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## Introduction

In today's rapidly evolving world, the pursuit of personal growth and self-discovery has become more important than ever. Client, the esteemed founder of Company, is a visionary leader dedicated to helping individuals unlock their true potential and find their life's purpose. Through her renowned book, "The Apple in the Orchard: A Story About Finding the Courage to Emerge," and transformative programs like "Take the Leap! Make an Impact," she has touched the lives of countless individuals, inspiring them to embrace their unique abilities and make a positive difference in the world.

As part of her ambitious business objective, Client aims to empower 100,000 emerging leaders by the year 2025. To achieve this goal, she recognizes the significance of reaching out to the leaders of tomorrow—high-school students. By introducing her programs to students in Mexico, she seeks to nurture their personal growth, enhance their performance, and equip them with the tools they need to succeed in their future endeavors.

In order to assess the effectiveness of the program among students and understand the impact it has on their lives, pre and post surveys were administered to both students and teachers. These surveys serve as invaluable sources of information, providing insights into the changes in students' attitudes, perceptions, and motivations after participating in the Challenge 5 program. The data collected will shed light on whether the program successfully helped students gain clarity on their life purpose, identify personal resources, and foster a sense of motivation to pursue their goals.

By analyzing the survey data, Client and her team aim to evaluate the program's effectiveness and identify areas for improvement. Their ultimate objective is to ensure that the program delivers a meaningful and transformative experience for students, helping them uncover their passions, harness their talents, and develop the necessary skills to leave a lasting legacy.

In this report, we will delve into the survey data, examine the key findings, and present recommendations for enhancing the program's impact on students. Through this analysis, we hope to provide valuable insights that will assist Client and her team in refining the program, making it even more impactful and empowering for the future leaders who participate in it.

By investing in the growth and development of students, Client and Company are not only shaping individual lives but also shaping the future of our society. Let us now embark on a journey of discovery, as we explore the profound effects of the Challenge 5 program and its potential to inspire and empower the leaders of tomorrow.

## Data Cleaning

The data set contained surveys collected from students before and after attending Challenge 5 program. The original dataset contains **9129** observations, where each row represents a student and each column to the results of that student's survey. The data set contained duplicates and multiple surveys provided by the same student in a short period of time. We have eliminated duplicates as part of data cleansing, combined the feedback given by each student, and reorganized the table. **5425** students have given the survey before attending the Challenge 5 program, **2689** students have given the survey after attending the program and **2005** students have given both before and after surveys.

## Exploratory Data Analysis

### Survey Counts

Figure 1 shows the count of survey responses provided by students before and after attending the program. Overall, it demonstrates that the majority of students are motivated to pursue their goals, have clarity about their life's purpose, and are aware of their personal resources.

#### Response

- Totally disagree
- Totally agree
- Partially disagree
- Partially agree
- Neither agree or disagree

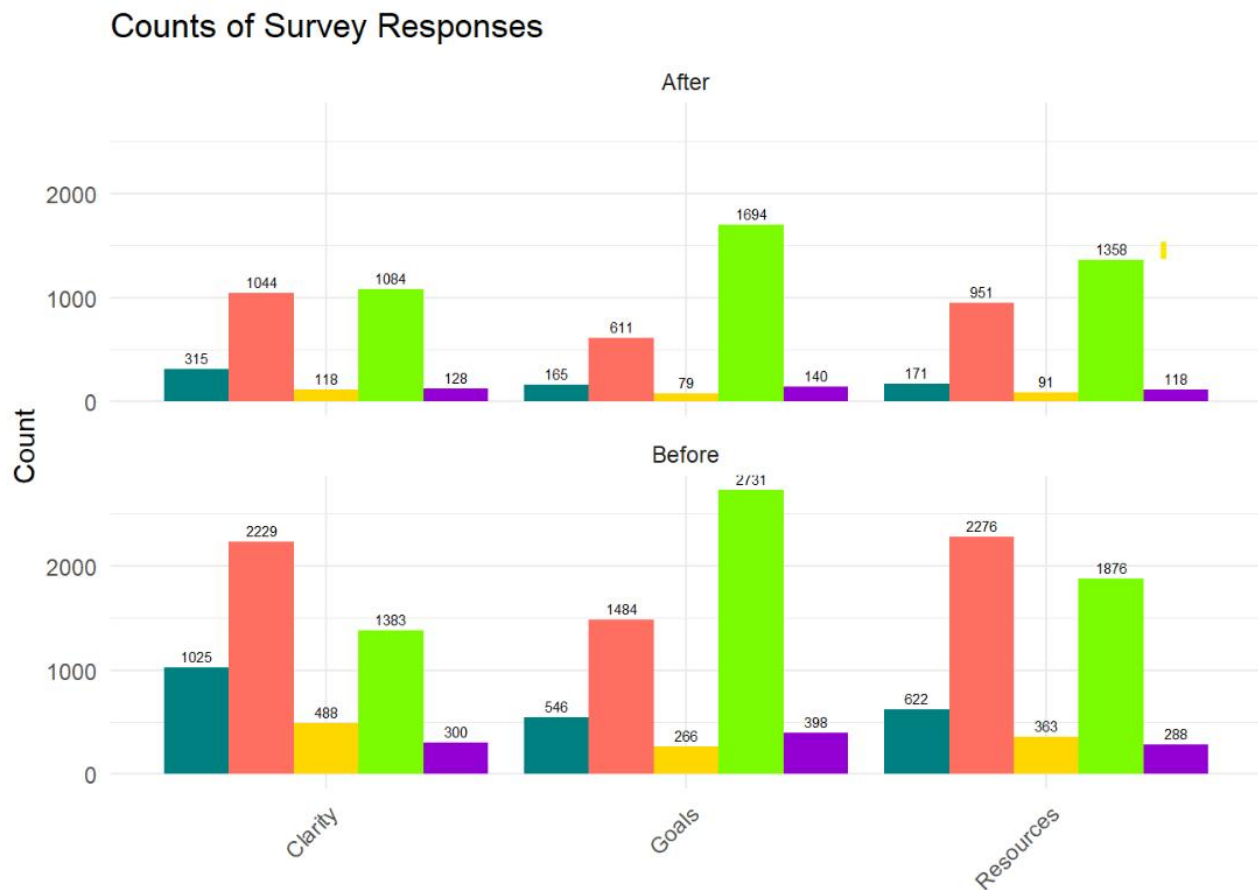


Figure 1: Counts of Survey Responses

## Change in Students Attitude

Figure 2 and Figure 3 demonstrates the change in student's attitude before and after the program. Only 25.49% of the students believed that they had a clear understanding of their life's purpose before the program; however, this number has significantly grown to 40.31% after the program, which is encouraging.

