Tutero : Analyzing Online Tutoring Platform Data

📊 Data Analysis Report
📅 February 2025
🛠️ Tools & Technologies : SQL, POWER BI, EXCEL
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Professional Background

I am a Information Systems graduate with a strong focus on data analysis. Skilled in SQL, excel, google sheet, Power BI, and Python. I specialize in processing, analyzing, and visualizing data to generate meaningful insights.

Currently, I am actively self-learning by practicing SQL problems, working on data projects, and studying materials from various sources, including videos and references. I am passionate about leveraging data analysis to support data-driven decision-making and business efficiency improvements.

I approach my work with a structured, detail-oriented, and data-driven mindset. I enjoy tackling challenges, identifying patterns, and uncovering trends to provide valuable insights.
Open to discussions on data analytics and business intelligence. 🚀

Project Overview

This project analyzes Tutero's session data to understand trends, tutor performance, and key factors influencing student satisfaction. By examining session ratings, session types, subject performance, and tutor effectiveness, we aim to uncover meaningful insights that can enhance the learning experience on the platform.

This analysis will help Tutero to:

- Optimize tutor allocation by identifying high-performing tutors and subjects.
- Improve session structure based on rating patterns, session duration, and engagement trends.
- Enhance user experience by identifying factors that contribute to higher ratings and student satisfaction.
- Support business decisions through data-driven insights on session trends and tutor effectiveness.

Key Questions & Objectives

1️⃣ Understanding Session Trends
📌 Key Questions:

- How do session counts change over time? Are there seasonal trends?
- What is the breakdown of session types (one-on-one vs. group)?
- What is the distribution of session durations? Are some sessions significantly longer or shorter than others?

🎯 Objective: Identify usage patterns and potential seasonality in session engagement to optimize scheduling and resource allocation.

2️⃣ Tutor Performance & Subject Analysis
📌 Key Questions:

- Which tutors have the highest and lowest average ratings? What is the distribution of tutors based on their performance?
- Are some tutors more involved in group sessions compared to one-on-one sessions?
- Which subjects receive the highest and lowest ratings?
- Do certain subjects require longer session durations?

🎯 Objective: Evaluate tutor effectiveness and subject engagement to improve teaching strategies and content offerings.

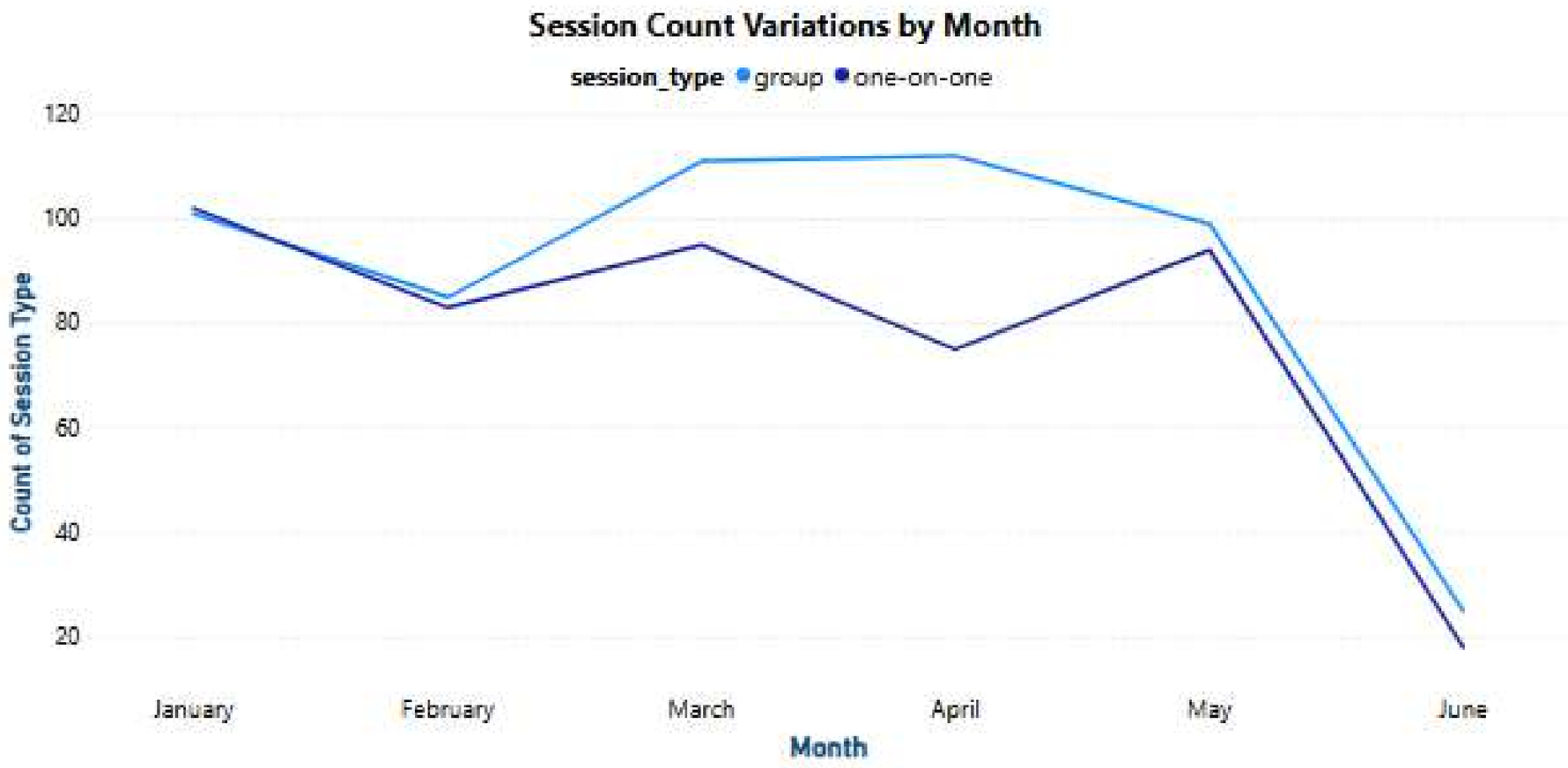
3️⃣ Factors Influencing Student Satisfaction
📌 Key Questions:

- Do one-on-one sessions receive higher ratings than group sessions?
- Does session duration impact student ratings?
- Is there a correlation between session type, subject, and rating?

🎯 Objective: Uncover key factors affecting student satisfaction to enhance learning outcomes and overall platform experience.

