CAP 482: DATA EXPLORATION AND PREPARATION

PROJECT REPORT

THE ROAD TO SUCCESS: STUDENT'S PERSPECTIVE ON COURSE SELECTION

SUBMITTED BY:

OM JAISWAL(12207638)
HARSH SINGH(12208874)
ANUBHAV SINGH(12208856)
ASHISH KR SINGH(12209185)
MOHAMMAD FAHAD KHAN(12214398)

TABLE OF CONTENT

ABSTRACT

This project explores the intricate landscape of student course selection, aiming to illuminate the factors influencing students' decisions and their subsequent academic success. Leveraging a Google Form survey distributed via accessible means, such as hyperlinks and QR codes, the study captures a diverse range of student perspectives and considerations.

The dataset encompasses various facets, including students' satisfaction levels, perceptions of course relevance, alignment with future career aspirations, and the influence of peer recommendations. Through a blend of qualitative and quantitative analysis, the project delves into the significance of factors like instructor reputation, course difficulty, and perceived future utility in shaping students' preferences.

Moreover, the project acknowledges the nuances in perspectives based on academic majors, year of study, and individual goals. By shedding light on these complexities, it offers valuable insights for academic institutions and students alike. Educators can refine curriculum offerings and enhance student support services, while students can make more informed decisions, leading to greater academic engagement and satisfaction.

Overall, this project serves as a comprehensive exploration of student course selection dynamics, providing a foundation for future research and actionable insights to improve the academic experience for all stakeholders involved.

INTRODUCTION

In the complex ecosystem of higher education, the process of selecting courses stands as a pivotal juncture for students, wielding considerable influence over their academic trajectories and future pathways. The intricacies embedded within this decision-making landscape offer a rich tapestry of factors, each weaving its thread into the fabric of students' academic journeys. Understanding this multifaceted dynamic is not only essential for students seeking to navigate their educational paths effectively but also for educators, policymakers, and institutions endeavouring to provide tailored support and resources.

Our project embarks on a comprehensive exploration of the intricate realm of student course selection, aiming to illuminate the diverse array of influences shaping students' decisions and, consequently, their academic outcomes. At its core lies a meticulously curated dataset, meticulously gathered through custom links and QR codes, designed to capture the breadth and depth of factors influencing students' course selection processes.

While traditional studies have often focused on conventional metrics such as academic performance and career aspirations, our research extends beyond these boundaries, venturing into uncharted territories of inquiry. Central to our investigation is the exploration of the influence wielded by peer recommendations – a social currency that holds sway over students' choices, yet often remains understudied in academic discourse. By probing the extent to which students lean on the advice and experiences of their peers, we seek to unravel the intricate web of social dynamics that underpin their decision-making frameworks.

Additionally, our inquiry delves into the role played by academic guidance – be it from teachers, counsellors, or mentors – in shaping students' course selection trajectories. We aim to uncover the nuanced interplay between institutional support structures and students' individual decision-making processes, shedding light on the extent to which external guidance informs and influences their choices.

Furthermore, our research casts its net wide, encompassing an array of economic and psychological dimensions that intersect with students' decision-making processes. From the role of financial stability in shaping course preferences to the psychological mechanisms employed to navigate decision overwhelm, our project seeks to unravel the intricacies that lie beneath the surface of seemingly straightforward choices.

Moreover, our investigation extends into the realm of perceived academic pressure, affordability concerns, and comfort levels regarding available financial support. By interrogating students' perceptions of the return on investment (ROI) offered by their chosen courses, we aim to provide nuanced insights into the complex calculus that underlies their decision-making calculus.

Intriguingly, our project also explores the temporal dimension of decision-making, considering the fluidity and adaptability inherent in students' course selections. By examining the frequency and drivers of decision changes over time, we hope to gain a deeper understanding of the iterative nature of students' educational journeys.

In sum, our research endeavours to unravel the intricate tapestry of influences that shape students' course selection processes, offering a nuanced and multi-dimensional perspective on this pivotal aspect of higher education. Through our exploration, we seek not only to deepen scholarly understanding but also to inform practical interventions and strategies aimed at enhancing students' academic experiences and outcomes.

DESCRIPTION OF DATASET

The meticulously collected dataset, sourced through Google Form via accessible means such as links and QR codes, serves as a foundational resource for understanding student perspectives on course selection. Upon collection, the dataset was structured into an Excel file and imported into R Studio for further analysis and manipulation to ensure data accuracy and reliability. Leveraging various data cleaning techniques, the dataset underwent meticulous refinement to prepare it for insightful exploration.

Comprising a diverse array of features, the dataset captures the nuanced dimensions influencing students' decisions when selecting courses. Key elements include responses to inquiries such as the influence of peer recommendations, the impact of academic guidance, the role of financial stability, and the degree of self-reflection in decision-making. Additionally, considerations such as handling overwhelm, perceptions of institutional reputation, fear of failure, and academic pressure are meticulously documented within the dataset.

To offer a visual representation of the dataset's insights, exploratory data analysis techniques were employed, including bar plots and pie charts. These visualisation methods allow for intuitive interpretation of the data, facilitating a deeper understanding of trends and patterns inherent in students' course selection perspectives.

Through its comprehensive nature and meticulous curation, the dataset provides researchers and analysts with a rich source of information to delve into the complexities of student decision-making processes. By harnessing the power of visualisation techniques and data manipulation in R Studio, the dataset offers valuable insights into the diverse factors shaping students' course selection journeys, ultimately contributing to informed decision-making and enhanced academic experiences.

STEPS FOR MODEL CREATION

Step 1: Import the Dataset
Begin by importing the dataset, into R Studio.

Step 2: Data Preprocessing
a. Remove Outliers: Identify and remove outliers from the dataset using appropriate statistical techniques.
b. Replace Outliers: Replace any removed outliers with the mean of the respective attribute to maintain data integrity.

Step 3: Exploratory Data Analysis (EDA)
a. Visualise Data: Utilise the ggplot2 package to create visualisations such as bar plots and pie charts to explore the dataset's characteristics and distributions.
b. Analyse Features: Identify key attributes that may influence students' course selection decisions based on visualisations and statistical analyses.

Step 4: Model Training and Testing
a. Define Features and Target Variable: Select the necessary attributes as features for model training and designate the attribute related to course selection as the target variable.
b. Split Data: Divide the dataset into training and testing subsets using the necessary functions or packages (e.g., caret, split, or sample.split) to evaluate model performance.
c. Model Selection: Choose appropriate machine learning algorithms for model training. Consider algorithms such as decision trees, random forests, or gradient boosted trees based on their suitability for the dataset and task at hand.
d. Train Models: Utilise the chosen algorithms to train the models on the training dataset.

Step 5: Model Evaluation
a. Test Models: Apply trained models to the testing dataset to evaluate their performance, accuracy, and error rates.

b. Compare Models: Compare the performance of different models based on evaluation metrics such as accuracy, precision, recall, and F1-score.
c. Select Optimal Model: Choose the model that demonstrates the best performance on the testing dataset for further analysis.

Step 6: Model Application
a. Apply Model: Use the selected model to make predictions on new or unseen data to gain insights into students' course selection preferences.
b. Interpret Results: Interpret the model predictions to understand the factors influencing students' decisions and identify potential areas for improvement or intervention.

Step 7: Model Validation and Refinement
a. Validate Results: Validate the model predictions using external validation techniques or additional datasets if available.
b. Refine Model: Refine the model parameters or feature selection process based on validation results to improve model performance and generalisation capabilities.

SCREENSHOT OF DATA

	A	B	C	D	E	
1	Timestamp	Email address	FULL NAME	Reg No.	Department (Course)	Ger
2	21/02/2024 20:29:11	sahilboss1921@gmail.com	Sahil Ansari		BCA	Mal
3	21/02/2024 18:53:25	piyushmandal408@gmail.com	Piyush kumar mandal	12203219	B.tech CSE	Mal
4	21/02/2024 18:54:37	shreyasmalhotra2003@gmail.com	Shreyas Malhotra	12202646	BCA	Mal
5	21/02/2024 18:58:52	jatin.pareta.p@gmail.com	Jatin Pareta	12213121	BCA	Mal
6	21/02/2024 19:05:19	harshsinghjaunpur@gmail.com	Anubhav	12208856	BCA	Mal
7	21/02/2024 19:20:41	amarjeet30902@gmail.com	Amarjeet Kumar	12200875	MBA	Mal
8	21/02/2024 19:21:22	aojha043@gmail.com	Akash Kumar Ojha	12202362	BCA	Mal
9	21/02/2024 19:21:55	aryan114178@gmail.com	Aryan Kumar	12310657	B.tech CSE	Mal
10	21/02/2024 19:22:38	ujjawalranjan77@gmail.com	Ujjawal Ranjan	12204647	SCA BCA	Mal
11	21/02/2024 19:27:45	hg333054@gmail.com	Himanshu gupta	12311285	B.tech CSE	Mal
12	21/02/2024 19:28:09	singhking9378@gmail.com	Vivek Raj	12107441	B.tech CSE	Mal
13	21/02/2024 19:28:29	rohithdevulapalli2004@gmail.com	Rohith Devulapalli	12109340	B.tech CSE	Mal
14	21/02/2024 19:29:41	sanjaymatta36@gmail.com	Matta Sanjay	12111410	B.tech CSE	Mal
15	21/02/2024 19:31:10	shoryapratapsingh2004@gmail.com	Shorya Pratap Singh	12311257	B.tech CSE	Mal
16	21/02/2024 19:32:21	mekaavinash616@gmail.com	Avinash Meka	12326693	B.tech CSE	Mal
17	21/02/2024 19:33:27	sparshs1047@gmail.com	Sparsh Sharma	12310922	B.tech CSE	Mal
18	21/02/2024 19:34:23	singhswati0291@gmail.com	Swati singh	12202369	BCA	Fen