- Totally disagree
- Partially disagree
- Neither agree or disagree
- Partially agree
- Totally agree

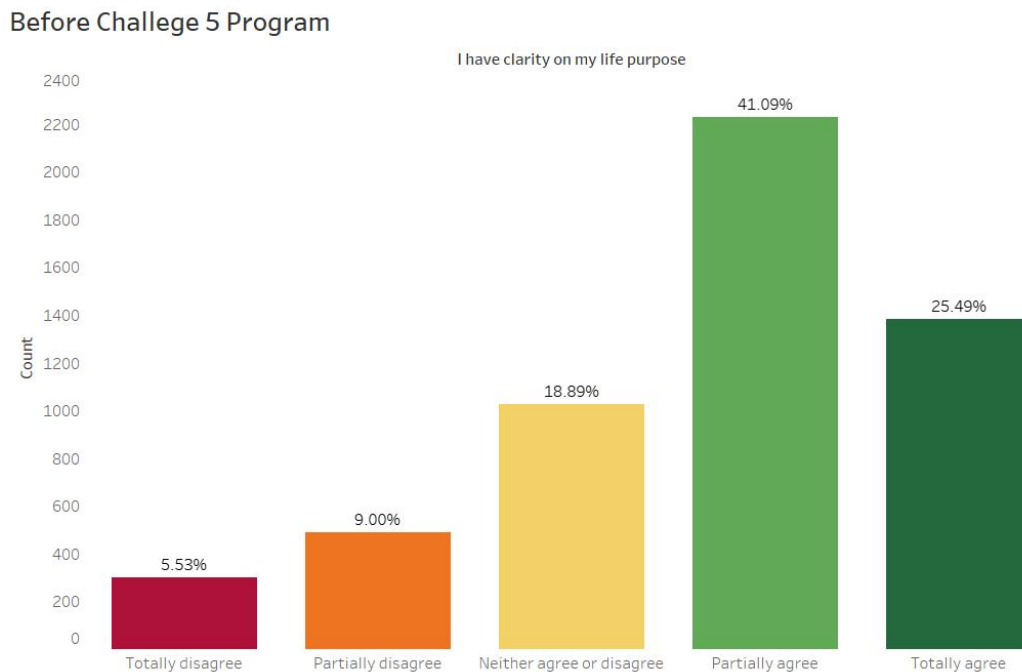


Figure 2: Clarity on Life Purpose - Before Challenge 5 Program

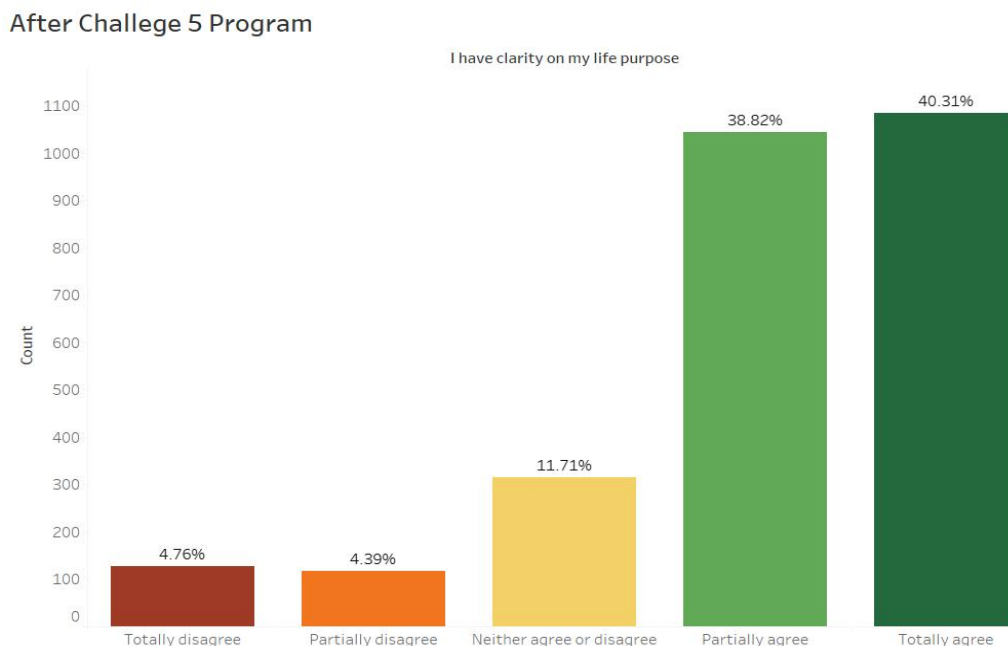


Figure 3: Clarity on Life Purpose - After Challenge 5 Program

The program's effects on students who totally disagreed with each of the survey questions before the program.

According to the program is deemed a success if it had a substantial effect on students who were unsure of their life's purpose or their personal resources and lacked the drive to attain their goals. In order to assess the program's effects on those students who totally disagreed with all the survey questions before the program, we scored the survey outputs as: Totally Disagree (1 point), Partially Disagree (2 points), Neither agree or disagree (3 points), Partially Agree (4 points), and Totally Agree (5 points). We then summed up the responses to the questions: I have clarity on my life purpose; I identify my personal resources, providing me with confidence to pursue my goals; and I feel motivated to reach my goals, before and after the program. Figure 4 shows the average total response before and after attending the program among those students who had no clarity on their life purpose or personal resources and had no motivation to achieve their goals. We can clearly see that the program did have a significant impact on those students, as the average has moved from 3.0 to 8.22.

**Likert Scale used:**

Totally Disagree – 1

Partially Disagree – 2

Neither agree or disagree – 3

Partially Agree – 4

Totally Agree - 5

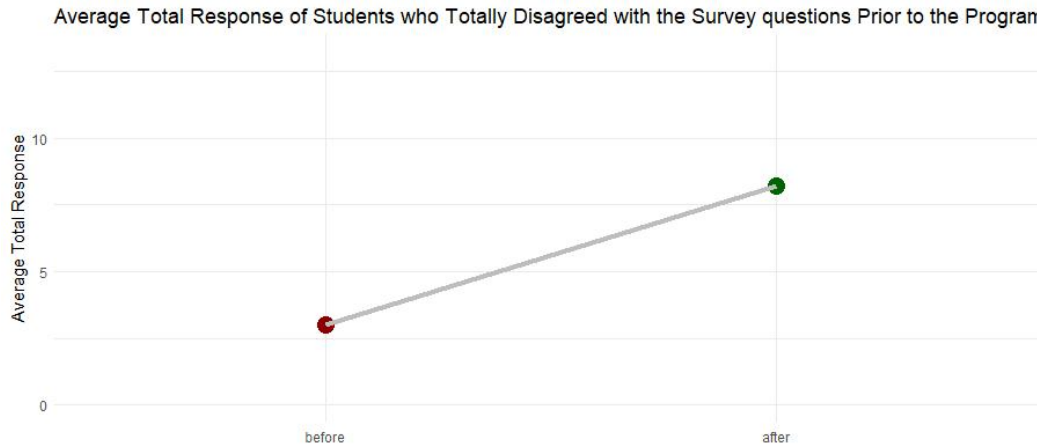


Figure 4: Average Total Response of Students who Totally Disagreed with the Survey Questions Prior to the Program

Clarity Before	Count	Total	Clarity Before&After	Count
Partially disagree	69		Partially agree	60
Totally disagree	33	102	Totally agree	42
Resources Before	Count	Total	Resources Before&After	Count
Partially disagree	63		Partially agree	51
Totally disagree	32	95	Totally agree	44
Goal Before	Count	Total	Goal Before&After	Count
Partially disagree	35		Partially agree	31
Totally disagree	48	83	Totally agree	52

Figure 5: Comparison of Pre-Program and Post-Program Survey Responses

The provided table presents the counts of "Totally disagree" and "Partially disagree" responses from the pre-survey of students, as well as the counts of the same set of students who converted to "Totally agree" and "Partially agree" after participating in the program, as captured in the post-survey.