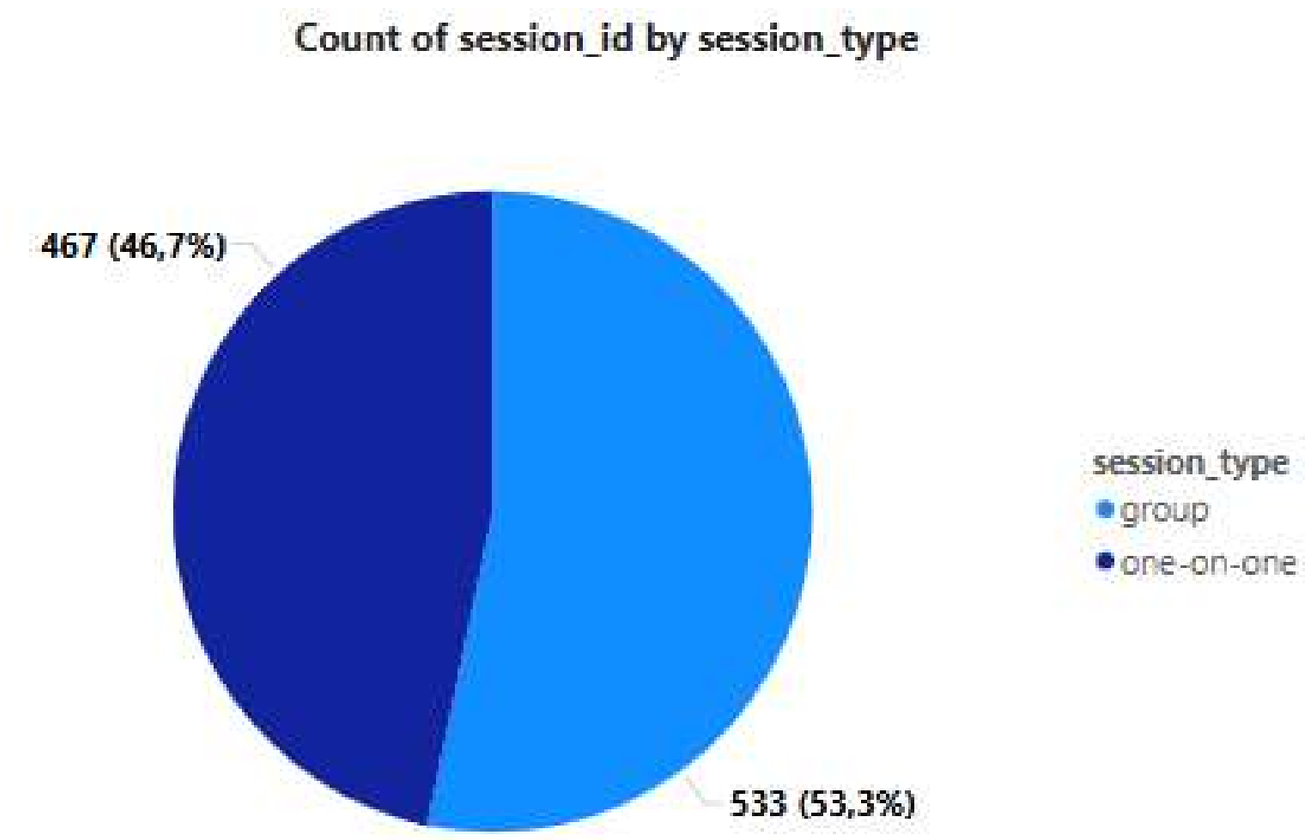
Findings > Understanding Session Trends

📌How do session counts change over time? Are there seasonal trends?



- Both group and one-on-one sessions peaked in March-April before dropping sharply in June, suggesting a possible seasonal trend in session engagement. However, one-on-one sessions declined gradually from January, while group sessions remained more stable before eventually decreasing.
- Overall, group sessions were more frequent than one-on-one sessions, except in January when the numbers were nearly equal, indicating a growing preference for group sessions over time.

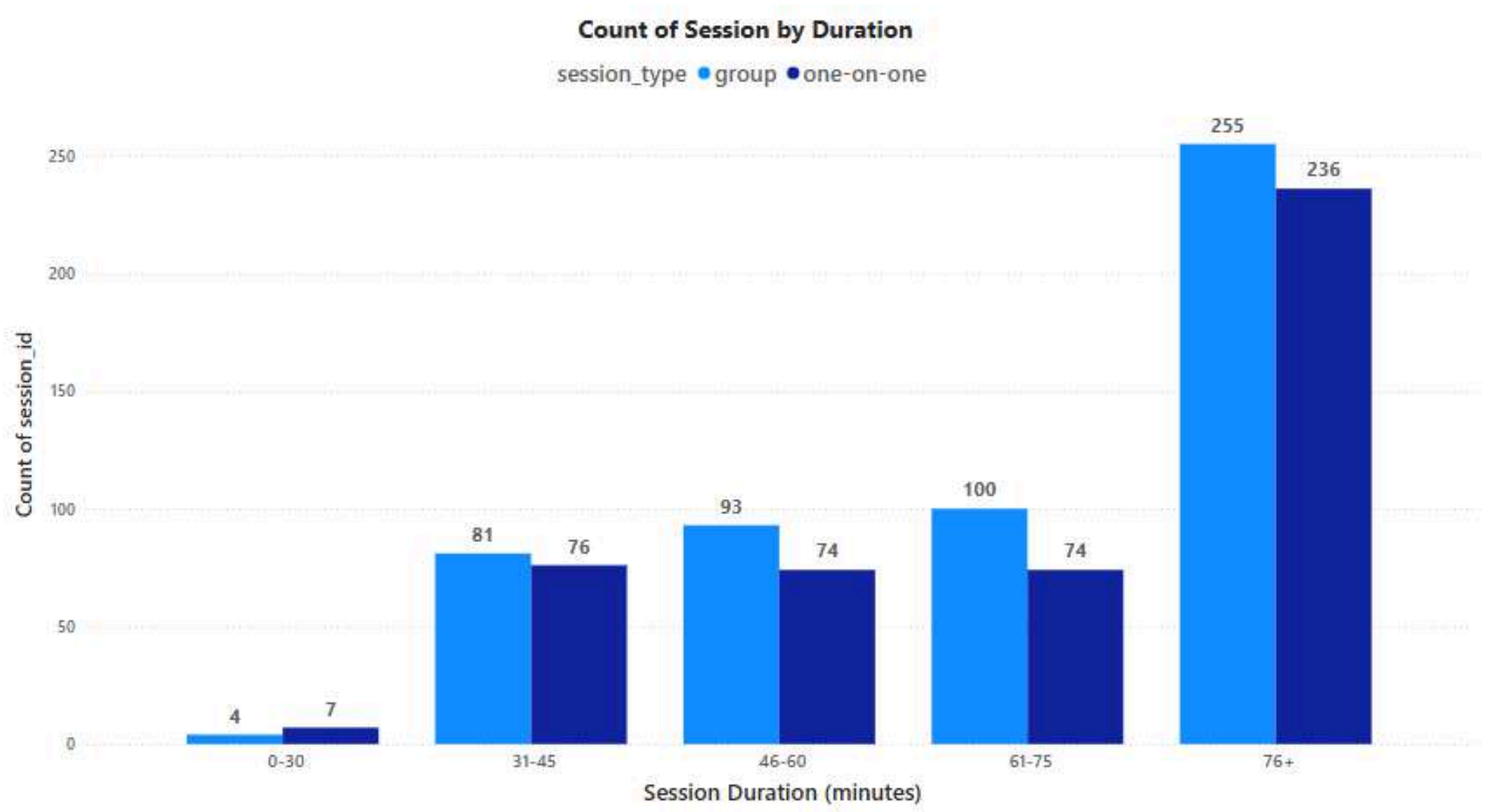
📌What is the breakdown of session types (one-on-one vs. group)?