Form responses 1

	A	B	C	D	E	
1	Timestamp	Email address	FULL NAME	Reg No.	Department (Course)	Ger
68	22/04/2024 22:29:21	trivediabhinandan9@gmail.com	Abhinandan Trivedi	12211756	Btech cse	Mal
69	22/04/2024 22:30:02	omjaiswal1802@gmail.com	OM JAISWAL	12207638	BCA	Mal
70	22/04/2024 22:30:58	nileshkumardhal8@gmail.com	Nilesh Kumar dhal	12016202	Electronic and communication engineering	Mal
71	22/04/2024 22:35:25	tripathiprateek2000@gmail.com	Prateek Tripathi		Social Entrepreneurship	Mal
72	22/04/2024 22:38:01	ashishkumarsingh99876@gmail.com	Ashish Kumar Singh	12209185	BCA	Mal
73	22/04/2024 22:39:04	anushkaarora407@gmail.com	Anushka Arora	12208629	BCA	Fen
74	22/04/2024 22:43:10	shailjathree@gmail.com	Shailja negi	3	Bca	Fen
75	22/04/2024 22:43:15	arwaz3898@gmail.com	Md Arwaz	12208630	BCA	Mal
76	22/04/2024 22:51:53	rajatofficial33@gmail.com	Rajat Kumar Singh	12203301	BTECH - CSE	Mal
77	22/04/2024 22:54:08	hanzla.crore@gmail.com	Pawan Kumar		BBA	Mal
78	22/04/2024 23:29:55	rakshitrahar143@gmail.com	Rakshit rahar	12212660	Cse btech	Mal
79	22/04/2024 23:30:28	akmaurya.lko@gmail.com	Ayush kumar Maruya		Bsc science	Mal
80	22/04/2024 23:33:50	bramhankmishra12b@gmail.com	Bramhank Mishra	12216760	BCA	Mal
81	22/04/2024 23:36:13	mehwishthe1st@gmail.com	Fazal sheikh		BBA	Mal
82	22/04/2024 23:45:48	laraibqavi@gmail.com	Laraib Qavi		Law	Mal
83	23/04/2024 08:40:54	ilusikarwar4@gmail.com	Bhanu Pratap Singh	12100720	Btech (cse)	Mal
84	23/04/2024 13:10:54	rudaseric2022@gmail.com	Eric	1	BCA	Mal

Form responses 1

DESCRIPTIVE STATISTICS

Descriptive statistics provide a summary of key characteristics of a dataset, offering insights into the distribution and variability of the variables under consideration. In this section, we explore descriptive statistics for three rating questions included in the survey dataset. These rating questions aimed to gauge participants' satisfaction levels, perceived academic pressure, and affordability satisfaction, each rated on a scale from 1 to 5.

Summary Function:

The summary() function provides a quick overview of the distribution of numerical variables, including minimum, 1st quartile, median, mean, 3rd quartile, and maximum values.

We applied the summary() function to the rating questions to obtain a summary of their descriptive statistics.

Variance, Covariance, Range, and Standard Deviation:

Variance: Measures the dispersion or spread of the ratings from their mean value. A higher variance indicates greater variability in the ratings.

Covariance: Quantifies the degree to which two ratings vary together. A positive covariance indicates a positive relationship between the ratings.

Range: Represents the difference between the maximum and minimum values of the ratings, providing insight into the extent of variation.

Standard Deviation: Measures the average deviation of the ratings from their mean value. A smaller standard deviation suggests less variability in the ratings.

SUMMARY

```
[1] "How satisfied are you with the affordability of your current course of study?"
> print(descriptive_stats)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
  1.000   3.000   3.000   3.361   4.000   5.000       2
```

```
[1] "On a scale of 1 to 5, how much pressure do you feel from academic expectations (e.g., grades, performance)."
> print(descriptive_stats)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
  1.000   3.000   4.000   3.542   4.000   5.000       2
```

```
[1] "THE DESCRIPTIVE STATISTICS OF SATISFACTION RATING WITH THE CURRENT COURSE"
> print(descriptive_stats)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
  1.000   3.000   4.000   3.518   4.000   5.000       2
>
```

```
> summary(Student_perspective_on_course_selection)
   Timestamp                      Email address       FULL NAME           Reg No.          Department (Course)
 Min.   :2024-02-21 18:53:24.91   Length:85          Length:85          Min.   :       1   Length:85
 1st Qu.:2024-02-21 19:41:58.38   Class :character   Class :character   1st Qu.:12201225   Class :character
 Median :2024-02-21 21:09:59.97   Mode  :character   Mode  :character   Median :12204744   Mode  :character
 Mean   :2024-03-11 01:33:19.49                                         Mean   :11850833
 3rd Qu.:2024-04-22 22:24:06.50                                         3rd Qu.:12212614
 Max.   :2024-04-23 13:10:54.36                                         Max.   :12326693
 NA's   :2                                                              NA's   :15
    Gender          What motivated you to choose this course?
 Length:85          Length:85
 Class :character   Class :character
 Mode  :character   Mode  :character
```

STANDARD DEVIATION

```
Standard Deviation of Satisfaction Rating (1-5): 1.1083
> cat("Standard Deviation of Pressure (1-5):", pressure_sd, "\n")
Standard Deviation of Pressure (1-5): 1.074099
> cat("Standard Deviation of Affordability (1-5):", affordability_sd, "\n")
Standard Deviation of Affordability (1-5): 0.9183537
>
```

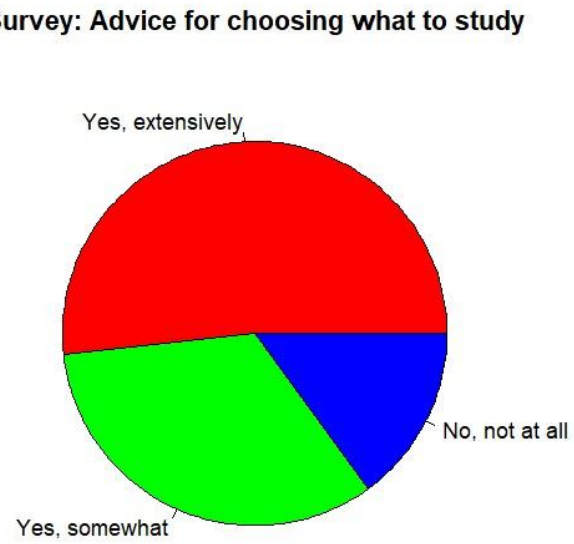
RANGE,VARIANCE,COVARIANCE

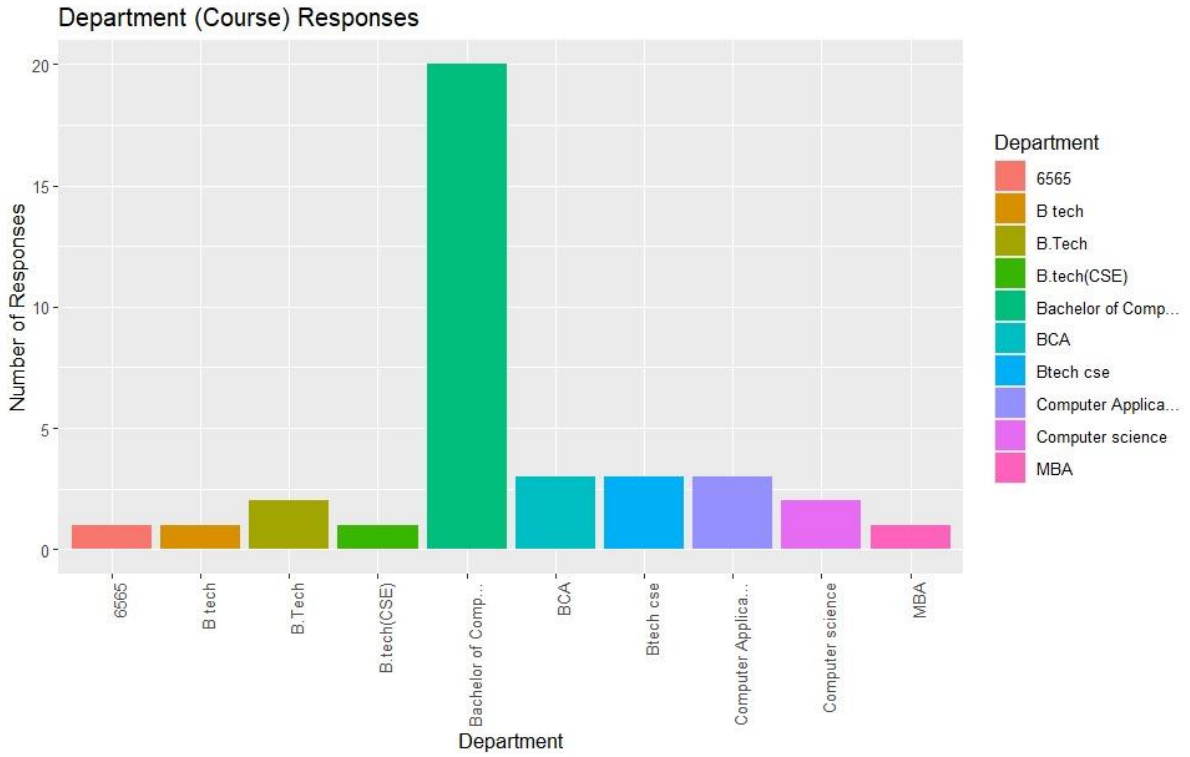
```
> cat("Variance of Satisfaction Rating (1-5):", satisfaction_var, "\n")
Variance of Satisfaction Rating (1-5): 1.228328
> cat("Variance of Pressure (1-5):", pressure_var, "\n")
Variance of Pressure (1-5): 1.153688
> cat("Variance of Affordability (1-5):", affordability_var, "\n")
Variance of Affordability (1-5): 0.8433735
>
> cat("Range of Satisfaction Rating (1-5):", satisfaction_range, "\n")
Range of Satisfaction Rating (1-5): 4
> cat("Range of Pressure (1-5):", pressure_range, "\n")
Range of Pressure (1-5): 4
> cat("Range of Affordability (1-5):", affordability_range, "\n")
Range of Affordability (1-5): 4
>
> cat("Covariance between Satisfaction Rating and Pressure (1-5):", satisfaction_pressure_cov, "\n")
Covariance between Satisfaction Rating and Pressure (1-5): 0.410814
> cat("Covariance between Satisfaction Rating and Affordability (1-5):", satisfaction_affordability_cov, "\n")
Covariance between Satisfaction Rating and Affordability (1-5): 0.6031443
> cat("Covariance between Pressure and Affordability (1-5):", pressure_affordability_cov, "\n")
Covariance between Pressure and Affordability (1-5): 0.338231
>
```

