3
199	4	3
200	4	3

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
201	3	4
202	4	2
203	4	3
204	3	3
205	4	3
206	4	4
207	4	3
208	4	3
209	3	3
210	3	3
211	3	4
212	3	3
213	3	4

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

<b>Respondent</b>	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
<b>No.</b>	<b>FOU</b>	<b>APA</b>
214	3	3
215	4	4
216	4	3
217	3	4
218	4	4
219	4	4
220	4	3
221	4	4
222	4	4
223	4	3
224	2	4
225	4	3
226	4	3
227	4	4
228	3	3
229	3	4
230	4	3
231	4	4
232	4	4
233	3	3
234	4	4
235	4	4
236	4	4
237	4	4
238	4	4
239	3	3

**V. Simple Regression Analysis: FOU & APA – Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year Students**

Respondent	<b>Male and Female 1<sup>st</sup> to 4<sup>th</sup> Year</b>	
No.	FOU	APA
240	4	3

$$a = \underline{-0.15}$$

$$b = \underline{1.02}$$

$$y = \underline{-0.15} + \underline{1.02}x$$

**ANOVA**

**ANOVA: Significant Difference in FOU Among Male Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent	<b>FOU – Male</b>			
No.	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	3	2	3	3
2	4	3	3	3
3	3	2	3	4
4	3	3	4	4
5	4	4	4	4
6	3	3	2	3
7	4	4	3	4
8	4	4	3	3
9	4	4	3	3
10	3	4	4	4
11	3	2	4	4
12	3	3	4	4
13	2	2	4	4
14	4	4	4	3
15	3	3	4	3
16	3	4	4	4
17	4	4	4	3
18	2	2	3	4

**ANOVA: Significant Difference in FOU Among Male Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	FOU – Male			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
19	4	3	3	4
20	4	4	3	4
21	2	2	4	3
22	4	4	4	4
23	4	4	4	4
24	3	3	4	3
25	2	2	4	4
26	4	4	4	4
27	2	2	4	4
28	4	4	4	4
29	3	2	3	3
30	2	2	4	3

**HYPOTHESES TESTING:**

**Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1= 3 \quad \text{CV} = \pm 2.45$$

$$\text{d.f.D.} = 120-4= 116$$

**Step 3: TV**

$$F = 4.04$$

**Step 4:**

Reject  $H_0$ .

**Step 5:**

There is a significant difference in the frequency of use (FOU) of AI tools among male students from first to fourth year.

**VI. ANOVA SUMMARY Results for Significant Difference in FOU Among Male Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	5.931	3	1.98	±2.45	<u>4.04</u>
Within(error)	56.55	116	0.49		
Total	62.481	119			

**ANOVA: Significant Difference in FOU Among Female Students  
from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	FOU – Female			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	3	3	2	3
2	3	3	3	3
3	4	2	2	3
4	4	4	3	3
5	4	3	4	4
6	3	3	3	4
7	4	4	4	3
8	3	4	4	4
9	3	4	4	4
10	4	4	4	4
11	4	4	2	4
12	4	3	3	4
13	4	4	2	4
14	3	4	4	2
15	3	4	3	4
16	4	3	4	4
17	3	4	4	4
18	4	3	2	3
19	4	4	3	3
20	4	4	4	4
21	3	4	2	4
22	4	4	4	4
23	4	3	4	3
24	3	4	3	4
25	4	3	2	4
26	4	4	4	4
27	4	4	2	4
28	4	4	4	4
29	3	4	2	3
30	3	4	2	4



**HYPOTHESES TESTING:****Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1=3 \quad \text{CV} = \pm 2.68$$

$$\text{d.f.D.} = 120-4= 116$$

**Step 3: TV**

$$F = 4.95$$

**Step 4:**

Reject  $H_0$ .

**Step 5:**

There is a significant difference in the frequency of use (FOU) of AI tools among female students from first-year to fourth-year.