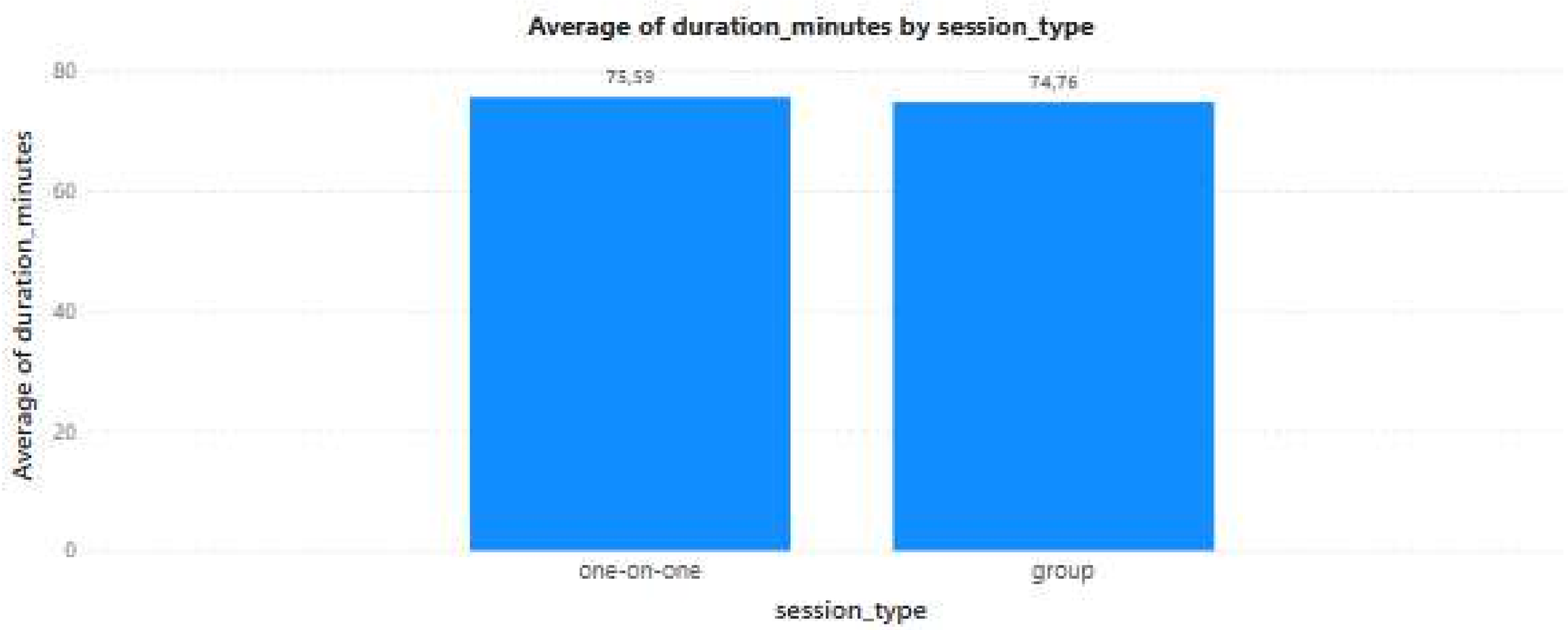
- Group sessions were slightly more frequent than one-on-one sessions (533 vs. 467), indicating a preference for group learning on the platform.
- The difference between the two session types is not very large, suggesting that both group and one-on-one sessions are in high demand and cater to different learning needs.

Findings > Understanding Session Trends

📌 What is the distribution of session durations? Are some sessions significantly longer or shorter than others?



- Most sessions, both group and one-on-one, lasted more than 76 minutes, showing a preference for extended learning durations.
- Group sessions had a slightly higher number of longer sessions (76+ min) compared to one-on-one (255 vs. 236), indicating that group learning tends to last longer.
- Short sessions (0-30 min) were very rare, with only 4 group sessions and 7 one-on-one sessions, suggesting that brief learning sessions are not commonly preferred.