#### Clarity:

- Before the program, 33 students responded with "Totally disagree" and 69 students responded with "Partially disagree."
- After the program, 42 students responded with "Totally agree" and 60 students responded with "Partially agree."

This indicates a positive shift in student perspectives regarding clarity, with more students expressing agreement or partial agreement after the program. The program seems to have contributed to enhancing students' understanding and reducing their initial disagreement.

#### Resources:

- Before the program, 32 students responded with "Totally disagree" and 63 students responded with "Partially disagree."
- After the program, 44 students responded with "Totally agree" and 51 students responded with "Partially agree."

Similarly, the resource aspect shows a favorable change, with a greater number of students expressing agreement or partial agreement in the post-survey. The program appears to have addressed students' concerns regarding resources and improved their perception of available support.

**Goal:**

- Before the program, 48 students responded with "Totally disagree" and 35 students responded with "Partially disagree."
- After the program, 52 students responded with "Totally agree" and 31 students responded with "Partially agree."

The analysis of goals reveals a positive transformation as well. The program seems to have helped students align their perspectives and objectives, resulting in more students expressing agreement or partial agreement with the goals presented. This indicates an improved understanding and motivation towards achieving their desired goals.

The table in [Figure 5](#) demonstrate the effectiveness of the program in influencing students' attitudes and perspectives positively. The shift from initial disagreement to agreement or partial agreement in various areas (clarity, resources, and goals) suggests the program's impact in fostering a more positive and receptive mindset among the participants. These findings highlight the importance of implementing similar programs to support students' development and enhance their overall experience.

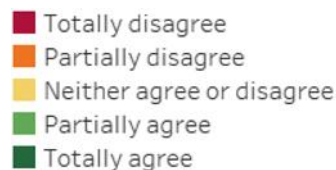
### Recommendations for the Book and the Program

The bubble chart shown in [Figure 6](#) gives the percentage distribution of responses among the students who participated in the 'After Survey' regarding their agreement or disagreement with recommending the book.

- **47.90%** of the students totally agreed.
- **25.59%** of the students partially agreed.
- 16.88% of the students neither agreed nor disagreed.
- 4.31% of the students partially disagreed.
- 5.32% of the students totally disagreed.

Overall, we can observe that high school students have given the book very favorable reviews.

The same goes with the Challenge 5 program. The majority of students have expressed satisfaction with the program, as illustrated in [Figure 7](#).



Would you recommend keeping the reading of the story "The Apple in the Orchard"?

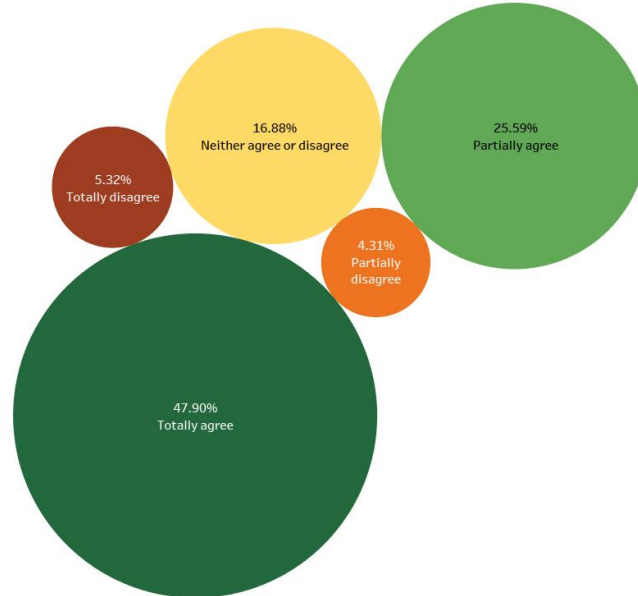


Figure 6: Would you recommend keeping the reading of the story "The Apple in the Orchard"?

Would you recommend keeping the program ?

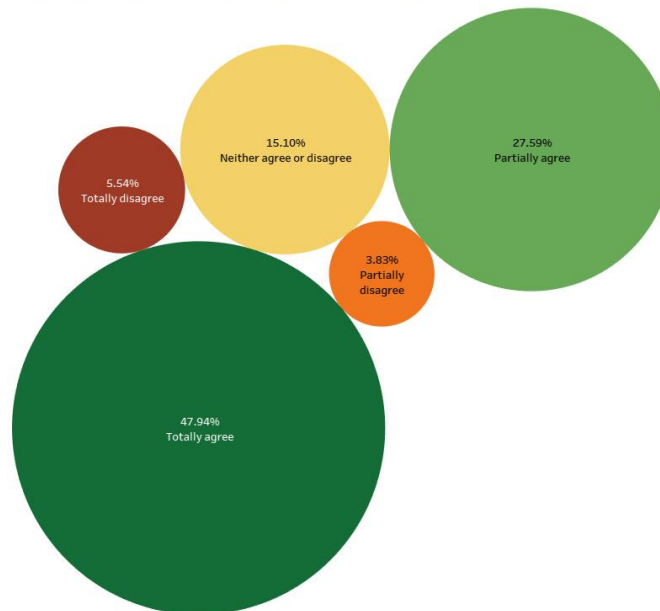
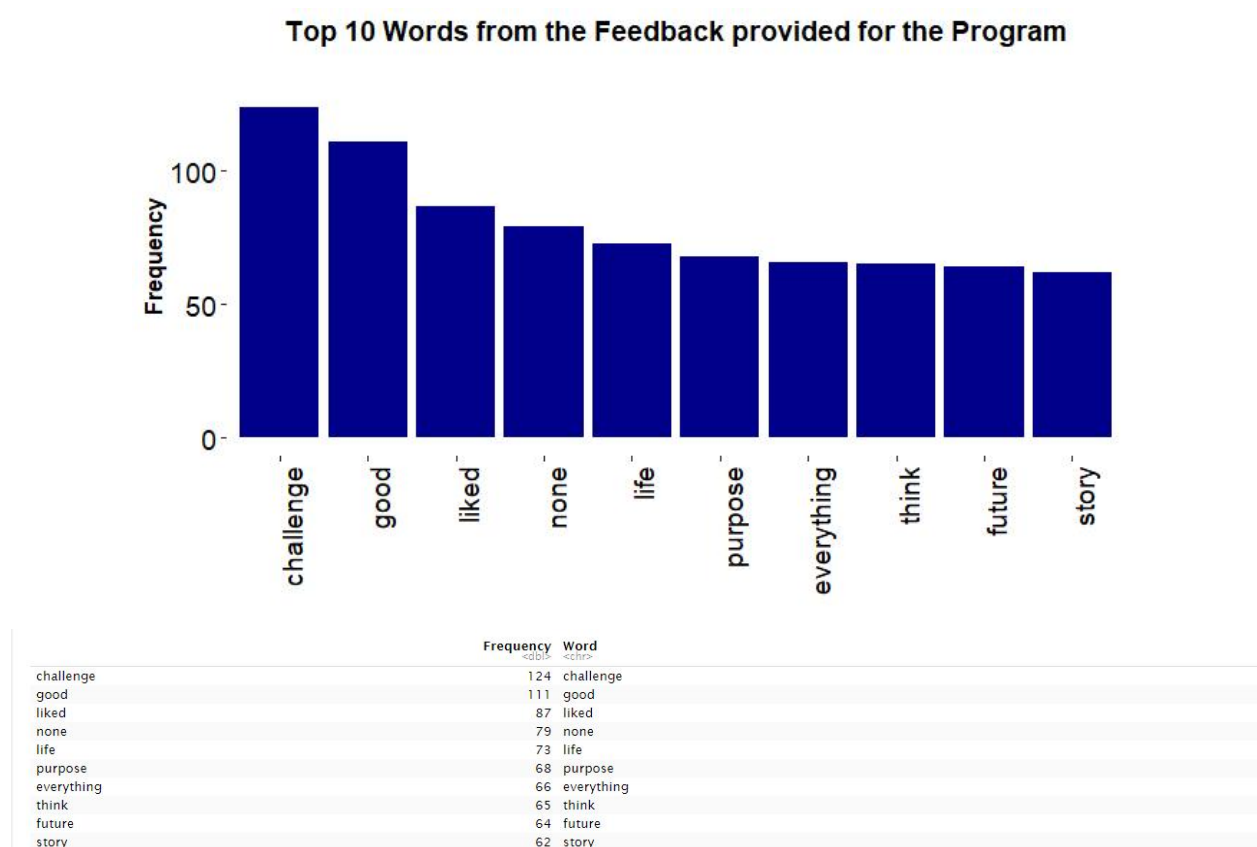


