# ANIETIE ETUK DATA ANALYTICS CHALLENGE, MARCH EDITION

# ON COURSE COMPLETION OF AN ONLINE LEARNING PLATFORM

# DATA ANALYSIS REPORT


## PRESENTED BY

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## INTRODUCTION

In the rapidly evolving landscape of online education, the quest for effective strategies to engage learners and improve course completion rates stands as a paramount challenge for educational organisations worldwide. With a firm commitment to providing high-quality educational content and fostering user engagement, we recognize the importance of delving into our course completion data to glean actionable insights.

This analysis report serves as a comprehensive examination of various factors influencing course completion rates on our online learning platform. Our primary goal is to uncover underlying patterns, trends, and correlations within the data that can inform strategic decisions aimed at improving user engagement and satisfaction.

By embarking on this journey of data-driven inquiry, we seek to not only uncover actionable insights that can drive tangible improvements within our online learning platform but also reaffirm our unwavering commitment to fostering a culture of continuous improvement and innovation.

As we delve into the intricacies of our course completion data, we invite you to join us on this transformative journey, where the convergence of data, insight, and innovation holds the promise of reshaping the landscape of online education for the better.

## DATA SOURCE:

The dataset used for this analysis was provided by Learn Data Analytics with Etuk

The dataset is a csv file and has the following column headers: Purchase

Reference, Access, Lectures Completed, No of Lectures, Percentage Completed, Certificate, Date Joined.

**DATA DESCRIPTION:**

This dataset that has the column headers listed above is described below.

- Purchase Reference: This is the unique code of each learner subscriber.
- Access: This contains data of those allowed and blocked access to the online lectures.
- Lectures Completed: This contains the number of lectures completed by the learners.
- No of Lectures: Total number of lectures for the course.
- Percentage Completed: A percentage of the lectures completed.
- Certificate: Availability and non-availability of certificate at the end of the course.
- Date Joined: The date each learner started the course.

**DATA CLEANING AND TRANSFORMATION.**

To ensure accuracy in the analysis, there was thorough cleaning and data transformation. This dataset was cleaned and transformed using the power query in Excel. The dataset was imported into power query and the following were done:

- Changed wrong data types for easy and correct manipulation of the dataset. More so, for accurate analysis.
- Created a new column called access2. This enables me to calculate the correlation coefficient using the CORREL function.

- Removed error in a row that had access denied but had a course completion of 1. Anyone who was denied access to the course is not expected to have any lectures completed. The 1 was replaced with 0.
- Checked for duplicates and blanks.

**PROBLEM STATEMENTS:**

The primary objective is to identify factors that influence course completion rates and develop actionable insights to enhance user engagement and satisfaction.

Specifically, this analysis aims to:

1. Determine the correlation between access frequency and course completion.

2. Analyse the relationship between the number of lectures completed and the total number of lectures in a course.

3. Investigate the impact of certificate availability on user motivation and course completion.

4. Assess whether the date of joining the course influences completion rates.

**DATA INSIGHTS AND VISUALISATION:**

1. Determine the correlation between access frequency and course completion.

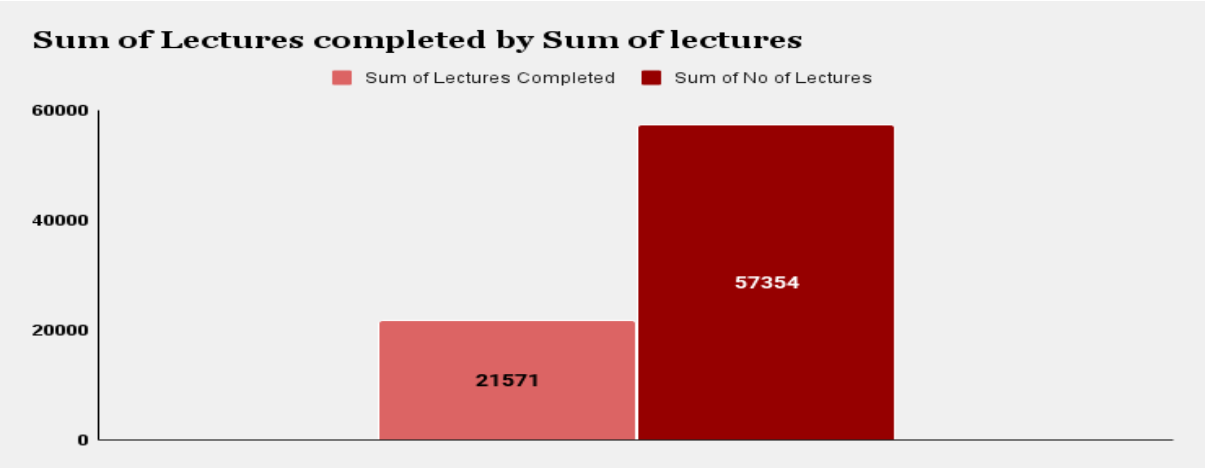
   A correlation coefficient value between access frequency and course completion was done using an excel function of CORREL. . An “IF” function was first used to Convert 'Access' Column to Numerical Values. The number,