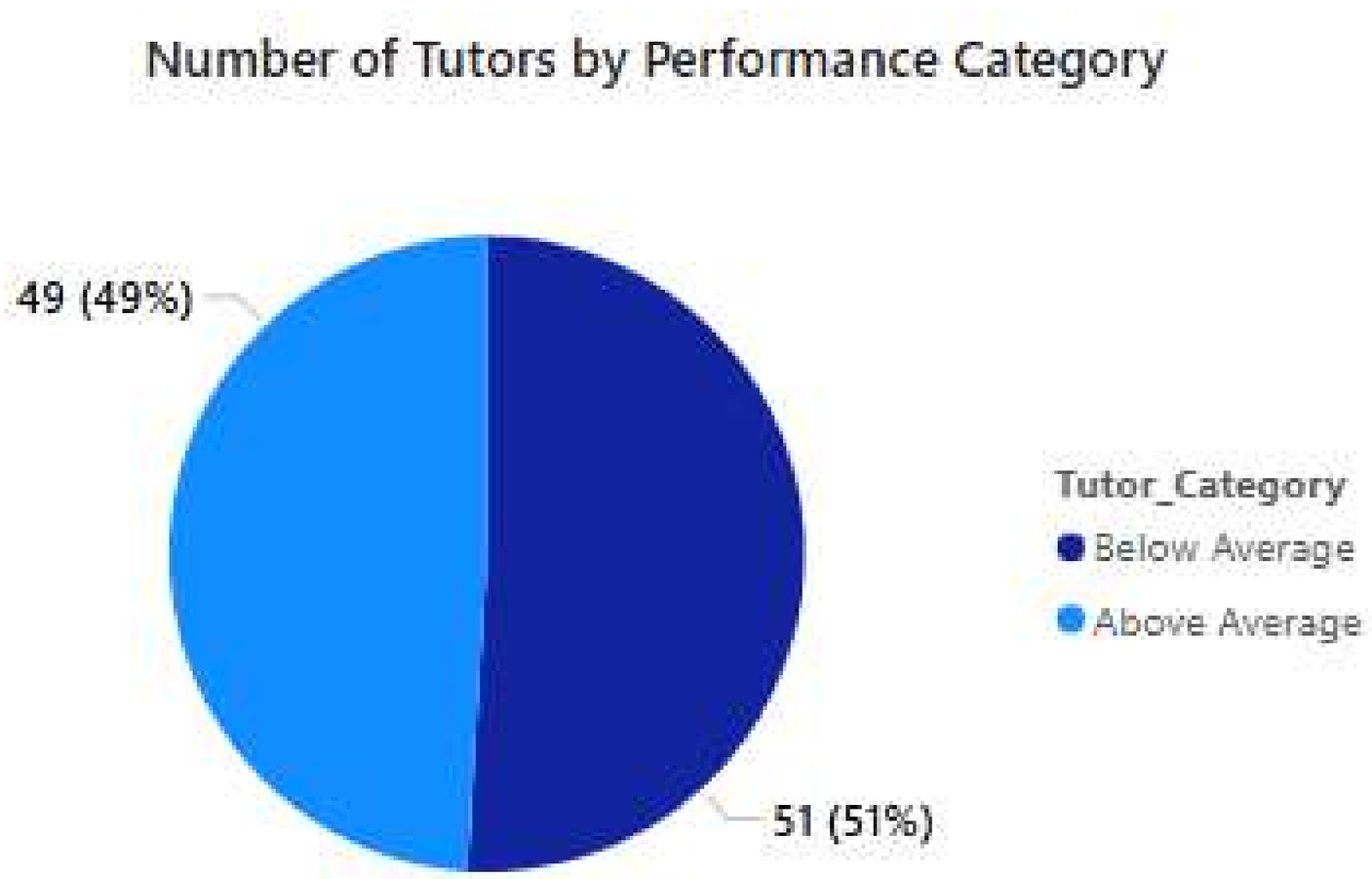


- The average session duration for both group and one-on-one is almost the same, indicating that session type does not significantly impact session length.
- Despite the similarity in duration, other factors like engagement, effectiveness, or student preference might differ between group and one-on-one sessions.

📌Which tutors have the highest and lowest average ratings? What is the distribution of tutors based on their performance?

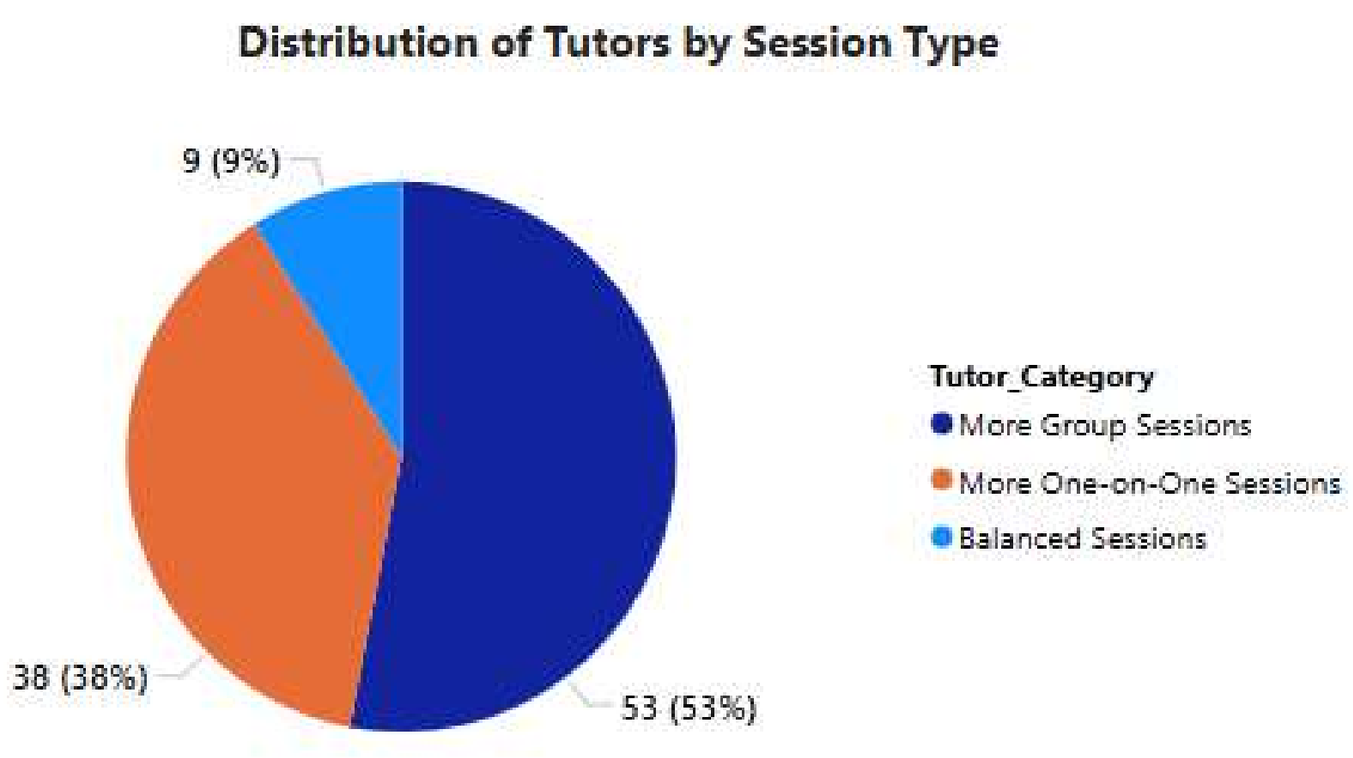
Tutors with Highest Average Rating	
Tutor_name	**avg_rate**
Carlos Sims	4

Tutors with Lower Average Rating	
Tutor_name	**avg_rate**
Kathleen Todd	1.67



- Over half of the tutors (51 out of 100) have ratings below the average of 2.96, indicating room for improvement in overall tutor performance and student satisfaction.
- Carlos Sims stands out with the highest rating of 4, showing consistent positive feedback, while Kathleen Todd has the lowest rating of 1.67, suggesting potential challenges in teaching effectiveness.

📌Are some tutors more involved in group sessions compared to one-on-one sessions?