Figure 7: Would you recommend keeping the program?

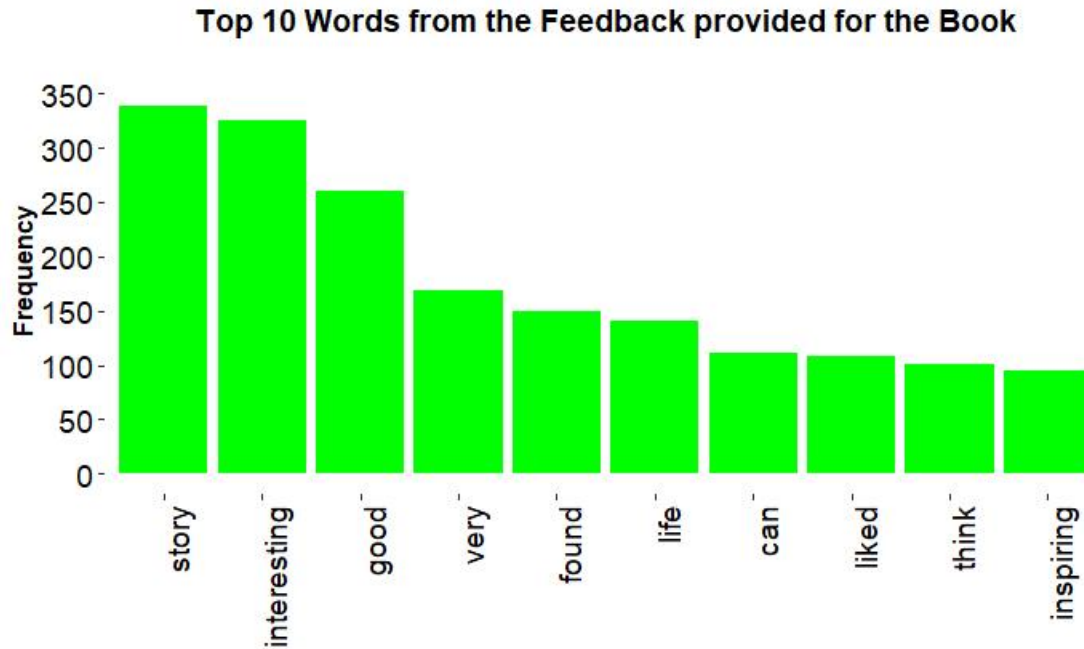
Most Frequent Words Used in the Feedbacks Provided





*Figure 8: Top 10 Words from the Feedback provided for the Program.*

The word cloud created from program feedback reflects the key themes and impressions shared by participants." The term 'challenge' sticks up significantly, showing that participants value the program's capacity to push them outside of their comfort zones and promote progress. The terms 'good' and 'loved' to imply general favorable feelings, emphasizing the program's efficacy and likability. The words 'life' and 'purpose' illustrate the program's influence on personal growth and meaning finding. Other significant terms like 'everything,' 'thought,' 'future,' and 'story' suggest participants' participation and contemplation about their path and objectives. This word cloud, taken together, gives an informative overview of the participants' input, emphasizing the program's emphasis on personal growth, purpose-driven learning, and transforming experiences.



	Frequency	Word
story	339	story
interesting	325	interesting
good	260	good
very	169	very
found	149	found
life	141	life
can	111	can
liked	109	liked
think	101	think
inspiring	95	inspiring

*Figure 9: Top 10 Words from the Feedback provided for the Book.*

The word cloud generated from reader feedback captures the essence of readers' opinions and impressions. The word 'story' dominates the cloud, emphasizing the book's fascinating storyline that drew readers in. Another prevalent term is 'interesting,' emphasizing the book's capacity to pique readers' curiosity and retain their attention. The words 'good' and 'very' imply favorable feelings, suggesting readers' general contentment with the book. Words like 'discovered,' 'live,' 'can,' and 'loved' to illustrate the book's influence on readers by providing related information that relates to their experiences and views. The word 'Think' refers to the book's thought-provoking quality, which encourages readers to ponder and contemplate. Finally, the word 'inspiring' describes the book's power to stimulate and elevate readers, leaving an indelible impact.

This word cloud captures the primary themes conveyed in the response, highlighting the book's storytelling ability, compelling nature, and ability to inspire readers' brains and hearts."

## Statistical Testing

To further validate the conclusions drawn from the exploratory data analysis, statistical testing was employed to examine the differences between pre-survey and post-survey values. Additionally, the impact of clarity, goals, and resources on the recommendation of the book and the challenge was assessed. The use of statistical tests such as the Wilcoxon signed rank test and Kruskal-Wallis rank sum test was justified due to the nature of the data Consulting, D. (2019), which consisted of ordinal variables.

The Wilcoxon signed rank test was utilized to evaluate whether there was a significant difference between the pre-survey and post-survey responses. This non-parametric test is appropriate for paired samples, making it suitable for analyzing ordinal data. In this case, the test is being applied to compare the values before and after certain factors namely life purpose, motivation, and personal resources.