**ANOVA SUMMARY Results for Significant Difference in FOU Among Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	6.102	3	2.03	$\pm 2.68$	<u>4.95</u>
Within(error)	47.85	16	0.41		
Total	53.952	119			

**ANOVA: Significant Difference in FOU Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	FOU – Male and Female			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	3	2	3	3
2	4	3	3	3
3	3	2	3	4
4	3	3	4	4
5	4	4	4	4
6	3	3	2	3
7	4	4	3	4
8	4	4	3	3
9	4	4	3	3
10	3	4	4	4
11	3	2	4	4
12	3	3	4	4
13	2	2	4	4
14	4	4	4	3
15	3	3	4	3
16	3	4	4	4
17	4	4	4	3
18	2	2	3	4
19	4	3	3	4
20	4	4	3	4
21	2	2	4	3
22	4	4	4	4
23	4	4	4	4
24	3	3	4	3
25	2	2	4	4
26	4	4	4	4
27	2	2	4	4
28	4	4	4	4
29	3	2	3	3
30	2	2	4	3
31	3	3	2	3
32	3	3	3	3
33	4	2	2	3
34	4	4	3	3
35	4	3	4	4
36	3	3	3	4
37	4	4	4	3
38	3	4	4	4
39	3	4	4	4
40	4	4	4	4
41	4	4	2	4
42	4	3	3	4

**ANOVA: Significant Difference in FOU Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	FOU – Male and Female			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
43	4	4	2	4
44	3	4	4	2
45	3	4	3	4
46	4	3	4	4
47	3	4	4	4
48	4	3	2	3
49	4	4	3	3
50	4	4	4	4
51	3	4	2	4
52	4	4	4	4
53	4	3	4	3
54	3	4	3	4
55	4	3	2	4
56	4	4	4	4
57	4	4	2	4
58	4	4	4	4
59	3	4	2	3
60	3	4	2	4

**HYPOTHESES TESTING:****Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1 = 3 \quad \text{CV} = \pm 2.6$$

$$\text{d.f.D.} = 240-4 = 236$$

**Step 3: TV**

$$F = 1.92$$

**Step 4:**

Do not Reject  $H_0$ .

**Step 5:**

There is no significant difference in the frequency of use (FOU) of AI tools among male and female students from first-year to fourth-year.

**ANOVA SUMMARY Results for Significant Difference in FOU Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	2.75	3	0.92	$\pm 2.6$	<u>1.92</u>
Within(error)	113.87	236	0.48		
Total	116.62	239			

**ANOVA: Significant Difference in APB Among Male Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	APB – Male			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	3	4	3	4
2	3	3	4	3
3	4	4	3	2
4	3	3	4	3
5	4	4	3	4
6	3	3	3	4
7	4	4	3	4
8	4	4	4	3
9	4	4	3	4
10	3	3	4	4
11	4	4	3	3
12	3	4	4	4
13	4	3	3	4
14	4	4	4	3
15	3	3	3	4
16	1	3	2	4
17	4	4	2	3
18	3	3	4	3
19	4	4	4	3
20	4	3	4	3
21	4	4	2	4
22	4	4	4	3
23	4	3	3	3
24	4	4	2	3
25	4	4	4	4
26	4	4	4	2
27	3	4	4	4
28	4	4	4	3
29	3	3	2	3
30	3	3	4	3

**HYPOTHESES TESTING:****Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1 = 3 \quad \text{CV} = \pm 2.68$$

$$\text{d.f.D.} = 120-4 = 116$$

**Step 3: TV**

$$F = 1.19$$

**Step 4:**

Do not Reject  $H_0$ .

**Step 5:**

There is no significant difference in the academic performance before (APB) use of AI tools among male students from first-year to fourth-year.

**ANOVA SUMMARY Results for Significant Difference in APB Among Male Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	1.485	3	0.50	$\pm 2.68$	<u>1.19</u>
Within(error)	48.14	116	0.42		
Total	49.625	119			

**ANOVA: Significant Difference in APB Among Female Students  
from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	APB – Female			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	4	3	4	2
2	3	4	3	3
3	2	2	4	2
4	3	4	3	3
5	4	3	4	4
6	4	4	3	3
7	4	4	4	4
8	3	3	4	4
9	4	4	4	4
10	4	3	3	4
11	3	3	4	2
12	4	4	4	3
13	4	4	3	2
14	3	4	4	4
15	4	3	3	3
16	4	4	3	4
17	3	3	4	4
18	3	4	3	2
19	3	3	4	3
20	3	2	3	4
21	4	4	4	2
22	3	4	4	4
23	3	3	3	4
24	3	2	4	3
25	4	3	4	2
26	2	4	4	4
27	4	4	4	2
28	3	3	4	4
29	3	4	3	2
30	3	4	3	2

**HYPOTHESES TESTING:****Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1 = 3 \quad \text{CV} = \pm 2.68$$

$$\text{d.f.D.} = 120-4 = 116$$

**Step 3: TV**

$$F = 2.77$$

**Step 4:**

Reject  $H_0$ .