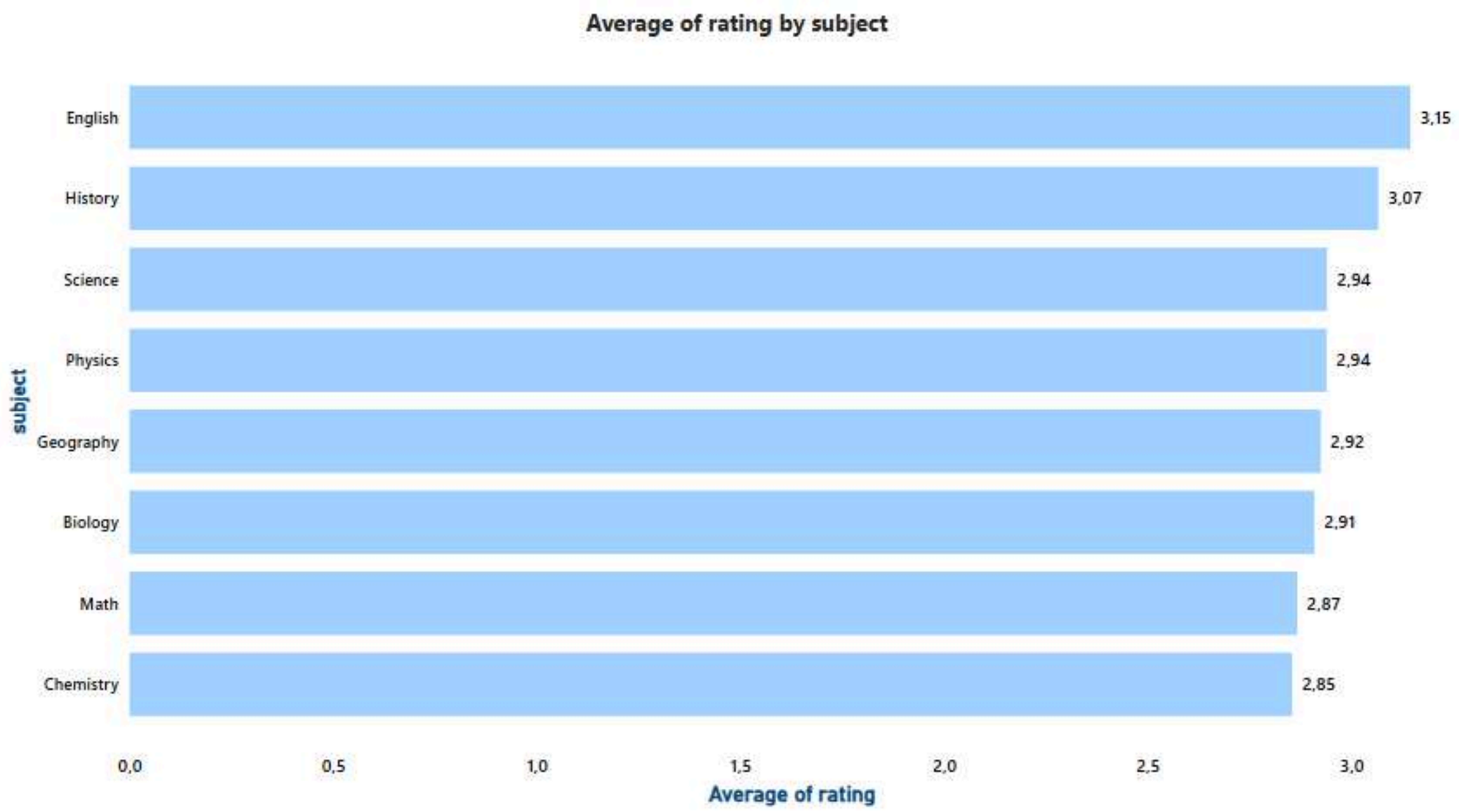
Findings > Tutor Performance & Subject Analysis

- Most tutors conduct more group sessions, indicating that these sessions are more frequently chosen or assigned.
- Some tutors conduct more one-on-one sessions, suggesting a focus on personalized learning or specific student preferences.
- Certain tutors have a balanced number of group and one-on-one sessions, demonstrating flexibility in teaching both formats.
- The variation in session distribution among tutors reflects different teaching approaches, with some being relied on for group sessions, while others are preferred for individual learning.

📌Which subjects receive the highest and lowest ratings?

Subject with Highest Average Rating	
Subject	**avg_rate**
English	3.15

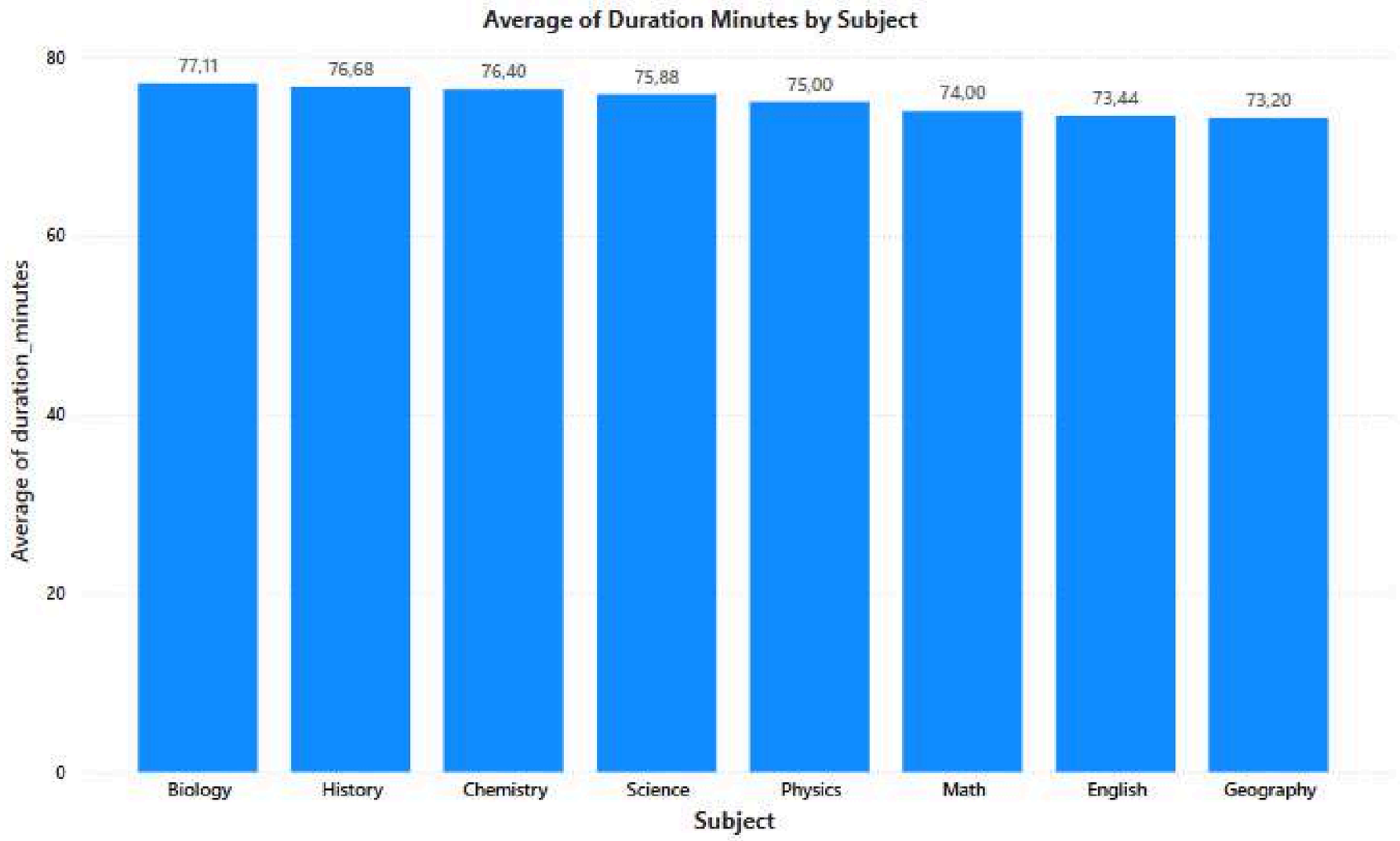
Subject with Lower Average Rating	
Subject	**avg_rate**
Chemistry	2.85