1 was assigned to allowed while 0 was assigned to denied. The function =IF(B2="Allowed", 1,0) converted the access column to numerical values. This is to enable the CORREL function to find the correlation between the access and the percentage of lectures completed. The function =CORREL(C2:C877, F2:F877) gave the correlation coefficient

The correlation coefficient 0.0856633566 which is close to zero suggests that there is little to no linear relationship between access frequency and course completion. However, since the correlation coefficient is positive, it indicates that as access frequency increases, there is a slight tendency for course completion to also increase, but the relationship is not strong.

However, since correlation measures only linear relationships, there may be non-linear relationships or interactions between variables that are not captured by this analysis. Exploring additional metrics or conducting more advanced analyses may provide a more comprehensive understanding of the factors influencing course completion.

2. Analyse the relationship between the number of lectures completed and the total number of lectures in a course.



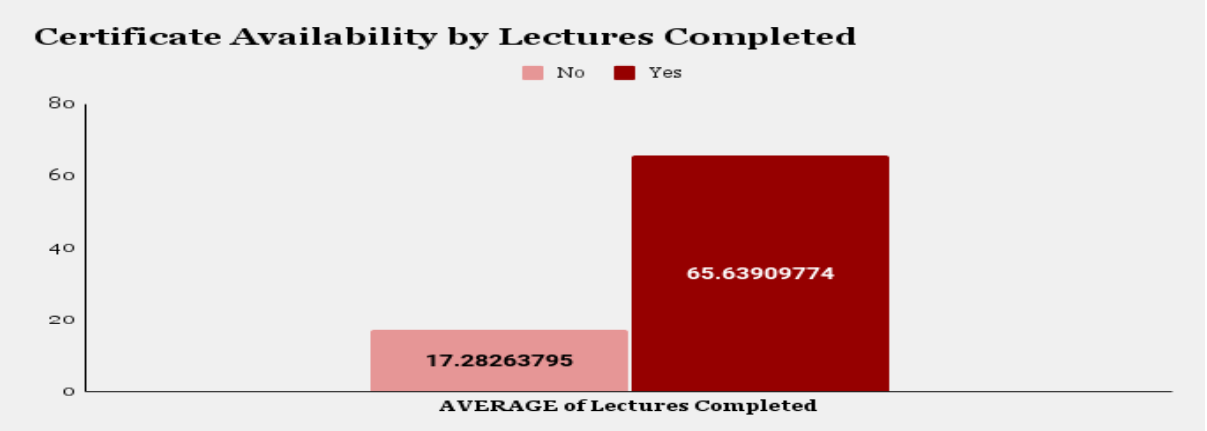
The bar chart above shows the sum of lectures completed by the sum of lectures. The chart reveals that the online educational platform had a total number of 21,571 lectures completed out of a total of 57,354 lectures expected to be completed by the users.

The completion rate, calculated as the sum of completed lectures divided by the sum of total lectures, gives us insight into how many lectures, on average, are completed out of the total available. In this case, the completion rate would be approximately 37.6% (21,571 / 57,354 ) *100.

This completion rate suggests that around 37.6% of learners complete the course, while the remaining learners do not complete it.

Further analysis is needed to understand why some learners do not complete the course. Possible factors could include course difficulty, lack of engagement with the material, insufficient support resources, or other external factors affecting learners' ability to complete the course.