**Step 5:**

There is a significant difference in the academic performance before (APB) use of AI tools among female students from first-year to fourth-year.

**VII. ANOVA SUMMARY Results for Significant Difference in APB Among Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	3.88	3	1.29	$\pm 2.68$	<u>2.77</u>
Within(error)	54.23	116	0.47		
Total	58.11	119			



**ANOVA: Significant Difference in APB Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	APB – Male and Female			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	3	4	3	4
2	3	3	4	3
3	4	4	3	2
4	3	3	4	3
5	4	4	3	4
6	3	3	3	4
7	4	4	3	4
8	4	4	4	3
9	4	4	3	4
10	3	3	4	4
11	4	4	3	3
12	3	4	4	4
13	4	3	3	4
14	4	4	4	3
15	3	3	3	4
16	1	3	2	4
17	4	4	2	3
18	3	3	4	3
19	4	4	4	3
20	4	3	4	3
21	4	4	2	4
22	4	4	4	3
23	4	3	3	3
24	4	4	2	3
25	4	4	4	4
26	4	4	4	2
27	3	4	4	4
28	4	4	4	3
29	3	3	2	3
30	3	3	4	3
31	4	3	4	2
32	3	4	3	3
33	2	2	4	2
34	3	4	3	3
35	4	3	4	4
36	4	4	3	3
37	4	4	4	4
38	3	3	4	4
39	4	4	4	4
40	4	3	3	4
41	3	3	4	2
42	4	4	4	3

**ANOVA: Significant Difference in APB Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

<b>Respondent No.</b>	<b>APB – Male and Female</b>			
	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup></b>
43	4	4	3	2
44	3	4	4	4
45	4	3	3	3
46	4	4	3	4
47	3	3	4	4
48	3	4	3	2
49	3	3	4	3
50	3	2	3	4
51	4	4	4	2
52	3	4	4	4
53	3	3	3	4
54	3	2	4	3
55	4	3	4	2
56	2	4	4	4
57	4	4	4	2
58	3	3	4	4
59	3	4	3	2
60	3	4	3	2

**HYPOTHESES TESTING:****Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1=3 \quad \text{CV} = \pm 2.6$$

$$\text{d.f.D.} = 240-4=236$$

**Step 3: TV**

$$F = 2.20$$

**Step 4:**

Do not Reject  $H_0$ .

**Step 5:**

There is no significant difference in the academic performance before (APB) use of AI tools among male and female students from first-year to fourth-year.

**ANOVA SUMMARY Results for Significant Difference in APB Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	2.97	3	0.99	$\pm 2.68$	<u>2.20</u>
Within(error)	105.49	236	0.45		
Total	108.46	239			

**ANOVA: Significant Difference in APA Among Male Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	APA – Male			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	3	3	4	4
2	3	3	3	4
3	4	3	3	3
4	4	3	4	3
5	3	4	3	4
6	3	4	3	2
7	3	3	3	4
8	4	4	3	3
9	3	4	4	2
10	3	4	4	3
11	4	4	3	4
12	3	4	4	3
13	4	4	4	3
14	4	2	4	4
15	4	4	2	2
16	4	4	3	3
17	4	4	4	4
18	3	3	4	3
19	4	3	3	3
20	3	4	4	3
21	4	4	4	4
22	4	4	4	2
23	3	3	4	3
24	3	4	4	3
25	4	4	4	3
26	3	4	4	4
27	4	4	4	3
28	4	4	4	3
29	3	3	3	3
30	4	4	4	3

**HYPOTHESES TESTING:****Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1 = 3 \quad \text{CV} = \pm 2.68$$

$$\text{d.f.D.} = 120-4 = 116$$

**Step 3: TV**

$$F = 4.12$$

**Step 4:**

Reject  $H_0$ .

**Step 5:**

There is a significant difference in the academic performance after (APA) use of AI tools among male students from first-year to fourth-year.