- The quality of teaching or learning experience in Chemistry may need further evaluation, as it has the lowest average rating (2.85). Factors such as teaching methods, subject difficulty, or student expectations could be influencing the ratings.
- Subjects with a stronger theoretical component, such as English (3.15) and History (3.07), tend to have higher ratings compared to science-based subjects like Chemistry (2.85) and Math (2.87). This may suggest that students are more satisfied with teaching in humanities-related subjects than in STEM subjects.
- The rating variation across subjects is relatively small, with only a 0.3 difference between the highest- and lowest-rated subjects. This indicates that students' overall experience is fairly consistent, with no subject standing out as significantly better or worse.

Findings > Tutor Performance & Subject Analysis

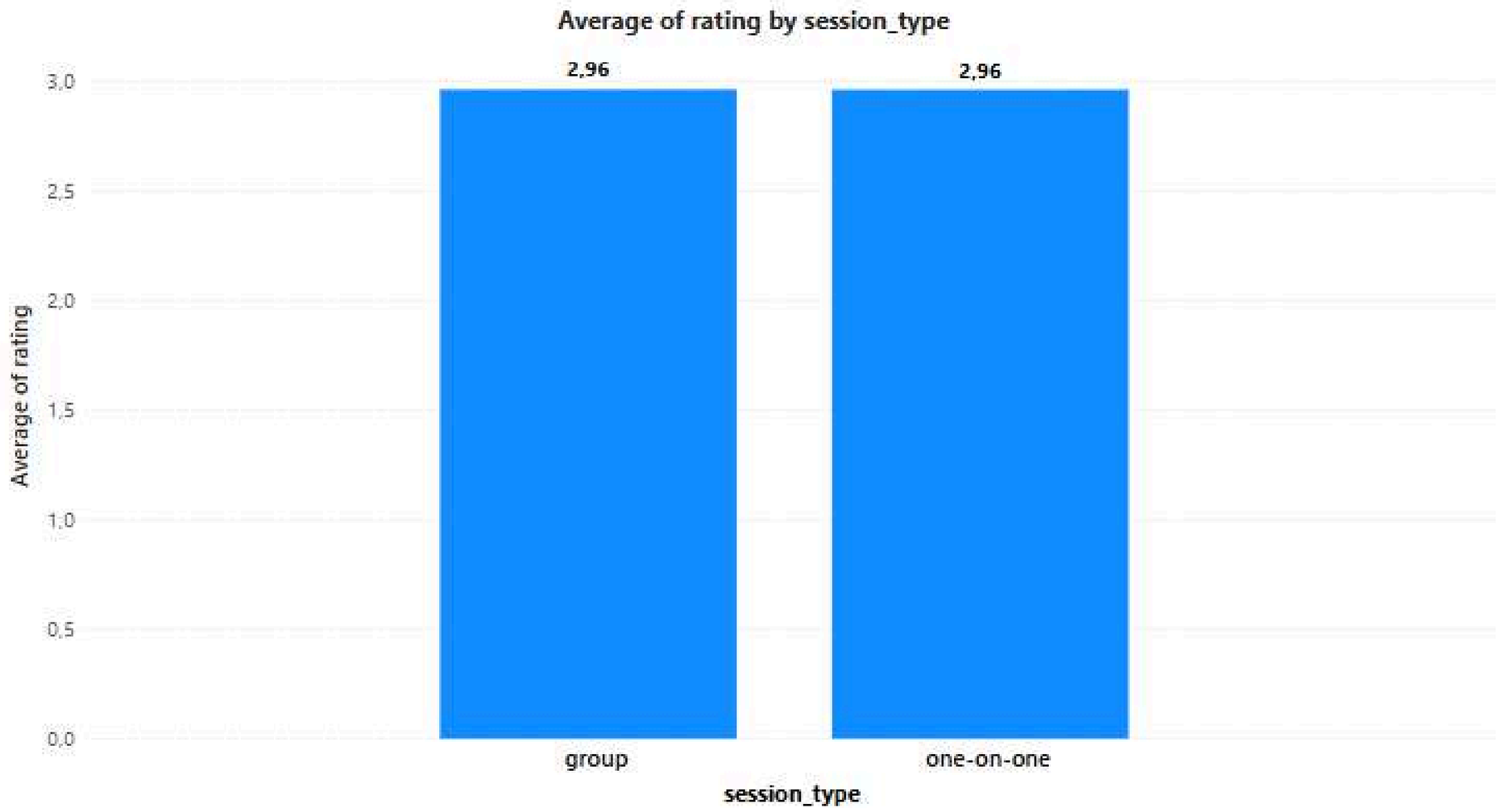
📌Do certain subjects require longer session durations?



- Biology has the longest average session duration (77 minutes), followed closely by History and Chemistry (76 minutes each), suggesting that these subjects may require more time for explanation and discussion.
- Science and Physics sessions also tend to be longer (75 minutes), indicating that subjects involving complex concepts or problem-solving may need extended durations.
- English and Geography have the shortest session durations (73 minutes), which may suggest that these subjects require less time for instruction or that students grasp the material more quickly.