Before vs After	Wilcoxon signed rank test
Life Purpose	p-value < 2.2e-16
Personal Resources	
Motivation	

Figure 10: Wilcoxon signed rank test

The statistical test, compares the responses before and after the program. The test calculates a value called the test statistic (V), which is the sum of ranks assigned to the differences between the pairs of observations. The p-value associated with the test statistic indicates the likelihood of observing a test statistic as extreme as the one obtained, assuming there is no difference between the measurements before and after the program (Null hypothesis).

In our analysis, we found that the p-value for each observation was less than **2.2e-16**, which is a very small value. This suggests strong evidence against the null hypothesis and indicates a significant difference between the before and after survey responses. In simpler terms, the results of the statistical test provide strong evidence to support the conclusion that the program had a significantly positive impact on the students.

This statistical analysis confirms that there is a meaningful difference between the students' responses before and after the program, supporting the idea that the program had a positive effect on their life purpose, motivation, and personal resources.

Furthermore, the Kruskal-Wallis rank sum test was employed to examine the relationship between clarity, goals, resources, and the recommendation of the book and challenge. As an extension of the Wilcoxon test, this non-parametric test allowed for the analysis of multiple groups simultaneously. It provided insights into whether the variations in clarity, goals, and resources had an impact on the likelihood of recommending the book and challenge.

Combined (Clarity , Resources, Goals )	Kruskal-Wallis rank sum test	
	Book Recommendation	Survey Recommendation
	p-value < 2.2e-16	

*Figure 11: Kruskal-Wallis rank sum test*

We conducted the test to investigate the relationship between the combined variables (Clarity, Resources, and Goals) and two outcome variables: Book Recommendation and Survey Recommendation. The test calculates a p-value, which indicates the likelihood of observing a test statistic as extreme as the one we obtained, assuming there is no connection between the combined variables and the outcome variables (null hypothesis).

The resulting p-value was less than **2.2e-16**, a very small value. This provides strong evidence against the null hypothesis and indicates a significant relationship between the combined variables (Clarity, Resources, and Goals) and both Book Recommendation and Survey Recommendation. The statistical analysis strongly supports the conclusion that the participants' overall responses in terms of Clarity, Resources, and Goals are closely related to their likelihood of recommending the book and the survey.

Based on these findings, we can confidently state that there is a strong association between the combined variables (Clarity, Resources, and Goals) and the recommendations for the book and the survey. This implies that the participants' perceptions of their clarity, resources, and goals significantly influence their inclination to recommend the book and the survey.

Overall, the statistical analysis provides robust evidence to support the notion that the program has a positive impact on the students' life goals, purpose, and resources, as reflected in their recommendations for the book and the survey.

## Sentiment Analysis

Sentiment Analysis is a computational technique used to analyze and interpret the sentiment or opinion expressed in a piece of text, such as customer reviews, news articles, or in our case survey feedback. It involves the use of natural language processing and machine learning algorithms to determine whether the sentiment expressed in the text is positive, negative, or neutral. Sentiment Analysis is different than Emotion Analysis, the latter being more focused on identifying specific or nuanced emotions expressed by the students towards the book and the challenge (Bharti et al., 2022) [5]. In our case, sentiment analysis would be more practical and insightful for gaining a broad understanding of the overall sentiment towards the book and challenge as compared to emotion analysis as emotion analysis requires a lot more nuanced understanding of the language and context to accurately identify and classify the specific emotions expressed especially when we are using pretrained models for our analysis.



*Figure 12: Sentiment analysis sample*

For the purpose of conducting sentiment analysis on students' feedback on the book and the challenge5 as part of the program, we opted to use a pre-trained model for our sentiment analysis. Utilizing pre-trained models offers several distinct advantages.

The Pre-trained model, the one we used, CardiffNLP/twitter-roberta-base-sentiment (Barbieri et al., 2020) [6][7], have been trained on vast amounts of data and have already learned a significant number of features. The model is fine-tuned on a large dataset that includes 58 million tweets, making it particularly effective at understanding the linguistic nuances and informal language. This property made it an ideal choice for our project, where the textual data is drawn from student reviews which can have a similar informal and varied structure.

The CardiffNLP Twitter RoBERTa model is based on RoBERTa (A Robustly Optimized BERT Pretraining Approach), which itself is a version of BERT (Bidirectional Encoder Representations from Transformers). RoBERTa modifies BERT by training the model longer, with bigger batches, and on more data. It also removes BERT's next sentence prediction objective and trains with much longer sequences of text. These adjustments have allowed RoBERTa to outperform BERT on multiple benchmarks and made it an ideal choice for our sentiment analysis needs (Liu et al., 2019) [8].

### Methodology

In the process of sentiment analysis, we first utilized the pretrained model 'cardiffnlp/twitter-roberta-base-sentiment' available through the HuggingFace's transformers library. Our approach began with loading the cleaned data file that was prepared during the EDA and statistical testing, using the pandas library. We added new columns 'feedback\_book\_sentiment', 'feedback\_book\_sentiment\_confidence', 'feedback\_challenge5\_sentiment', and 'feedback\_challenge5\_sentiment\_confidence' to this imported data and initialized it with null values.

We then ran a loop over each row of the original data to apply sentiment analysis. Each feedback item (both for the book and Challenge 5) was passed through the RoBERT a sentiment analysis pipeline, producing a sentiment label ('Negative', 'Neutral', or 'Positive') and a corresponding confidence score for that label.

In this process, we ensured to handle feedback entries that were empty or contained non-informative entries such as "-", "0", "nan", "none", "no", etc. Such entries were given a '-' label for sentiment and confidence to signify their exclusion from the sentiment analysis. Upon completion of sentiment analysis for all entries, the new data was saved for further analysis.

We then created word clouds from the feedback items for both the book and Challenge 5, segmented by the sentiment (positive, negative, or neutral). We ensured to exclude common English stopwords to highlight only the most informative words. Special attention was given to update the stopwords list with context-specific words that might be overly common but not particularly informative for our case (e.g., 'found', 'story', and 'challenge') which refer to the book or challenge itself.

## Results

The sentiment analysis of students' feedback reveals interesting insights. The book "The Apple in the Orchard" was largely well-received, with an overwhelming 1741 positive responses, in contrast to 65 negative and 193 neutral sentiments (Fig. 13). The students found the story "interesting", "inspiring", "motivating" and a "good story", as indicated by the word cloud (Fig. 14). However, negative feedback highlighted some students found the story "confusing" or "boring", and had difficulty understanding the message (Fig. 15).