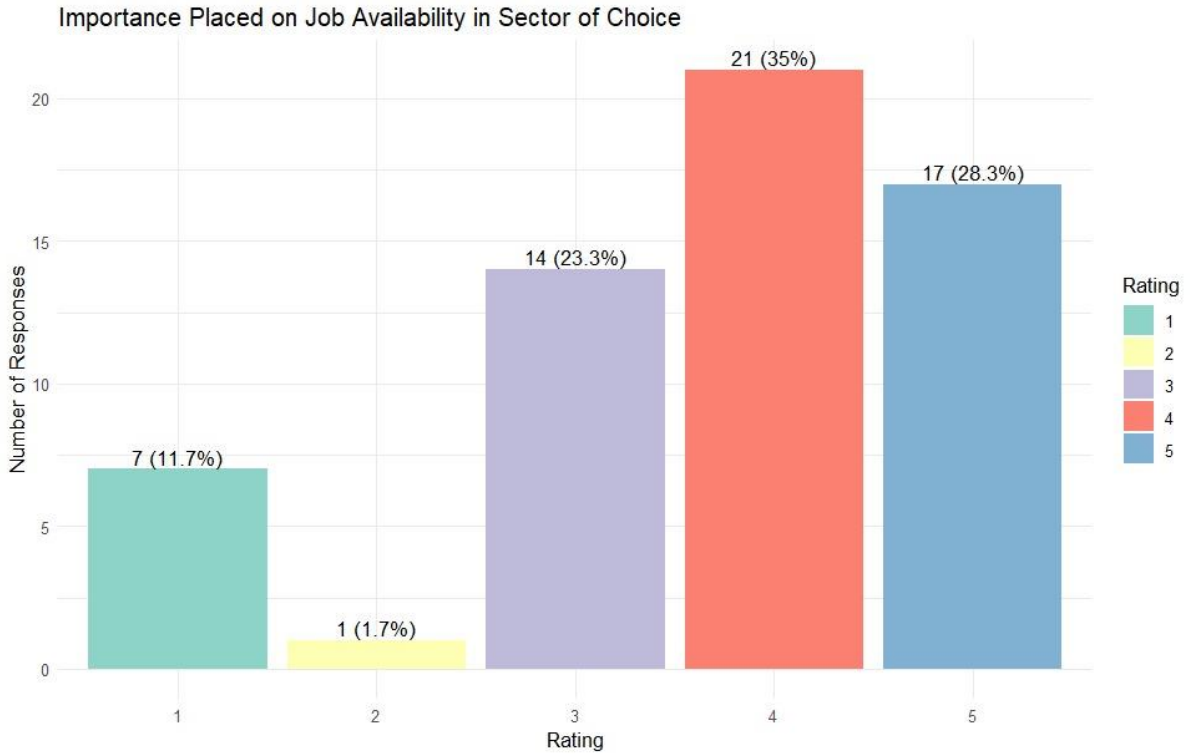
VISUALIZATION OF DATA

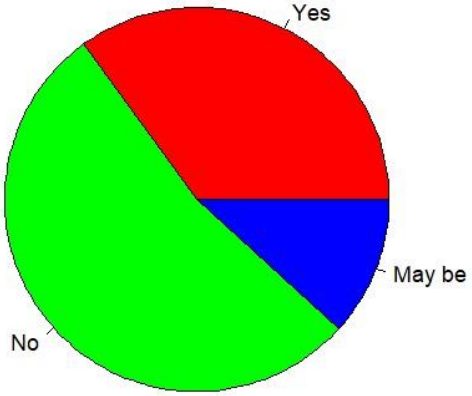
Data visualization plays a crucial role in exploring and presenting insights from datasets. In this section, we leverage the ggplot2 package in R to create visualizations for key survey questions related to students' decision-making processes and perspectives on course selection.

Pie Chart: Seeking Advice or Guidance
Visualized distribution of responses to the question: "Have you sought advice or guidance from teachers, counsellors, or mentors when deciding what to study?"
Highlighted the proportion of respondents who sought advice versus those who did not, emphasizing the prevalence of seeking guidance in decision-making.
Bar Chart: Course Recommendations
Presented responses to the question: "Would you suggest your current course with new students?" using a bar chart.
Illustrated frequency of recommendations for the current course, facilitating comparison of recommendations among respondents.
Area Graph: Departmental Preferences
Utilized an area graph to display responses to: "Department (Course) - What motivated you to choose this course?"
Depicted distribution of motivations across departments, enabling comparison of preferences and motivations for course selection.
Bar Graph: Importance of Job Availability
Created a bar graph representing responses to: "When making a decision, how much importance do you place on the availability of jobs in your sector of choice?"
Illustrated the level of importance attributed to job availability, allowing comparison across respondents.
Through these visualizations, we effectively communicate insights related to students' decision-making processes and perspectives on course selection. The visual representations facilitate interpretation and understanding of survey responses, aiding in the exploration of key insights from the dataset.


Survey: Advice for choosing what to study
Yes, extensively
No, not at all
Yes, somewhat


Department (Course) Responses
Number of Responses
20
15
10
5
0
6565
B tech
B.Tech
B.tech(CSE)
Bachelor of Comp...
BCA
Btech cse
Computer Applica...
Computer science
MBA
Department
Department
6565
B tech
B.Tech
B.tech(CSE)
Bachelor of Comp...
BCA
Btech cse
Computer Applica...
Computer science
MBA


Importance Placed on Job Availability in Sector of Choice
21 (35%)
17 (28.3%)
14 (23.3%)
7 (11.7%)
1 (1.7%)
Number of Responses
Rating
Rating
1
2
3
4
5
0
5
10
15
20
1
2
3
4
5


Would you recommend the course to new students?
Yes
May be
No

REGRESSION MODEL

Model Summary: Summary statistics were utilized to assess the performance of the linear regression model, providing insights into the significance and strength of the relationship between Course Satisfaction and Job Availability Rating.

Interpretation of Coefficients:

Intercept: Represents the predicted Course Satisfaction when Job Availability Rating is zero, with an intercept of approximately 1.379.

Job Availability Rating Coefficient: Indicates the change in Course Satisfaction for a one-unit increase in Job Availability Rating, estimated to be approximately 0.582.

Significance Testing: Both coefficients are statistically significant at the 0.001 level, indicating a robust association between Job Availability Rating and Course Satisfaction.

Model Fit:

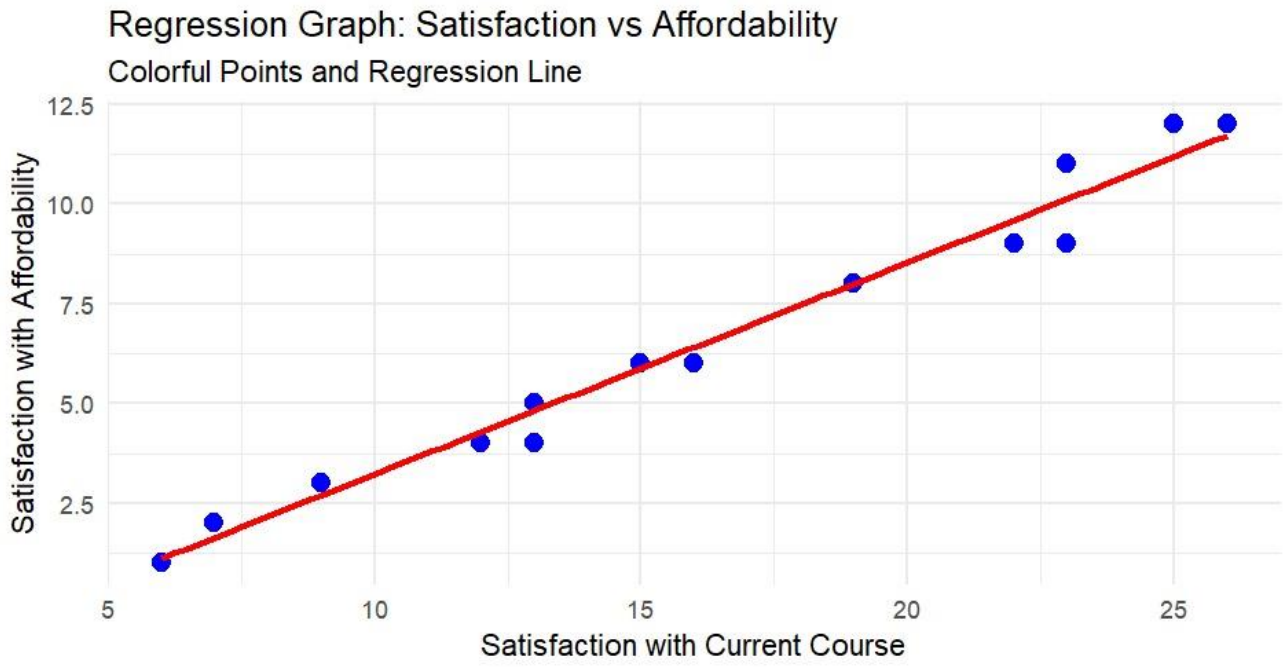
R-squared Value: Approximately 40.45% of the variance in Course Satisfaction is explained by the linear relationship with Job Availability Rating.

Adjusted R-squared Value: 0.3972, considering the number of predictors in the model.

F-statistic: A significant F-statistic of 55.03 (p-value < 0.001) suggests the model's overall significance.

Residual Analysis: Residuals show no apparent pattern in their distribution, approximately following a normal distribution with a mean close to zero, meeting the assumptions of linear regression.