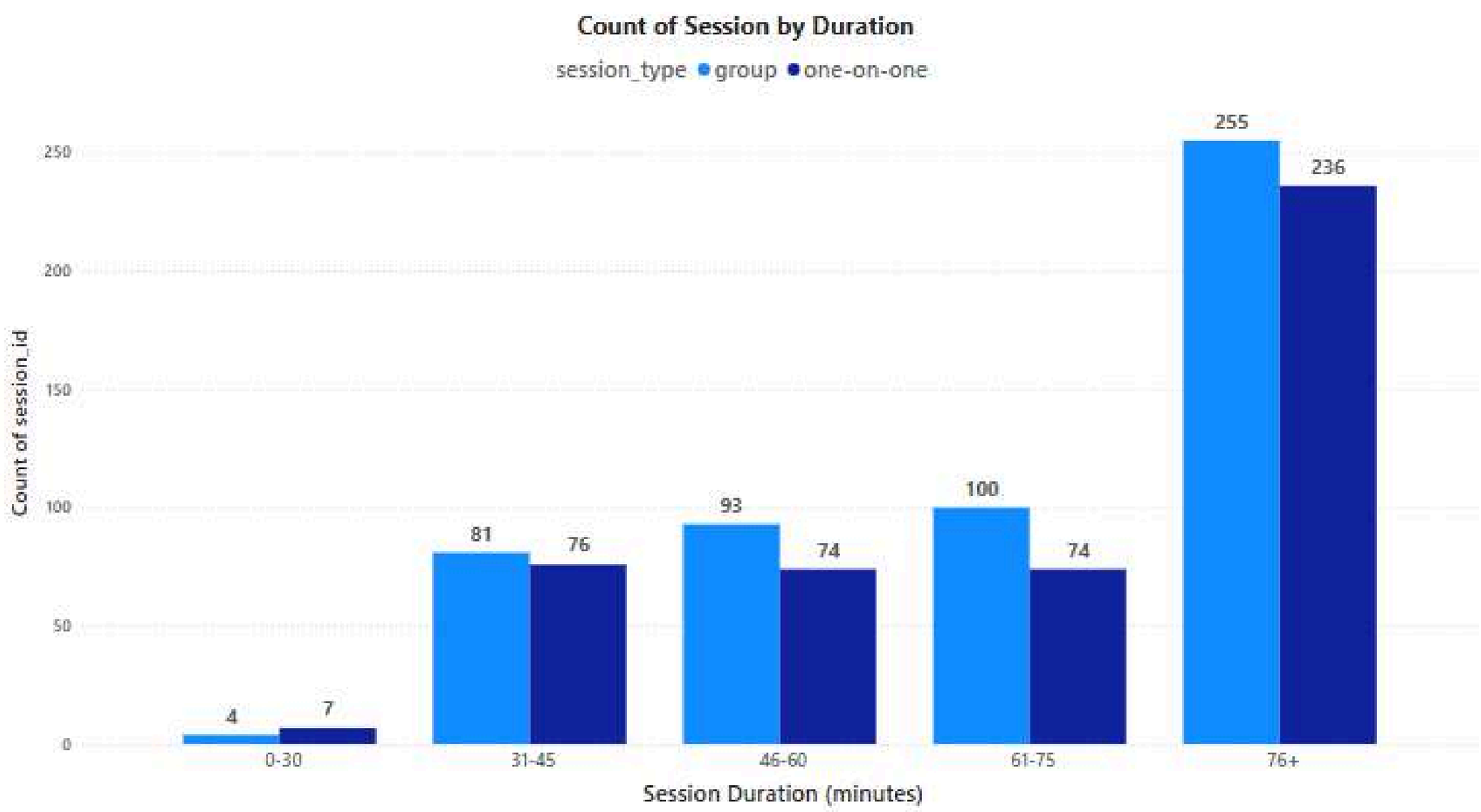
Findings > Factors Influencing Student Satisfaction

📌Do one-on-one sessions receive higher ratings than group sessions?

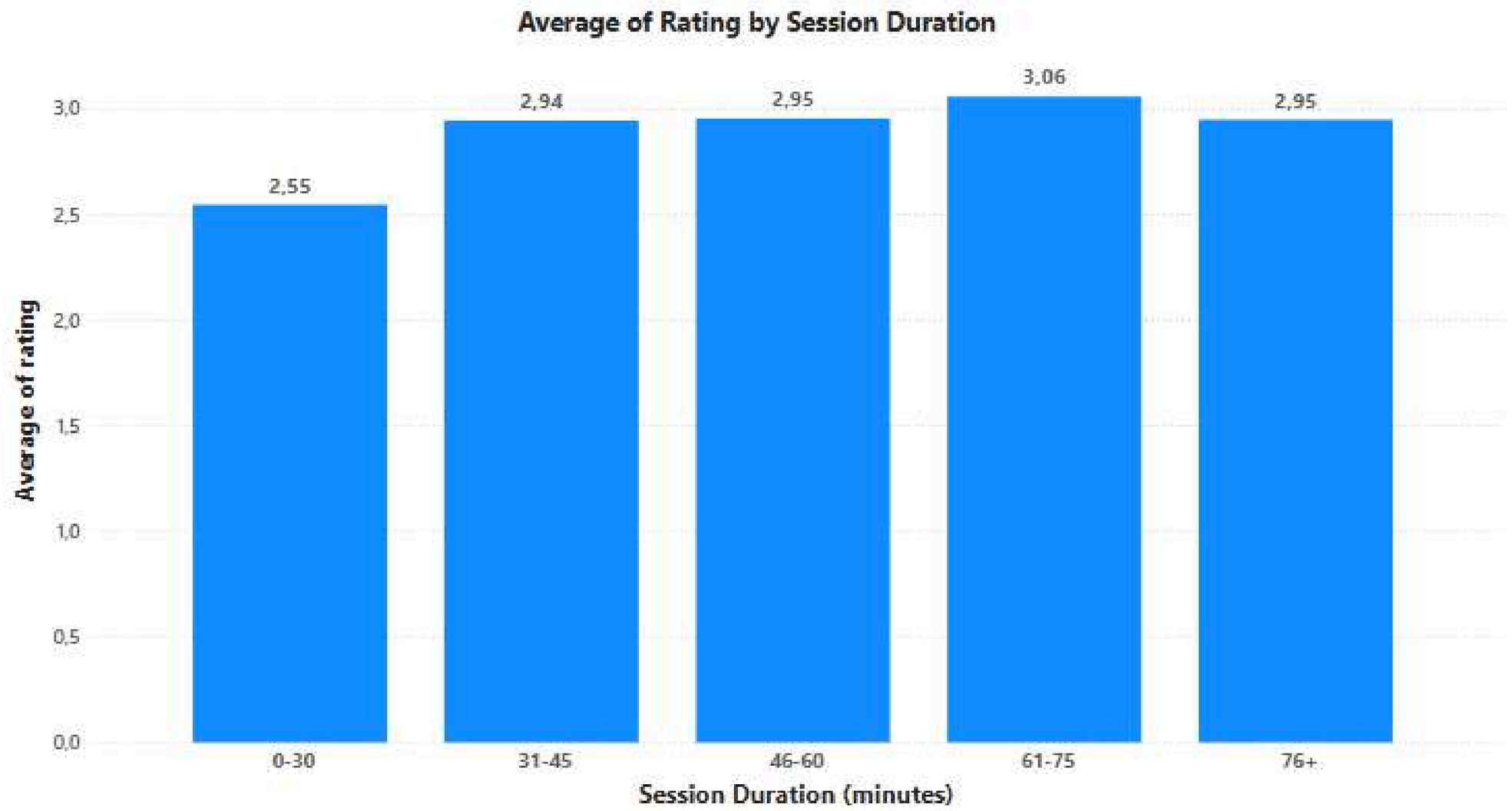


- The average rating for both one-on-one and group sessions is the same at 2.96, indicating no significant difference in student satisfaction based on session type.
- This equality in ratings suggests that both session formats provide a similar learning experience in terms of quality, as perceived by students.
- Other factors, such as the tutor's teaching style or individual student preferences, may have a greater influence on ratings than the session format itself.