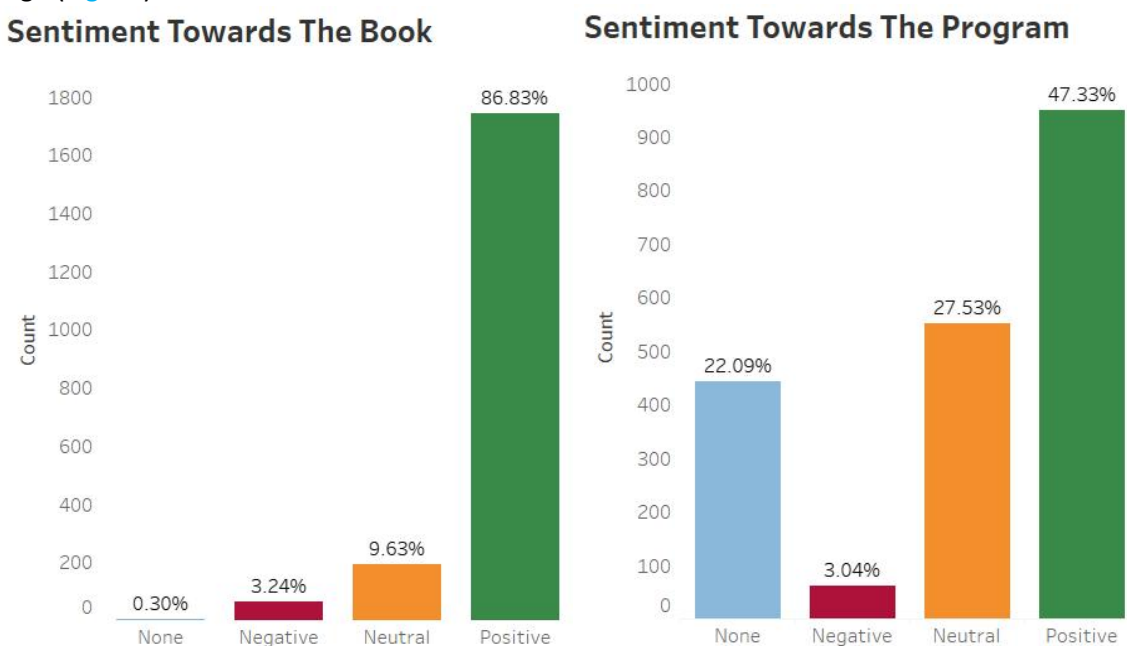
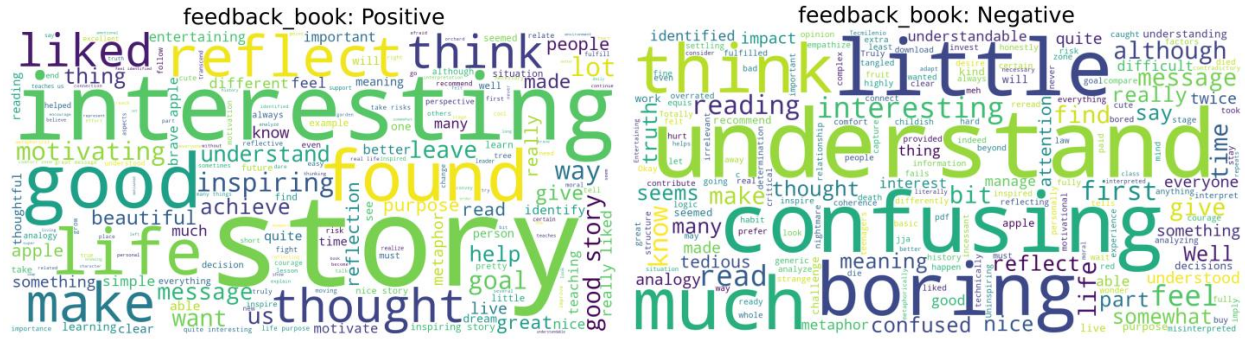


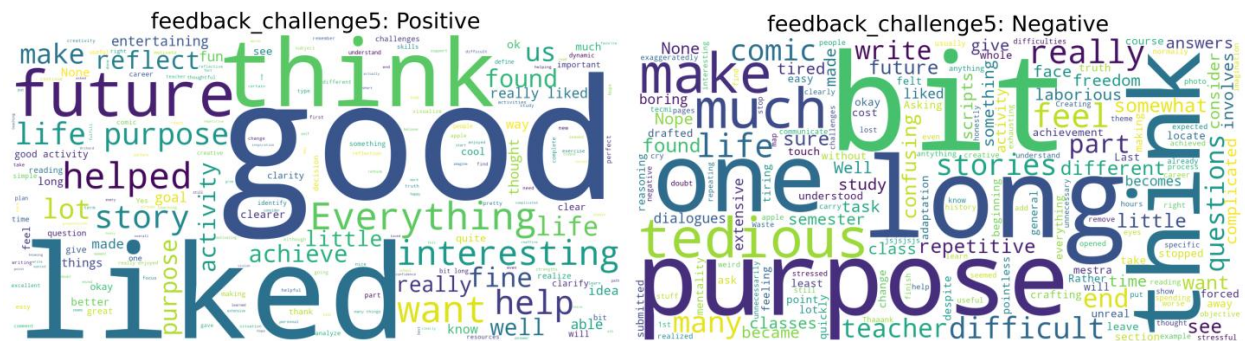
Figure 13: Sentiments for the Book and Challenge5 (Program)





The feedback for Challenge 5 is somewhat mixed, with 949 positive, 552 neutral, and 61 negative responses (Fig. 13). Positive feedback suggested that students found the challenge "good", "interesting" and helpful in thinking about their "future". Yet, the negative feedback highlighted issues like the challenge being "bit long" and "tedious", and the story within the challenge being confusing (Fig. 15).

The neutral sentiment for Challenge 5 also appeared to be associated with the length of the challenge and the story aspect, as indicated in the word cloud. The prevalence of words such as "long", "story", and "challenge" across the neutral and negative word clouds suggests that some students found the length and structure of the challenge to be areas of improvement (Fig. 16).



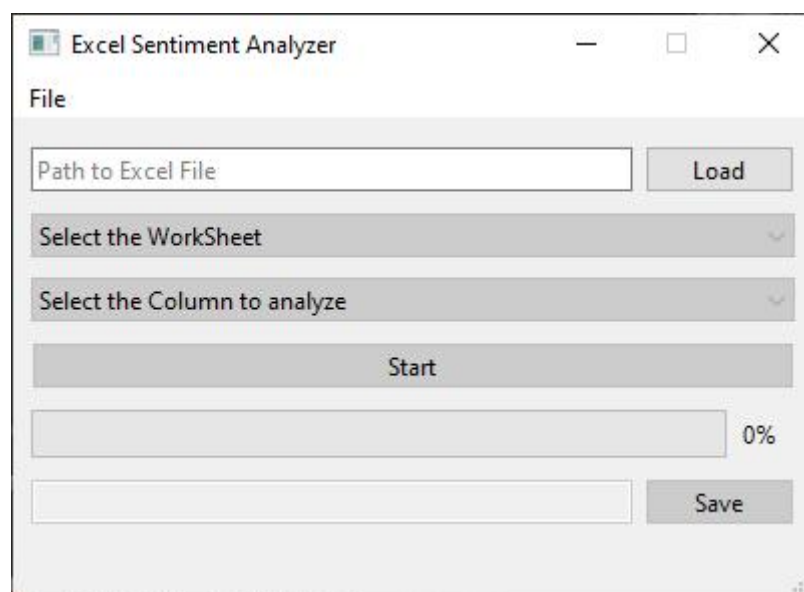
Taken together, these results can guide future refinements of the program. For instance, making the story less complex and reducing the length of the challenge could address some of the issues raised in the negative and neutral feedback.