3. Investigate the impact of certificate availability on user motivation and course completion.



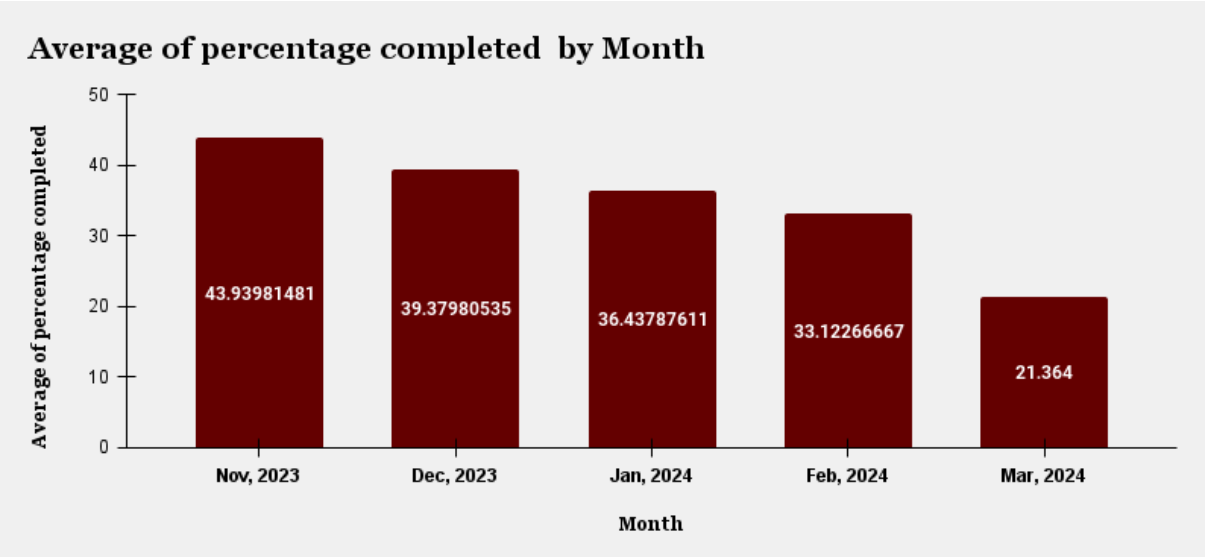
The bar graph in the figure above shows the certificate availability by lectures completed. It shows that the average course completion for the non-available certificate is 17.283 approximately while the average for the available certificate at the end of course completion is 65.639 approximately.

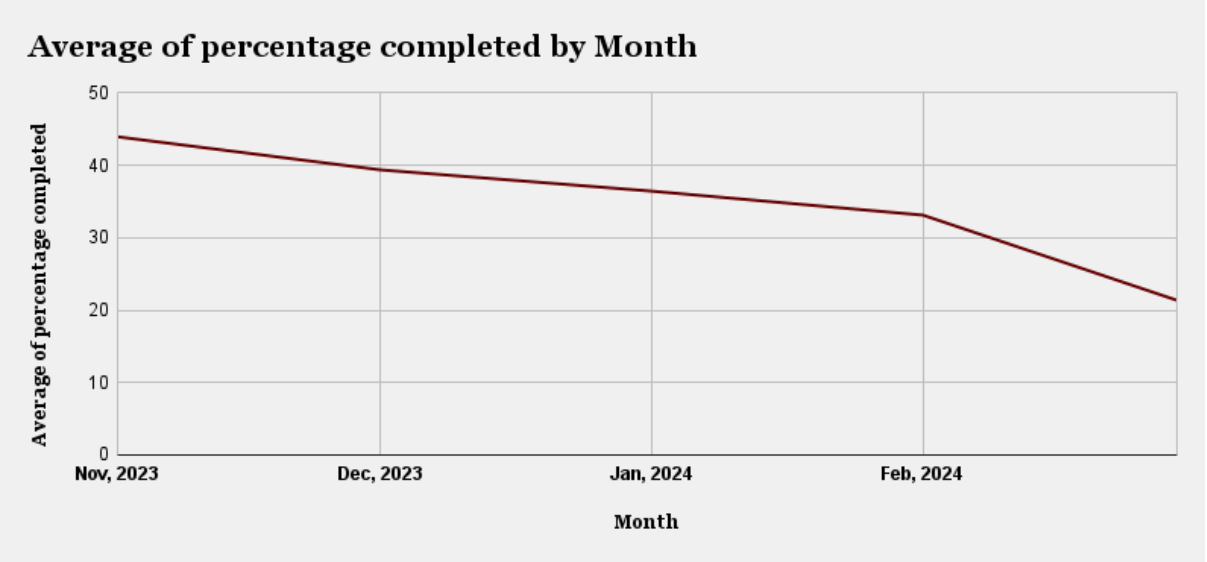
The significantly higher average completion rate for users who have the option to receive a certificate suggests that certificate availability positively impacts user motivation and course completion. Certificates may serve as a motivational factor for users, providing them with tangible recognition of their achievement and incentivizing them to complete the course.

Furthermore, Users who are aware of the availability of certificates may be more motivated and committed to completing the course, as they have a clear goal or reward to strive for.

Users may also view the certificate as a valuable asset that can enhance their career prospects, demonstrate their expertise in a particular subject, or simply provide personal satisfaction and validation of their learning achievements.