Conclusion: The analysis indicates a significant positive relationship between Job Availability Rating and Course Satisfaction, suggesting that higher perceived job opportunities in chosen sectors correspond to increased satisfaction with courses among surveyed students.



```
Call:
lm(formula = Course_Satisfaction ~ Job_Availability_Rating, data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-2.1253 -0.7075  0.2925  0.7104  2.0391

Coefficients:
                        Estimate Std. Error t value Pr(>|t|)
(Intercept)              1.37873    0.30347   4.543 1.91e-05 ***
Job_Availability_Rating  0.58218    0.07848   7.418 1.04e-10 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.8605 on 81 degrees of freedom
Multiple R-squared:  0.4045,    Adjusted R-squared:  0.3972
F-statistic: 55.03 on 1 and 81 DF,  p-value: 1.041e-10

>
> # Extract coefficients
> coefficients <- coef(model)
>
> # Print coefficients
> print("Linear Regression Model Coefficients:")
[1] "Linear Regression Model Coefficients:"
> print(paste("Intercept:", coefficients[1]))
[1] "Intercept: 1.37873321306875"
> print(paste("Job Availability Rating Coefficient:", coefficients[2]))
[1] "Job Availability Rating Coefficient: 0.582180797755062"
>
```

RESULT AND DISCUSSION

The data presented in the graphs reveals several key insights into how people make career choices.

One of the graphs highlights that job availability is not the primary driver for choosing a career path. While some value it (35% rated it somewhat important), a significant portion prioritises other factors (63% rated it unimportant or somewhat unimportant). This suggests passion, purpose, or other considerations may hold greater weight in career decisions.

Another graph explores how past experience influences educational choices. A substantial majority (64%) rely on past experience to some degree when deciding what to study. This emphasises the value of internships, volunteer work, or other experiential learning opportunities in guiding students towards fulfilling academic paths.

Finally, a separate graph demonstrates a high level of satisfaction (78%) among those who have completed a particular course, with a strong likelihood they would recommend it to others. This satisfaction could be due to the course content, delivery style, or its effectiveness in achieving learning objectives.

However, it's important to acknowledge limitations. Sample sizes may not represent the broader population, and the pie chart lacks details on why people would or wouldn't recommend the course.

Further research could explore the specific factors influencing career choices beyond job availability. Additionally, investigating the types of past experiences that are most helpful in guiding educational decisions would be insightful. Finally, gathering more information on the course itself and the reasons behind course recommendations would provide a richer understanding of student satisfaction.

CONCLUSION

This project investigated the factors influencing career and educational choices. The analysis of the graphs revealed several key takeaways:

- Job availability is not the top priority: While some value it, a significant portion prioritise other factors like passion or purpose when choosing a career path.
- Past experience matters: A majority of people rely on past experiences to some degree when deciding what to study. This highlights the importance of experiential learning opportunities.
- High course satisfaction: A large percentage of respondents who completed a specific course expressed satisfaction and would recommend it to others.

These findings offer valuable insights for individuals and institutions. Individuals can use this information to focus on their interests and goals when making career choices. Additionally, educational institutions can consider emphasising experiential learning opportunities to better guide students towards fulfilling academic paths. Furthermore, understanding the reasons behind high course satisfaction can help in improving course design and delivery for future students.

However, it's important to acknowledge the limitations of this study. Sample sizes may not be representative of the general population, and additional information is needed on course specifics and reasons for recommendations.

Future research can delve deeper into the specific factors influencing career choices beyond job availability. Additionally, investigating the types of past experiences that are most helpful in guiding educational decisions would be insightful. Finally, gathering more information on the course itself and the reasons behind course recommendations would provide a richer understanding of student satisfaction.

THE ROAD TO SUCCESS : STUDENT PERSPECTIVE ON COURSE SELECTION

Presented by: -

OM JAISWAL 12207638

HARSH SINGH 12208874

ANUBHAV SINGH 12208856

ASHISH KR SINGH 12209185

MOHAMMAD FAHAD KHAN 12214398

Guided By:-

Dr.Mithilesh Kumar Dubey

Overview

01 INTRODUCTION

02 Motivation and Purpose of research

03 Research Questions:

04 DATA COLLECTION

05 DATA PREPROCESSING

06 DESCRIPTIVE STATISTICS

07 DATA VISUALIZATION

08 REGRESSION MODEL

08 DATA INSIGHTS

09 CHALLENGES & LIMITAIONS

10 CONCLUSION

INTRODUCTION

Explores how people decide what to study by looking at the things that influence their choices.
It's like peeling back layers to see what's really behind your decisions. We'll dig into why "He/She" might pick a certain course, considering their own interests, what others say, and what society expects.

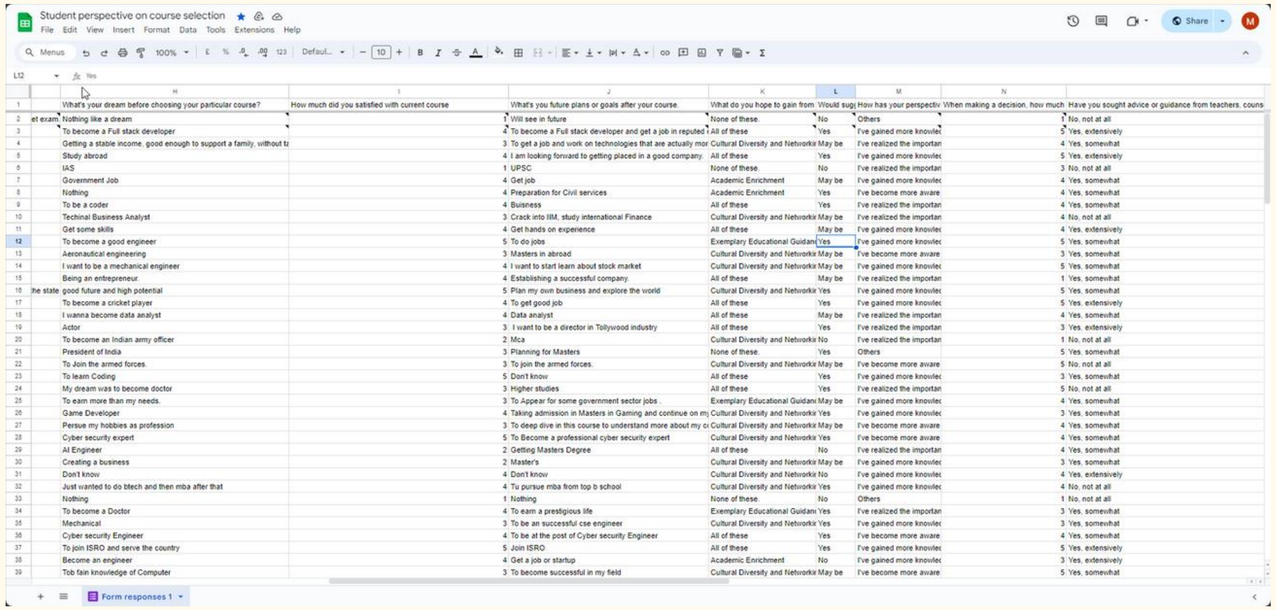
Motivation and Purpose of research

1. Exploring Decision-Making Dynamics: The primary motivation of this research is to delve into the decision-making dynamics behind students' course selection process. By understanding the factors that influence students' choices, we aim to gain insights into their motivations, aspirations, and challenges.
2. Informing Educational Practices: One of the key purposes of this research is to inform educational practices and policies. By uncovering the factors that shape students' course selection decisions, we can provide valuable insights to educational institutions, policymakers, and stakeholders. This information can be used to tailor educational programs, support services, and resources to better meet the needs and preferences of students.
3. Empowering Student Decision-Making: We believe that empowering students to make informed decisions about their education is essential for their academic success and future career prospects. Through our research, we aim to equip students with the knowledge and understanding they need to navigate the course selection process effectively.
4. Enhancing Student Engagement and Satisfaction: By understanding what motivates students to choose particular courses of study, educational institutions can better engage with their student population and enhance overall satisfaction. Our research aims to identify areas where improvements can be made to enhance the student experience and promote academic success.

Research Questions:

1. Influence of Peer Recommendations: To what extent do recommendations from peers influence students' decisions when selecting a course of study?
2. Impact of Academic Guidance: How does seeking advice or guidance from teachers, counselors, or mentors affect students' decision-making process when choosing what to study?
3. Role of Financial Stability: What role does financial stability play in students' decision-making process, and how does it influence their course selection?
4. Handling Overwhelm: How do students cope with feeling overwhelmed or confused by the multitude of options available when deciding what to study?
5. Fear of Failure: How does the fear of failure influence students' decision-making process when choosing what to study, and how do they mitigate this fear?
6. Academic Pressure Perception: How do students perceive the level of academic pressure they face from expectations such as grades and performance?
7. Affordability Satisfaction: How satisfied are students with the affordability of their current course of study, and what factors contribute to their satisfaction or dissatisfaction?
8. Financial Support Comfort: How comfortable are students with the level of financial support (e.g., scholarships, grants, loans) available for their current course of study?
9. Perceived ROI Justification: Do students feel that the potential return on investment (ROI) of their current course of study justifies the financial investment required?
10. Decision Changes Over Time: How common is it for students to change their minds about what to study after initially making a decision, and what factors contribute to these changes?