The final results of the sentiment analysis, along with the word clouds, serve as a powerful tool for interpreting and visualizing the students' responses to the book and Challenge 5. We transformed the raw, subjective feedback into structured, quantitative data that can be effectively analyzed. Also, the confidence score associated with each sentiment provides an indicator of the strength of the sentiment expressed. Visualizations like word clouds then allow us to identify recurring themes or keywords within each sentiment category, providing deeper insight what specific aspect students appreciated or found challenging.

## Sentiment Analyzer Tool

As an extension part of our project, we developed a user-friendly graphical interface using PyQt6 for performing sentiment analysis on Excel data, enabling stakeholders to independently process new datasets in the future. The GUI tool, titled "Excel Sentiment Analyzer", is straightforward and intuitive, making it easy for non-technical users to carry out sentiment analysis on the feedback data from Excel spreadsheets.

As shown in [Fig. 17](#), the tool features a series of input fields and buttons. Users can load the desired Excel file, choose the specific worksheet, and then select the column to be analyzed for sentiment. A 'Start' button initiates the sentiment analysis process, with progress displayed through a progress bar. Upon completion, users can save the sentiment analysis results to a specified file and location.



*Figure 17: A screenshot of the "Excel Sentiment Analyzer" tool*

The tool also incorporates a menu bar with 'File' and 'Exit' options for additional usability. [Fig. 18](#) shows the sentiment analysis tool in action. After a file has been loaded, the relevant worksheet and column selected, and the 'Start' button pressed, the tool quickly processes the data and updates the progress bar accordingly.



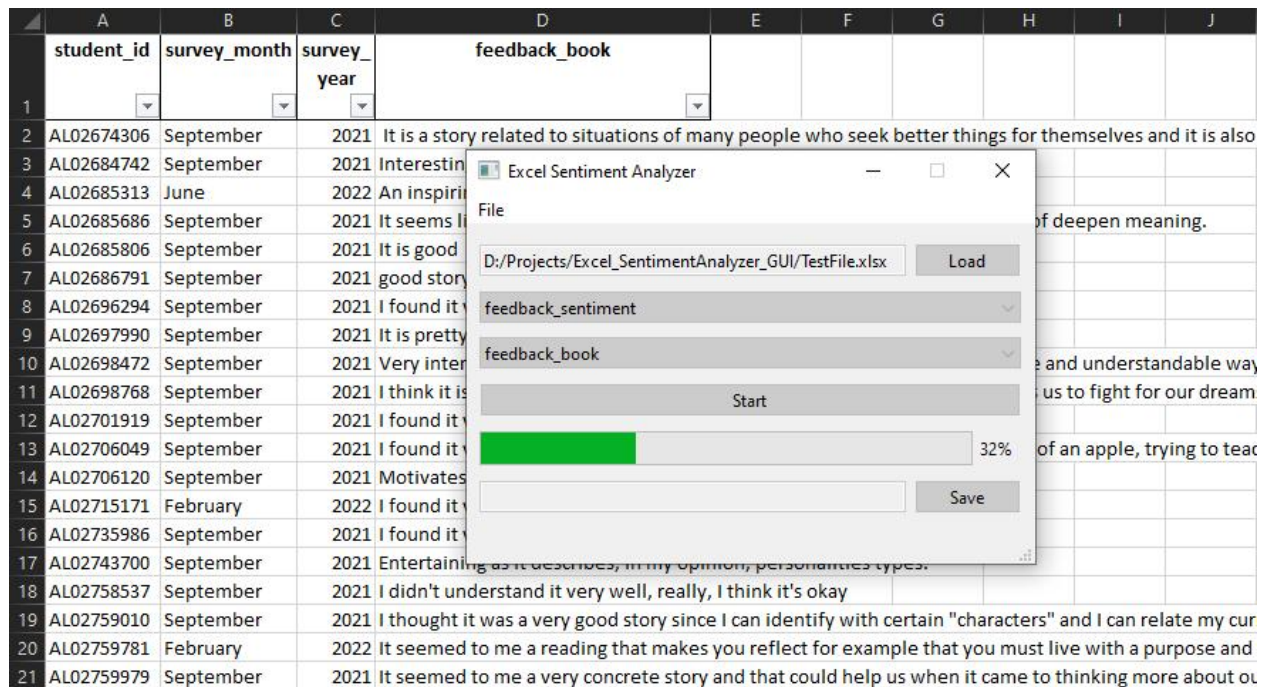


Figure 18: The "Excel Sentiment Analyzer" tool performing sentiment analysis on an Excel file.

Finally, the tool allows users to save the analyzed data as shown in Fig. 19. Users can specify the file location in the save file path field and click the 'Save' button to store the sentiment analysis results, which can then be viewed, shared, or further analyzed as needed.

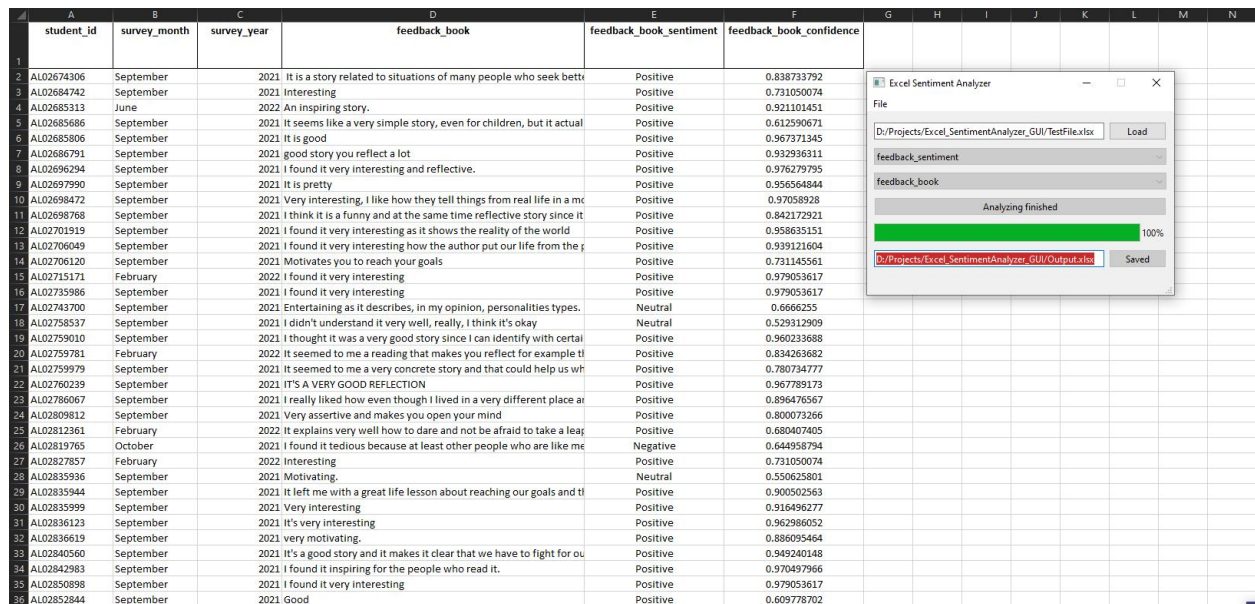


Figure 19: Saving the sentiment analysis results.