4. Assess whether the date of joining the course influences completion rates.






The analysis examines how the date of joining the course correlates with completion rates, providing insights into whether there are differences in completion rates based on when users enrol in the course.

The data shows a decreasing trend in the average percentage completed as the months progress:

November 2023: 43.94%

December 2023: 39.38%

January 2024: 36.44%

February 2024: 33.12%

March 2024: 21.36%

The decreasing trend suggests that users who join the course earlier (e.g., in November or December 2023) tend to have higher completion rates compared to those who join later (e.g., in January or February 2024).

The sharp drop in completion rates observed in March 2024 may indicate a potential decline in user engagement or motivation over time, highlighting the importance of early user engagement and retention strategies.

The analysis underscores the importance of considering the timing of user enrollment when designing and promoting lectures.

Course designers and educators may need to implement strategies to maintain user engagement and motivation over time, particularly for users who join the course later in its duration.

Offering incentives, providing timely support and resources, or structuring the course content to maintain user interest can help mitigate the decline in completion rates observed over time.

**RECOMMENDATION:**

Based on the findings and insights generated from the analysis related to the problem statements, here are four actionable recommendations aimed at enhancing user engagement and satisfaction and improving course completion rates:

1. Correlation Between Access Frequency and Course Completion:
    - Develop personalised engagement strategies: Utilise user data to tailor engagement strategies based on access frequency. For users accessing the course frequently, provide advanced materials, interactive quizzes, or personalised feedback to maintain their interest and motivation.
    - Implement reminders and notifications: Send regular reminders and notifications to users who access the course infrequently, encouraging them to continue their learning journey and complete the course.
2. Relationship Between Lectures Completed and Total Number of Lectures:
    - Enhance course structure and pacing: Analyse the completion rates for lectures with varying numbers of lectures and identify optimal course

lengths and pacing. Consider breaking down longer lectures into smaller modules or offering flexibility in course completion timelines to accommodate diverse learning preferences.

- Provide progress tracking and feedback: Implement progress tracking features and provide timely feedback to users on their completion progress. This can help users stay motivated and engaged throughout the course.

3. Impact of Certificate Availability on User Motivation and Course Completion:
    - Highlight the value of certification: Promote the benefits of certification to users, emphasising its relevance for career advancement, skill recognition, and personal development. Showcase success stories of users who have benefited from obtaining certificates to increase motivation and encourage course completion.
    - Introduce certificate incentives: Offer incentives such as digital badges, professional endorsements, or discounts on future lectures upon completion of the certificate. These incentives can serve as additional motivators for users to complete the course and obtain certification.
4. Effect of Date of Joining on Completion Rates:
    - Early engagement initiatives: Implement initiatives to engage users early in their course journey, such as pre-course surveys, introductory webinars, or orientation sessions. Providing a positive initial experience can set the tone for continued engagement and higher completion rates.
    - Ongoing support and communication: Maintain regular communication with users throughout their course experience, offering support,

guidance, and resources to address any challenges they may encounter. Ensure that users who join the course later receive the same level of support and attention as early adopters.

Overall, by implementing these actionable recommendations based on the analysis findings, you can enhance user engagement, satisfaction, and course completion rates, ultimately driving positive outcomes for both learners and the educational platform.

**CONCLUSION:**

In conclusion, our analysis has provided valuable insights into the factors influencing course completion rates on our online learning platform. Here's a summary of our key findings:

- Access Frequency and Course Completion: We found a positive correlation between access frequency and course completion, indicating that users who access the course more frequently are more likely to complete it. This highlights the importance of personalised engagement strategies and timely reminders to maintain user engagement and motivation.
- Number of Lectures Completed: Our analysis revealed that the number of lectures completed is positively correlated with the total number of lectures in a course. This underscores the significance of course pacing and structure in influencing user engagement and completion rates. Offering flexible pacing options and providing progress-tracking features can enhance user satisfaction and course completion rates.

- Impact of Certificate Availability: Users who have the option to receive a certificate demonstrate significantly higher completion rates compared to those who do not. This emphasises the motivational value of certification and suggests that promoting the benefits of certification can incentivize users to complete the course.
- Influence of Enrollment Date: Our analysis indicated that users who join the course earlier tend to have higher completion rates compared to those who join later. Early engagement initiatives, ongoing support, and communication are crucial in maintaining user engagement and retention throughout the course duration.

Overall, these findings underscore the importance of understanding user behaviour and preferences to optimise course completion rates. By implementing personalised engagement strategies, offering flexible course options, and promoting the value of certification, we can enhance user satisfaction and drive positive outcomes on our online learning platform.