DATA COLLECTION

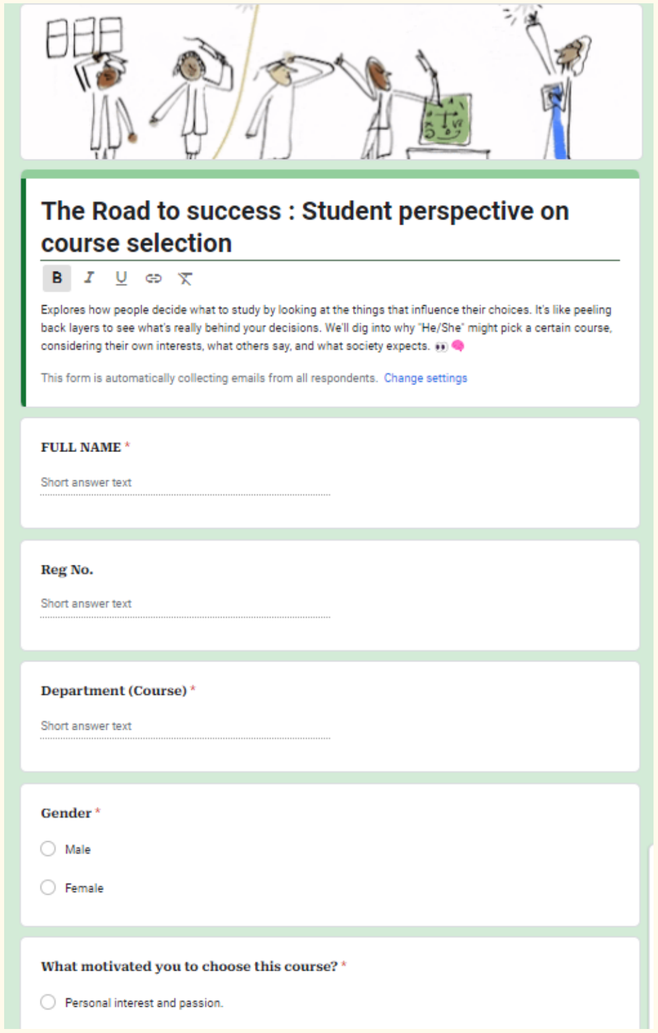


Student perspective on course selection

File Edit View Insert Format Data Tools Extensions Help

	What's your dream before choosing your particular course?	How much did you satisfied with current course	What's you future plans or goals after your course	What do you hope to gain from	Would sug	How has your perspectiv	When making a decision, how much	Have you sought advice or guidance from teachers, couns
2	et exam. Nothing like a dream	1	Will see in future	None of these.	No	Others	1	No, not at all
3	To become a Full stack developer	4	To become a Full stack developer and get a job in reputed	All of these	Yes	I've gained more knowled	5	Yes, extensively
4	Getting a stable income, good enough to support a family, without ta	3	To get a job and work on technologies that are actually mor	Cultural Diversity and Networki	May be	I've realized the importan	4	Yes, somewhat
5	Study abroad	4	I am looking forward to getting placed in a good company.	All of these	Yes	I've gained more knowled	5	Yes, extensively
6	IAS	1	UPSC	None of these.	No	I've realized the importan	3	No, not at all
7	Government Job	4	Get job	Academic Enrichment	May be	I've gained more knowled	4	Yes, somewhat
8	Nothing	4	Preparation for Civil services	Academic Enrichment	Yes	I've become more aware	4	Yes, somewhat
9	To be a coder	4	Buisness	All of these	Yes	I've realized the importan	4	Yes, somewhat
10	Techinal Business Analyst	3	Crack into IIM, study international Finance	Cultural Diversity and Networki	May be	I've realized the importan	4	No, not at all
11	Get some skills	4	Get hands on experience	All of these	May be	I've gained more knowled	4	Yes, extensively
12	To become a good engineer	5	To do jobs	Exemplary Educational Guidan	Yes	I've gained more knowled	5	Yes, somewhat
13	Aeronautical engineering	3	Masters in abroad	Cultural Diversity and Networki	May be	I've become more aware	3	Yes, somewhat
14	I want to be a mechanical engineer	4	I want to start learn about stock market	Cultural Diversity and Networki	May be	I've gained more knowled	5	Yes, somewhat
15	Being an entrepreneur	4	Establishing a successful company	All of these	May be	I've realized the importan	1	Yes, somewhat
16	he state good future and high potential	5	Plan my own business and explore the world	Cultural Diversity and Networki	Yes	I've gained more knowled	5	Yes, somewhat
17	To become a cricket player	4	To get good job	All of these	Yes	I've gained more knowled	5	Yes, extensively
18	I wanna become data analyst	4	Data analyst	All of these	May be	I've realized the importan	4	Yes, somewhat
19	Actor	3	I want to be a director in Tollywood industry	All of these	Yes	I've realized the importan	3	Yes, extensively
20	To become an Indian army officer	2	Mca	Cultural Diversity and Networki	No	I've realized the importan	1	No, not at all
21	President of India	3	Planning for Masters	None of these.	Yes	Others	5	Yes, somewhat
22	To Join the armed forces.	3	To join the armed forces.	Cultural Diversity and Networki	May be	I've become more aware	5	No, not at all
23	To learn Coding	5	Don't know	All of these	Yes	I've gained more knowled	3	Yes, somewhat
24	My dream was to become doctor	3	Higher studies	All of these	Yes	I've realized the importan	5	No, not at all
25	To earn more than my needs.	3	To Appear for some government sector jobs .	Exemplary Educational Guidan	May be	I've gained more knowled	4	Yes, somewhat
26	Game Developer	4	Taking admission in Masters in Gaming and continue on my	Cultural Diversity and Networki	Yes	I've gained more knowled	3	Yes, somewhat
27	Persue my hobbies as profession	3	To deep dive in this course to understand more about my c	Cultural Diversity and Networki	May be	I've become more aware	4	Yes, somewhat
28	Cyber security expert	5	To Become a professional cyber security expert	Cultural Diversity and Networki	Yes	I've become more aware	4	Yes, somewhat
29	AI Engineer	2	Getting Masters Degree	All of these	No	I've realized the importan	4	Yes, somewhat
30	Creating a business	2	Master's	Cultural Diversity and Networki	May be	I've gained more knowled	3	Yes, somewhat
31	Don't know	4	Don't know	Cultural Diversity and Networki	No	I've gained more knowled	4	Yes, extensively
32	Just wanted to do btech and then mba after that	4	Tu pursue mba from top b school	Cultural Diversity and Networki	Yes	I've gained more knowled	4	No, not at all
33	Nothing	1	Nothing	None of these.	No	Others	1	No, not at all
34	To become a Doctor	4	To earn a prestigious life	Exemplary Educational Guidan	Yes	I've realized the importan	3	Yes, somewhat
35	Mechanical	3	To be an successful cse engineer	Cultural Diversity and Networki	Yes	I've gained more knowled	3	Yes, somewhat
36	Cyber security Engineer	4	To be at the post of Cyber security Engineer	All of these	Yes	I've become more aware	4	Yes, somewhat
37	To join ISRO and serve the country	5	Join ISRO	All of these	Yes	I've gained more knowled	5	Yes, extensively
38	Become an engineer	4	Get a job or startup	Academic Enrichment	No	I've gained more knowled	3	Yes, extensively
39	Tob fain knowledge of Computer	3	To become successful in my field	Cultural Diversity and Networki	May be	I've become more aware	5	Yes, somewhat

Form responses 1



The Road to success : Student perspective on course selection

Explores how people decide what to study by looking at the things that influence their choices. It's like peeling back layers to see what's really behind your decisions. We'll dig into why "He/She" might pick a certain course, considering their own interests, what others say, and what society expects. 👀🗣️

This form is automatically collecting emails from all respondents. Change settings

FULL NAME *

Short answer text

Reg No.

Short answer text

Department (Course) *

Short answer text

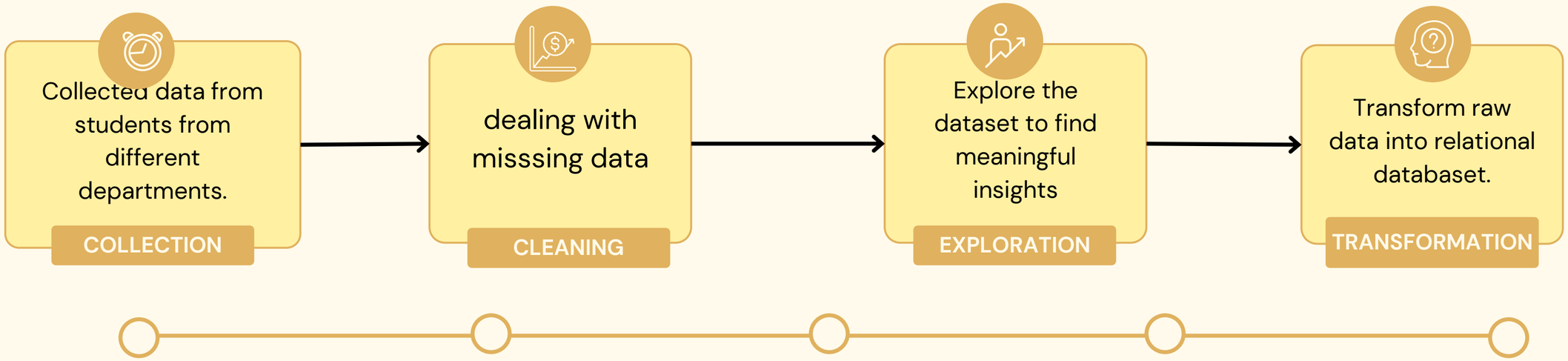
Gender *

- Male
- Female

What motivated you to choose this course? *

- Personal interest and passion.