**ANOVA SUMMARY Results for Significant Difference in APA Among Male Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	4.08	3	1.36	$\pm 2.68$	<u>4.12</u>
Within(error)	37.81	116	0.33		
Total	41.89	119			

**ANOVA: Significant Difference in APA Among Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	APA – Female			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	4	4	3	4
2	4	4	3	3
3	3	2	3	4
4	3	4	3	3
5	4	3	4	4
6	2	4	4	3
7	4	4	3	4
8	3	3	4	4
9	2	4	4	4
10	3	4	4	3
11	4	4	4	4
12	3	3	4	4
13	3	4	4	3
14	4	4	2	4
15	2	4	4	3
16	3	4	4	3
17	4	4	4	4
18	3	4	3	3
19	3	4	3	4
20	3	4	4	3
21	4	3	4	4
22	2	3	4	4
23	3	3	3	3
24	3	2	4	4
25	3	4	4	4
26	4	2	4	4
27	3	4	4	4
28	3	4	4	4
29	3	4	3	3
30	3	4	4	3

**HYPOTHESES TESTING:****Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1 = 3 \quad \text{CV} = \pm 2.68$$

$$\text{d.f.D.} = 120-4 = 116$$

**Step 3: TV**

$$F = 4.15$$

**Step 4:**

Reject  $H_0$ .

**Step 5:**

There is a significant difference in the academic performance after (APA) use of AI tools among female students from first-year to fourth-year.

**VIII. ANOVA SUMMARY Results for Significant Difference in APA Among Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	4.46	3	1.49	<u><math>\pm 2.68</math></u>	<u>4.15</u>
Within(error)	41.53	116	0.36		
Total	45.99	119			

**ANOVA: Significant Difference in APA Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Respondent No.	APA – Male and Female			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1	3	3	4	4
2	3	3	3	4
3	4	3	3	3
4	4	3	4	3
5	3	4	3	4
6	3	4	3	2
7	3	3	3	4
8	4	4	3	3
9	3	4	4	2
10	3	4	4	3
11	4	4	3	4
12	3	4	4	3
13	4	4	4	3
14	4	2	4	4
15	4	4	2	2
16	4	4	3	3
17	4	4	4	4
18	3	3	4	3
19	4	3	3	3
20	3	4	4	3
21	4	4	4	4
22	4	4	4	2
23	3	3	4	3
24	3	4	4	3
25	4	4	4	3
26	3	4	4	4
27	4	4	4	3
28	4	4	4	3
29	3	3	3	3
30	4	4	4	3
31	4	4	3	4
32	4	4	3	3
33	3	2	3	4
34	3	4	3	3
35	4	3	4	4
36	2	4	4	3
37	4	4	3	4
38	3	3	4	4
39	2	4	4	4
40	3	4	4	3
41	4	4	4	4
42	3	3	4	4



**ANOVA: Significant Difference in APA Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

<b>Respondent</b> <b>No.</b>	<b>APA – Male and Female</b>			
	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup></b>
43	3	4	4	3
44	4	4	2	4
45	2	4	4	3
46	3	4	4	3
47	4	4	4	4
48	3	4	3	3
49	3	4	3	4
50	3	4	4	3
51	4	3	4	4
52	2	3	4	4
53	3	3	3	3
54	3	2	4	4
55	3	4	4	4
56	4	2	4	4
57	3	4	4	4
58	3	4	4	4
59	3	4	3	3
60	3	4	4	3

**HYPOTHESES TESTING:****Step 1: Hypotheses**

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$$

$$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$$

**Step 2:  $\alpha = 0.05$ ;**

$$\text{d.f.N.} = 4-1 = 3 \quad \text{CV} = \pm 2.6$$

$$\text{d.f.D.} = 240-4 = 236$$

**Step 3: TV**

$$F = 3.53$$

**Step 4:**

Reject  $H_0$ .

**Step 5:**

There is a significant difference in the academic performance after (APA) use of AI tools among male and female students from first-year to fourth-year.

**ANOVA SUMMARY Results for Significant Difference in APA Among Male and Female Students from 1<sup>st</sup> to 4<sup>th</sup> Year**

Source	Sum of Squares	d.f.	Mean Square	<i>F</i>	
				<i>CV</i>	<i>TV</i>
Between	3.78	3	1.26	$\pm 2.6$	<u>3.53</u>
Within(error)	84.2	236	0.36		
Total	87.98	239			

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