feedback_book	feedback_book_sentiment	feedback_book_confidence
It is a story related to situations of many people who seek better things for themselves and it is also a very easy story to understand. A true story that can be related to many situations in real life where you try to improve or change something for the better or that is beneficial for you	Positive	0.838733792
Interesting	Positive	0.731050074
An inspiring story.	Positive	0.921101451
It seems like a very simple story, even for children, but it actually has a lot of deepen meaning.	Positive	0.612590671
I found it tedious because at least other people who are like me are going to think that it is incessant to understand the message.	Negative	0.644958794
Interesting	Positive	0.731050074
Motivating.	Neutral	0.550625801
a very nice story that talks about support	Positive	0.968812704
I haven't read it	Neutral	0.547936022

*Figure 20: A sample of the output file showing the feedback's label and confidence score.*

This sentiment analysis tool adds to our project by automating the sentiment analysis process and allowing stakeholders to independently and easily conduct sentiment analysis on new datasets. It is designed to be simple, efficient, and user-friendly, facilitating ongoing evaluation of student feedback.

## Business Impact

The "Excel Sentiment Analyzer" tool developed by our project team has several benefits for businesses and stakeholders who want to analyze feedback data from Excel spreadsheets. Here are some reasons why this tool would be useful:

1. Automates sentiment analysis: The tool automates the sentiment analysis process, making it faster and more efficient than manual analysis. This saves time and resources for businesses and stakeholders who need to analyze large amounts of feedback data.
2. User-friendly interface: The GUI tool is straightforward and intuitive, making it easy for non-technical users to carry out sentiment analysis on feedback data from Excel spreadsheets. This means that stakeholders can independently process new datasets in the future without requiring technical expertise.
3. Customizable analysis: The tool allows users to choose the specific worksheet and column to be analyzed for sentiment. This means that businesses and stakeholders can customize the analysis to suit their needs.
4. Progress tracking: The tool features a progress bar that displays the progress of the sentiment analysis process. This allows users to track the progress of the analysis and estimate the time required for completion.
5. Menu bar options: The tool incorporates a menu bar with 'File' and 'Exit' options for additional usability. This makes it easier for users to navigate the tool and perform the necessary tasks.
6. Easy data export: The tool allows users to save the sentiment analysis results to a specified file and location. This means that businesses and stakeholders can easily export the analyzed data for further analysis or sharing.

The "Excel Sentiment Analyzer" tool is a valuable addition to our project as it facilitates ongoing evaluation of student feedback. It is simple, efficient, and user-friendly, making it accessible to a wide range of users. By automating the sentiment analysis process, businesses and stakeholders can save time and resources while gaining valuable insights into customer sentiment

Please find the link for our project: [Excel Sentiment Analyzer](#)

## Recommendations

- **Modify the survey questionnaire:** Consider adding a question that allows respondents to provide feedback if they select "Yes" as their response. This will provide valuable qualitative insights and enhance the analysis by capturing specific feedback from individuals who indicate a positive experience or outcome.
- **Emphasizing feedback collection:** Encouraging respondents to provide meaningful feedback by including a specific prompt such as "Kindly provide your feedback" alongside the "Yes" option. This will help ensure that respondents who select "Yes" are motivated to share their thoughts and opinions, leading to more comprehensive survey responses.
- **Validating the feedback column:** Implementing a validation mechanism to ensure that the Feedback column contains valid responses and is not left empty or filled with placeholder values such as "NONE." By enforcing data integrity in the Feedback column, it can improve the reliability and quality of the survey analysis. Considering setting up constraints or validation rules during data collection or preprocessing to prevent the inclusion of incomplete or irrelevant responses.
- **Utilizing BERT for analysis:** Training a BERT (Bidirectional Encoder Representations from Transformers) model from scratch on the survey data. BERT is a powerful language model that excels in natural language understanding tasks, including sentiment analysis. By training a BERT model on specific survey data, it can leverage its contextual understanding and fine-tuned performance to gain deeper insights from the textual responses provided by respondents.
- **Apply sentiment analysis:** Utilizing the trained BERT model to perform sentiment analysis on the feedback provided by respondents. Sentiment analysis will help quantify and categorize the sentiment expressed in the feedback, allowing for more objective analysis and comparison between pre and post surveys. This can provide valuable insights into the overall sentiment trends and help identify areas of improvement or success.
- **To consider additional analysis techniques:** In addition to sentiment analysis, explore other analysis techniques such as topic modeling, text clustering, or keyword extraction. These techniques can help uncover hidden patterns, themes, or prevalent topics within the feedback data. By applying multiple analysis methods, it can gain a comprehensive understanding of the respondents' feedback and extract actionable insights.

## Conclusion

The analysis of the survey data provides valuable insights into the effectiveness of the Challenge 5 program and its impact on high school students. The findings indicate that the program has a significant positive influence on students' clarity of life purpose, identification of personal resources, and motivation to pursue their goals.

Before participating in the program, a relatively small percentage of students believed they had a clear understanding of their life's purpose. However, after the program, the number of students with clarity on their life purpose significantly increased, highlighting the program's ability to help students gain a deeper sense of direction and meaning.

Similarly, the program had a positive impact on students' identification of personal resources. More students expressed agreement or partial agreement with the idea that they have personal resources that provide them with confidence to pursue their goals after participating in the program. This suggests that the program helps students recognize and harness their unique abilities and strengths.

Furthermore, the program fostered motivation among students to reach their goals. The number of students expressing agreement or partial agreement with feeling motivated to reach their goals increased significantly after participating in the program. This indicates that the program effectively inspires and empowers students to act and strive for their aspirations. The statistical testing further validated these conclusions by demonstrating significant differences between pre-survey and post-survey responses, confirming the positive impact of the program on students' life purpose, motivation, and personal resources.

The feedback provided by students and captured through sentiment analysis supports the effectiveness of the program as well. Students expressed high levels of satisfaction with the program and recommended both the book, "The Apple in the Orchard," and the Challenge 5 program to others. The word cloud analysis of the feedback highlighted key themes such as personal growth, purpose-driven learning, and transformative experiences, further reinforcing the positive impact of the program.

Based on the findings, it is evident that the Challenge 5 program designed by Client and Company is making a meaningful difference in the lives of high school students. The program helps students unlock their potential, gain clarity on their life purpose, identify personal resources, and develop the motivation to pursue their goals.

To further enhance the program's impact, it is recommended to continue incorporating the book, "The Apple in the Orchard," as it received favorable reviews from students. The program's emphasis on challenging students outside their comfort zones should be maintained, as it contributes to their personal growth and development. Additionally, ongoing evaluation and feedback collection can help identify areas for improvement and ensure the program continues to meet the evolving needs of students.

By investing in the growth and development of high school students, Client and Company are nurturing the leaders of tomorrow and shaping the future of society. The Challenge 5 program serves as a powerful tool to empower students, enabling them to embrace their unique abilities, pursue their passions, and leave a legacy.