DATA PREPROCESSING



DESCRIPTIVE STATISTICS

```
> summary(Student_perspective_on_course_selection)
   Timestamp                      Email address       FULL NAME           Reg No.          Department (Course)
 Min.   :2024-02-21 18:53:24.91   Length:85          Length:85          Min.   :       1   Length:85
 1st Qu.:2024-02-21 19:41:58.38   Class :character   Class :character   1st Qu.:12201225   Class :character
 Median :2024-02-21 21:09:59.97   Mode  :character   Mode  :character   Median :12204744   Mode  :character
 Mean   :2024-03-11 01:33:19.49                                         Mean   :11850833
 3rd Qu.:2024-04-22 22:24:06.50                                         3rd Qu.:12212614
 Max.   :2024-04-23 13:10:54.36                                         Max.   :12326693
 NA's   :2                                                              NA's   :15
    Gender           What motivated you to choose this course?
 Length:85          Length:85
 Class :character   Class :character
 Mode  :character   Mode  :character
```

```
Standard Deviation of Satisfaction Rating (1-5): 1.1083
> cat("Standard Deviation of Pressure (1-5):", pressure_sd, "\n")
Standard Deviation of Pressure (1-5): 1.074099
> cat("Standard Deviation of Affordability (1-5):", affordability_sd, "\n")
Standard Deviation of Affordability (1-5): 0.9183537
>
```

DESCRIPTIVE STATISTICS

```
> cat("Variance of Satisfaction Rating (1-5):", satisfaction_var, "\n")
Variance of Satisfaction Rating (1-5): 1.228328
> cat("Variance of Pressure (1-5):", pressure_var, "\n")
Variance of Pressure (1-5): 1.153688
> cat("Variance of Affordability (1-5):", affordability_var, "\n")
Variance of Affordability (1-5): 0.8433735
>
> cat("Range of Satisfaction Rating (1-5):", satisfaction_range, "\n")
Range of Satisfaction Rating (1-5): 4
> cat("Range of Pressure (1-5):", pressure_range, "\n")
Range of Pressure (1-5): 4
> cat("Range of Affordability (1-5):", affordability_range, "\n")
Range of Affordability (1-5): 4
>
> cat("Covariance between Satisfaction Rating and Pressure (1-5):", satisfaction_pressure_cov, "\n")
Covariance between Satisfaction Rating and Pressure (1-5): 0.410814
> cat("Covariance between Satisfaction Rating and Affordability (1-5):", satisfaction_affordability_cov, "\n")
Covariance between Satisfaction Rating and Affordability (1-5): 0.6031443
> cat("Covariance between Pressure and Affordability (1-5):", pressure_affordability_cov, "\n")
Covariance between Pressure and Affordability (1-5): 0.338231
>
```

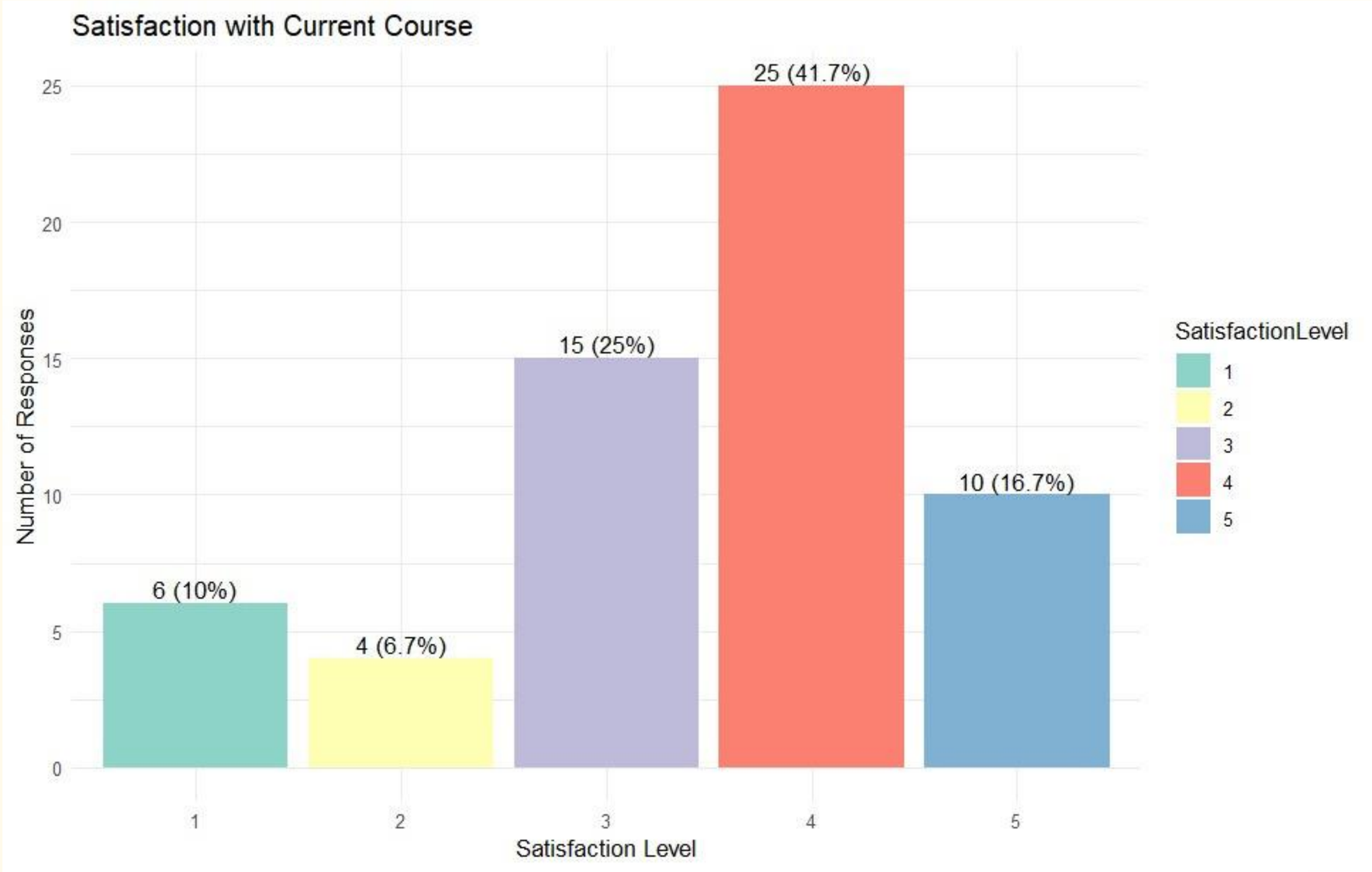
DESCRIPTIVE STATISTICS ON STUDENT FEEDBACK

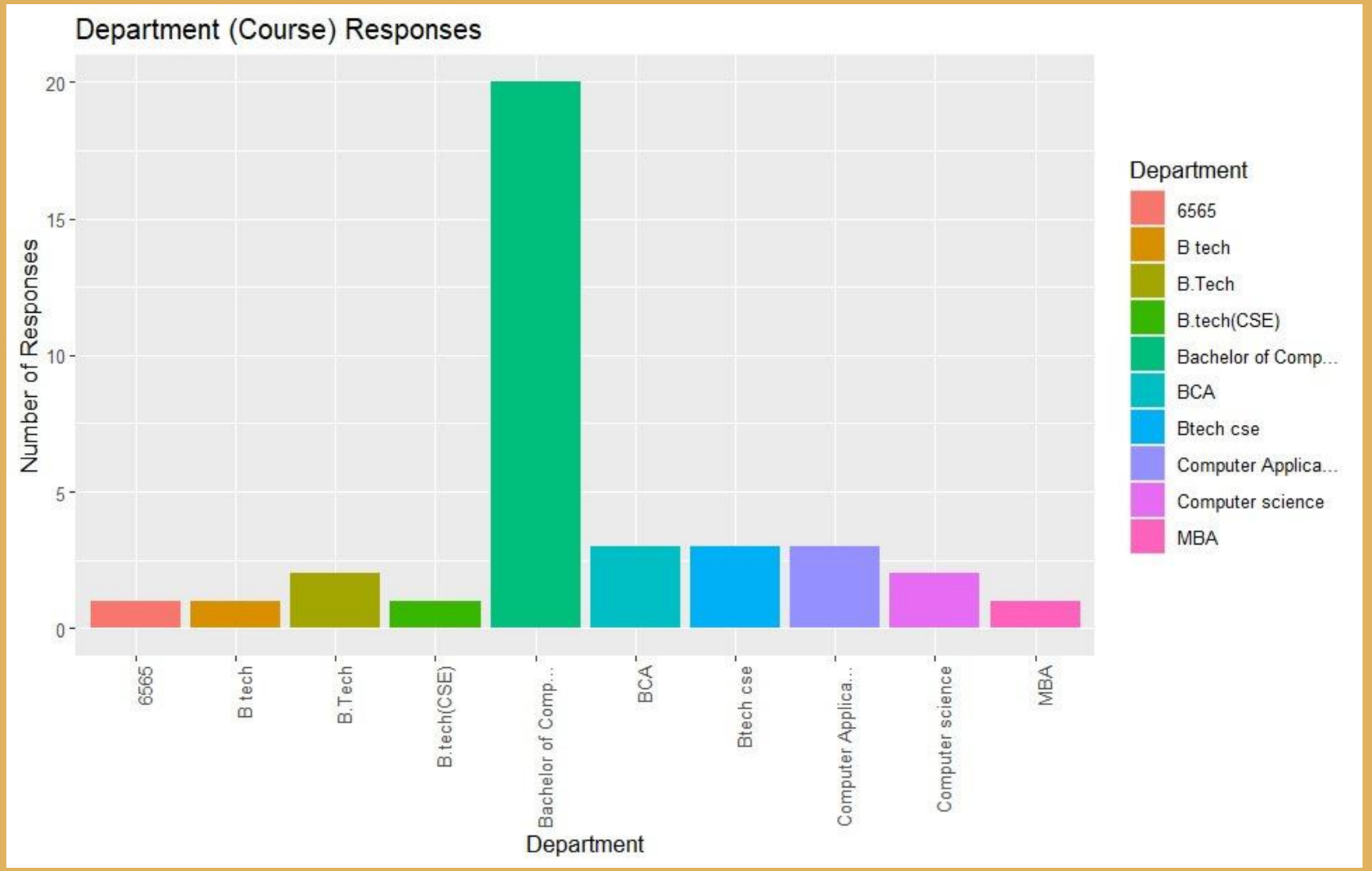
```
[1] "On a scale of 1 to 5, how much pressure do you feel from academic expectations (e.g., grades, performance).
> print(descriptive_stats)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
  1.000   3.000   4.000   3.542   4.000   5.000       2
```

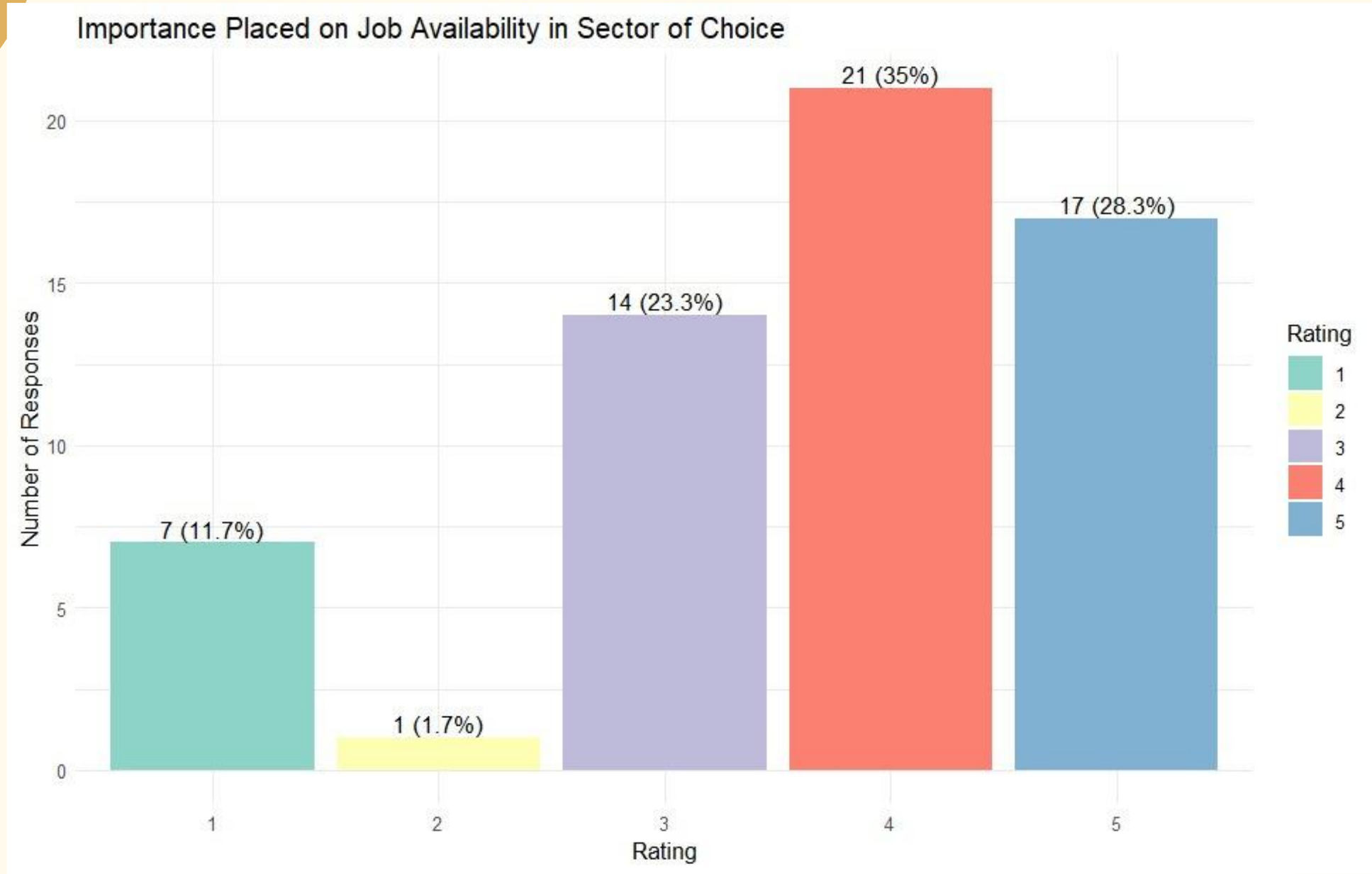
```
] "THE DESCRIPTIVE STATISTICS OF SATISFACTION RATING WITH THE CURRENT COURSE"
print(descriptive_stats)
  Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
1.000   3.000   4.000   3.518   4.000   5.000       2
```

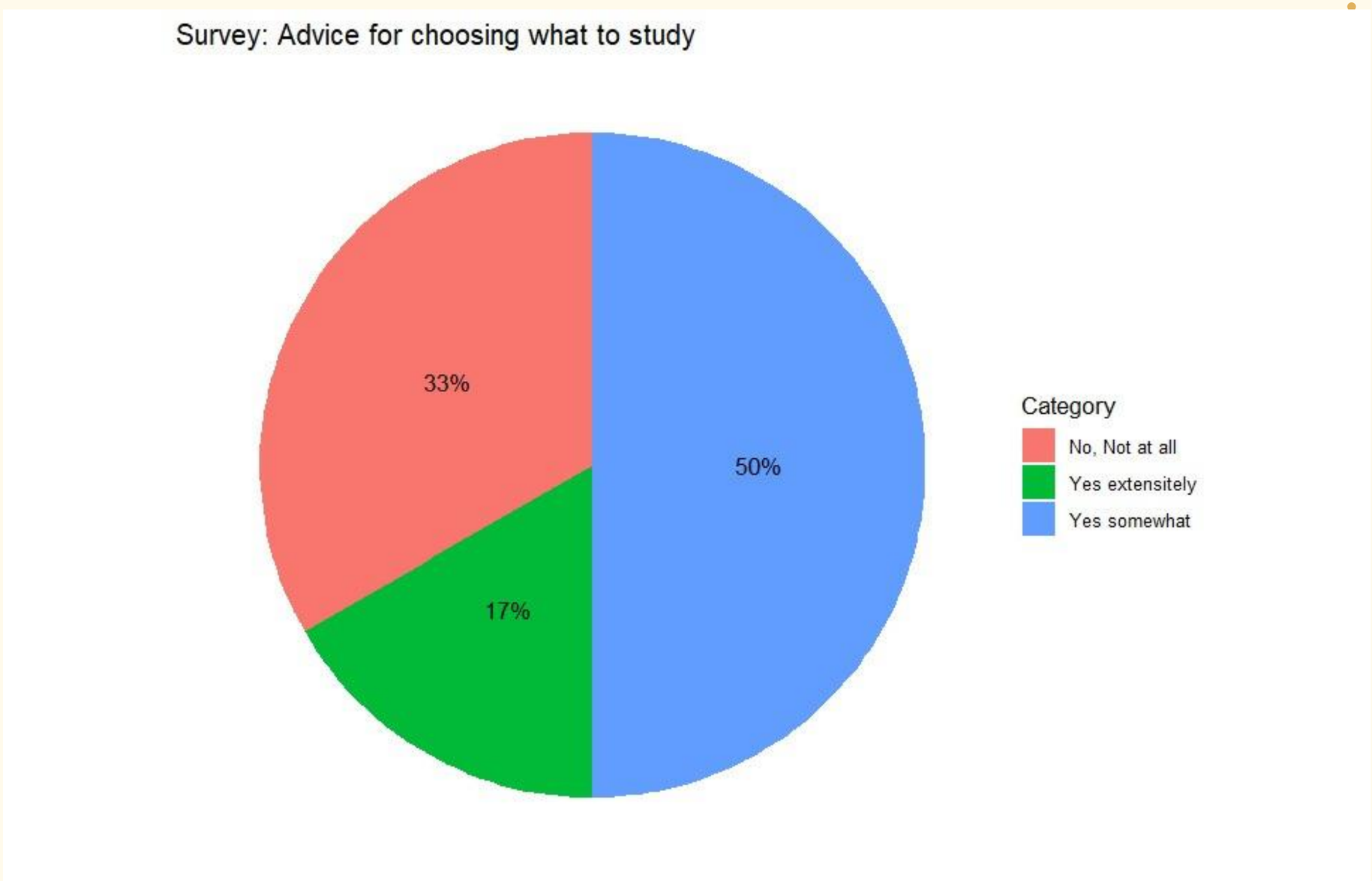
```
[1] "How satisfied are you with the affordability of your current course of study?"
> print(descriptive_stats)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
  1.000   3.000   3.000   3.361   4.000   5.000       2
```

DATA VISUALIZATION

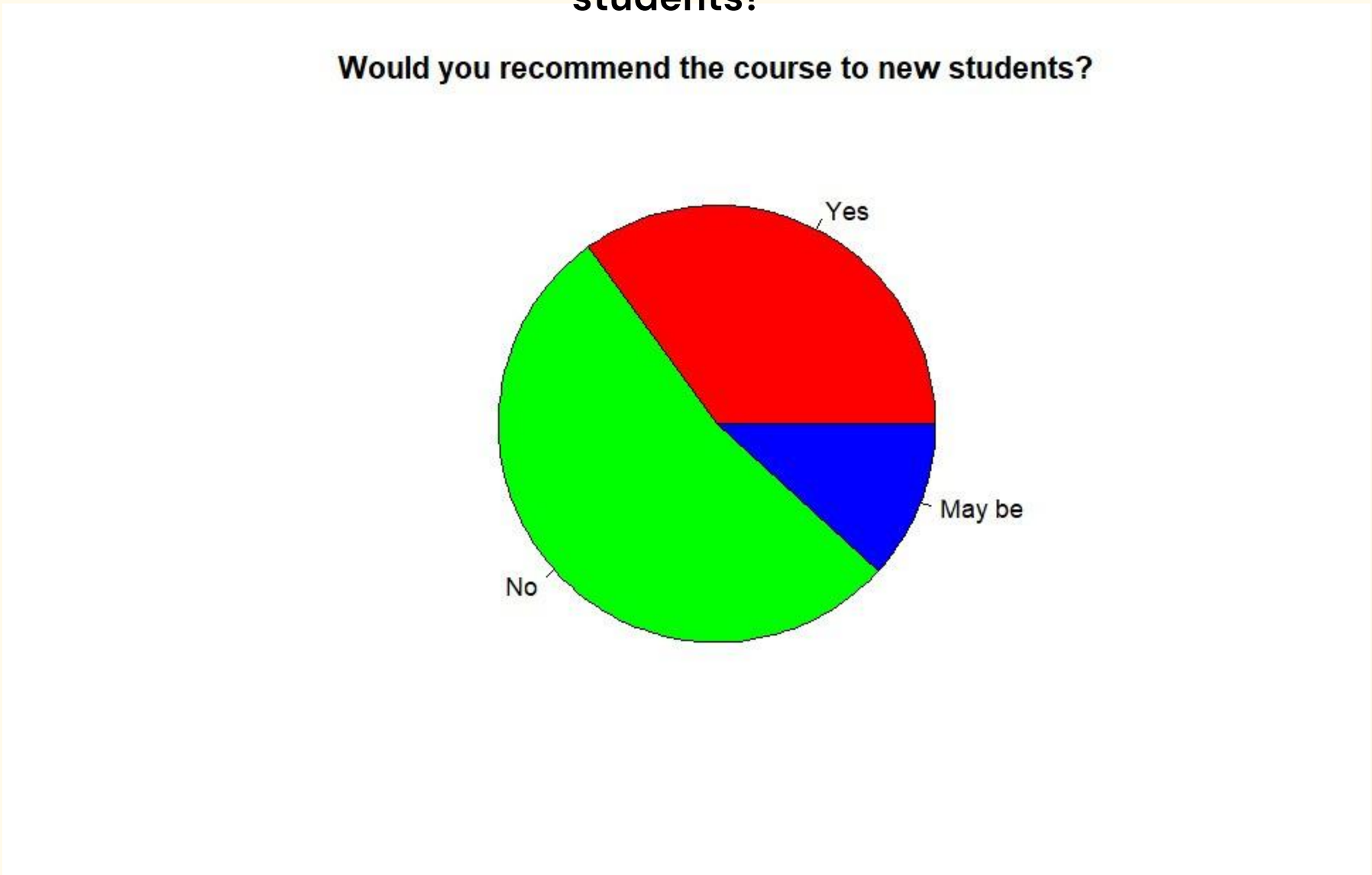



Department (Course) Responses
Number of Responses
20
15
10
5
0
6565
B tech
B.Tech
B.tech(CSE)
Bachelor of Comp...
BCA
Btech cse
Computer Applica...
Computer science
MBA
Department
Department
6565
B tech
B.Tech
B.tech(CSE)
Bachelor of Comp...
BCA
Btech cse
Computer Applica...
Computer science
MBA


Importance Placed on Job Availability in Sector of Choice
Number of Responses
20
15
10
5
0
7 (11.7%)
1 (1.7%)
14 (23.3%)
21 (35%)
17 (28.3%)
1
2
3
4
5
Rating
Rating
1
2
3
4
5


Survey: Advice for choosing what to study
33%
17%
50%
Category
No, Not at all
Yes extensitely
Yes somewhat

Would suggest your current \"Course\" with new students?



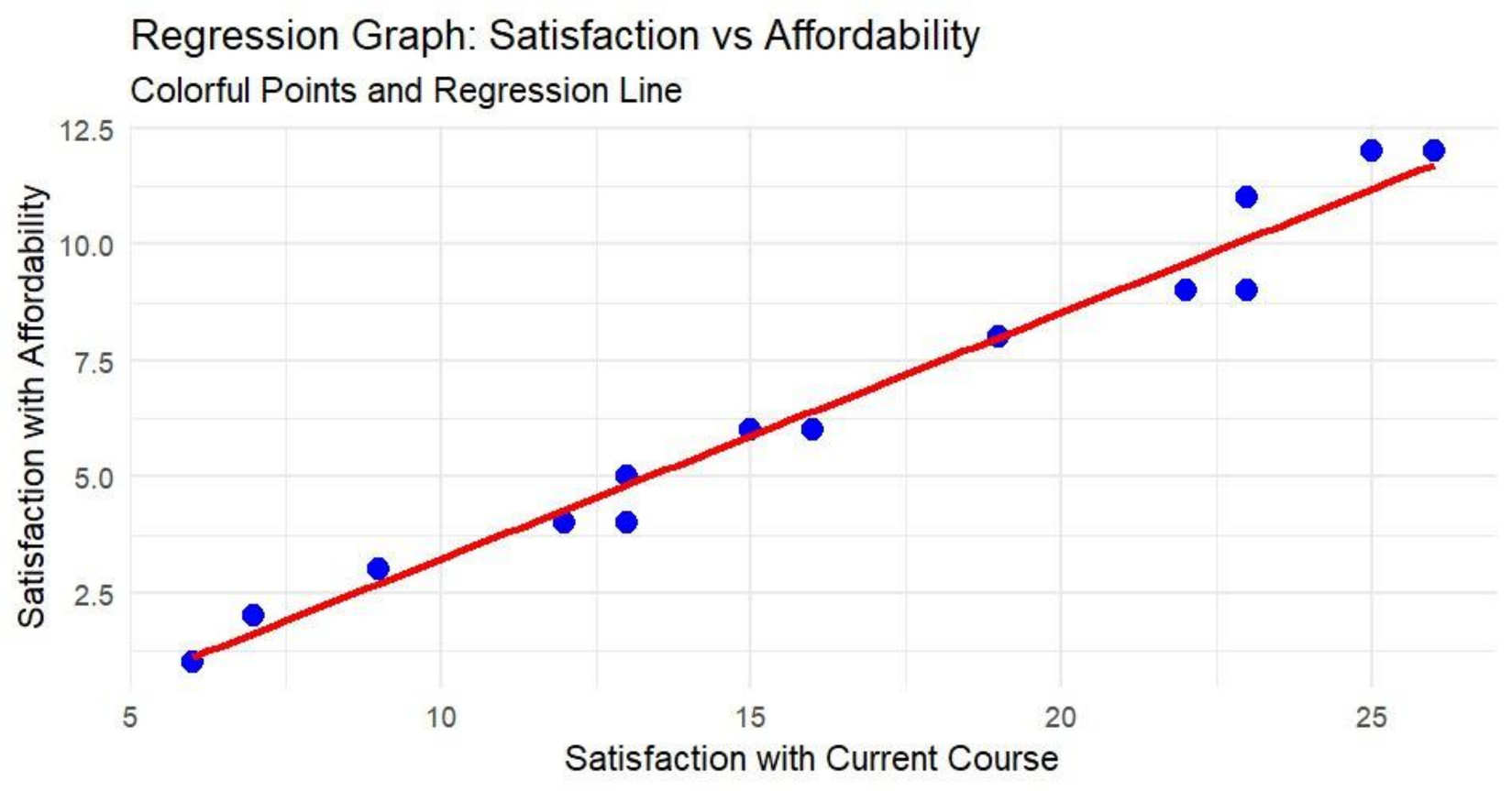
REGERESSION MODEL

1. Linear regression analysis was conducted to examine the relationship between Course Satisfaction and Job Availability Rating.
2. The intercept of the model suggests a predicted Course Satisfaction of approximately 1.379 when Job Availability Rating is zero.
3. The coefficient for Job Availability Rating indicates that for every one-unit increase in Job Availability Rating, Course Satisfaction is estimated to increase by approximately 0.582.
4. Both coefficients are statistically significant at the 0.001 level, indicating a robust association between Job Availability Rating and Course Satisfaction.
5. The model explains approximately 40.45% of the variance in Course Satisfaction, with an adjusted R-squared value of 0.3972.
6. The significant F-statistic of 55.03 (p-value < 0.001) confirms the overall significance of the model.
7. Residual analysis indicates that the assumptions of linear regression are met, with residuals following a normal distribution.
8. Overall, the analysis suggests a significant positive relationship between Job Availability Rating and Course Satisfaction, implying that higher perceived job opportunities lead to increased satisfaction with courses among surveyed students.

REGERESSION MODEL

```
Call:
lm(formula = Course_Satisfaction ~ Job_Availability_Rating, data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-2.1253 -0.7075  0.2925  0.7104  2.0391

Coefficients:
                        Estimate Std. Error t value Pr(>|t|)
(Intercept)              1.37873    0.30347   4.543 1.91e-05 ***
Job_Availability_Rating  0.58218    0.07848   7.418 1.04e-10 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.8605 on 81 degrees of freedom
Multiple R-squared:  0.4045,    Adjusted R-squared:  0.3972
F-statistic: 55.03 on 1 and 81 DF,  p-value: 1.041e-10


> 
> # Extract coefficients
> coefficients <- coef(model)
> 
> # Print coefficients
> print("Linear Regression Model Coefficients:")
[1] "Linear Regression Model Coefficients:"
> print(paste("Intercept:", coefficients[1]))
[1] "Intercept: 1.37873321306875"
> print(paste("Job Availability Rating Coefficient:", coefficients[2]))
[1] "Job Availability Rating Coefficient: 0.582180797755062"
> 
```

REGERESSION MODEL



DATA INSIGHTS

29 (48.3%) Students are changed their mind about what to study after initially making a decision

12(20%) Students recommended from family or friends to choose their course

32(53.3%)Students have fear of failure influence their decision-making process when choosing what to study

Challenges and Limitations

1. Data Collection Bias: The survey primarily targeted BCA students, resulting in an overrepresentation of this group. This may limit the generalizability of findings to other student populations or academic fields.
2. Limited Response Rate: Despite efforts, a significant portion of students did not respond, leading to a small dataset. This reduces the statistical power and reliability of the analysis and limits the ability to draw broad conclusions.
3. Missing Data and Incomplete Responses: Presence of missing or incomplete data poses challenges in analysis and interpretation. Dealing with missing data requires imputation methods or exclusion, potentially biasing results.
4. Limited Scope of Variables: The survey's focus on specific aspects of course selection may overlook other relevant factors. This limits the depth and breadth of analysis, potentially missing important insights.
5. Time and Resource Constraints: Conducting thorough data exploration requires significant time, resources, and expertise. Limited resources and access to specialized tools may restrict the depth and rigor of the research.

CONCLUSION

- Explored complexities of students' course selection decisions, examining factors like peer recommendations, financial stability, academic pressure, and satisfaction levels.
- Goal: Empower students to make informed decisions, leading to academic success and improved career prospects.
- Findings emphasize multifaceted nature of course selection, underscore need for support and resources.
- Aim to contribute to educational enhancement by sharing insights with academic community.
- Hope to inspire further discussions and initiatives for improving course selection experience and enhancing student academic journey.

thank you!