📌Does session duration impact student ratings?



Findings > Factors Influencing Student Satisfaction



- Sessions with a duration of 61-75 minutes have the highest average rating (3.06), suggesting that this duration might be more optimal for effective learning.
- Sessions with very short durations (0-30 minutes) have the lowest rating (2.55), which could indicate that extremely short sessions are less effective for students.
- The majority of sessions last longer than 76 minutes (491 sessions), but their ratings are not higher than those of 61-75 minute sessions, suggesting that longer sessions do not necessarily lead to higher student satisfaction.

📌Is there a correlation between session type, subject, and rating?

Correlation Between Subject, Session Type, and Rating

subject	group	one-on-one
Chemistry	2,82	2,90
Math	2,89	2,84
Biology	2,96	2,86
Geography	2,83	3,01
Physics	3,04	2,82
Science	3,00	2,84
History	3,04	3,10
English	3,07	3,22

- One-on-one sessions generally have higher ratings than group sessions in most subjects, particularly in English, History, and Geography, suggesting that personalized instruction may be more effective for these subjects.
- Science and Physics show the opposite trend, where group sessions receive higher ratings than one-on-one, possibly indicating that collaborative learning benefits these subjects.
- Chemistry and Math have relatively low ratings for both session types, which may suggest challenges in teaching these subjects effectively regardless of the format.

TUTERO'S ANALYTICS DASHBOARD

Year: All | Month: All | Day: All

Count of student_id	Count of tutor_id	Average of rating
290	100	2.96

Correlation Between Subject, Session Type, and Rating

subject	group	one-on-one
Chemistry	2.82	2.90
Math	2.89	2.84
Biology	2.96	2.86
Geography	2.83	3.01
Physics	3.04	2.82
Science	3.00	2.84
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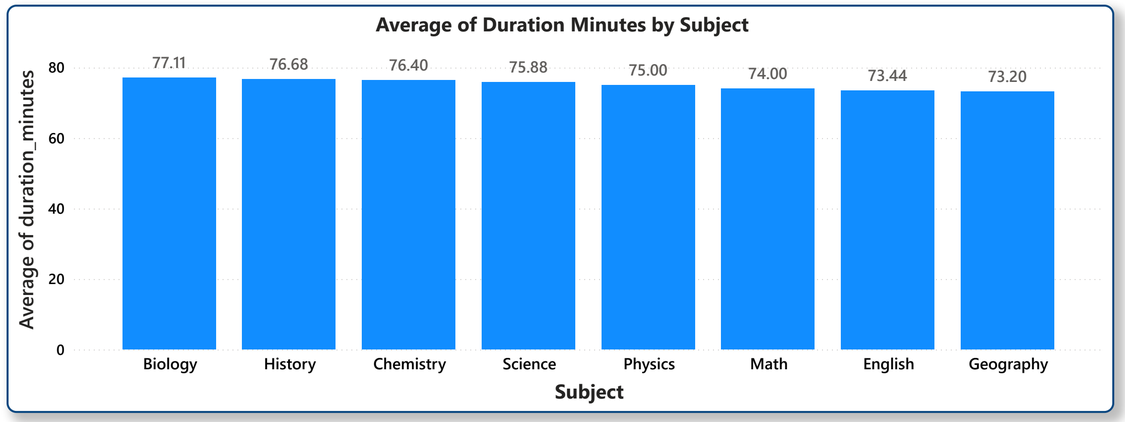
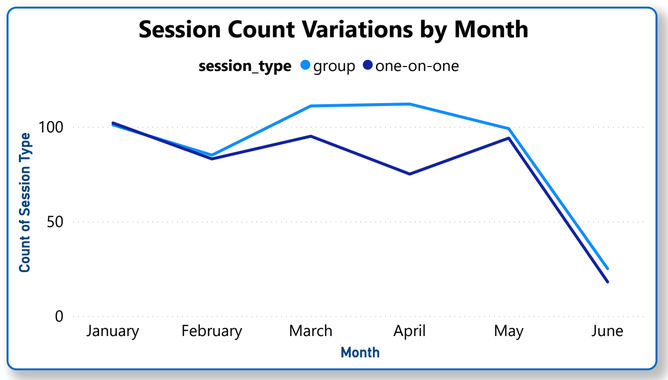
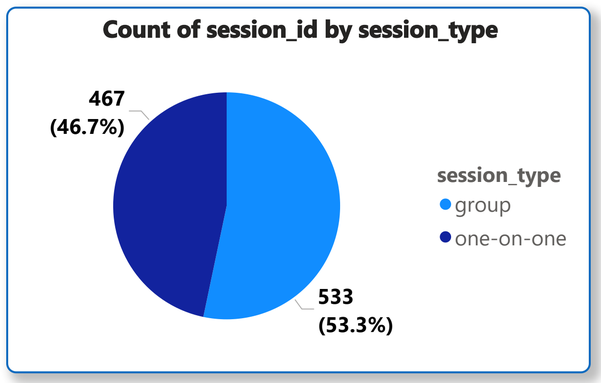
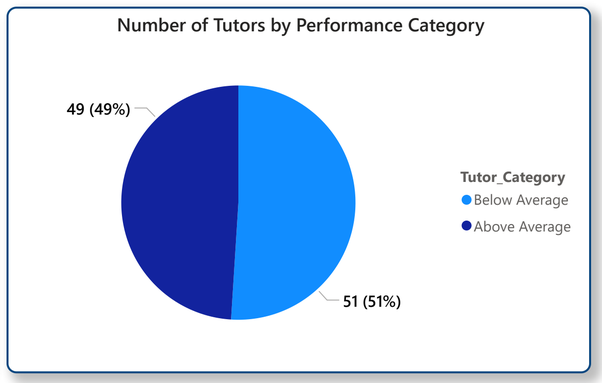
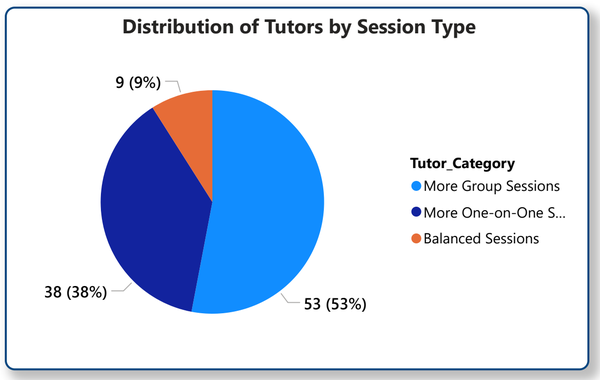
English	3.07	3.22

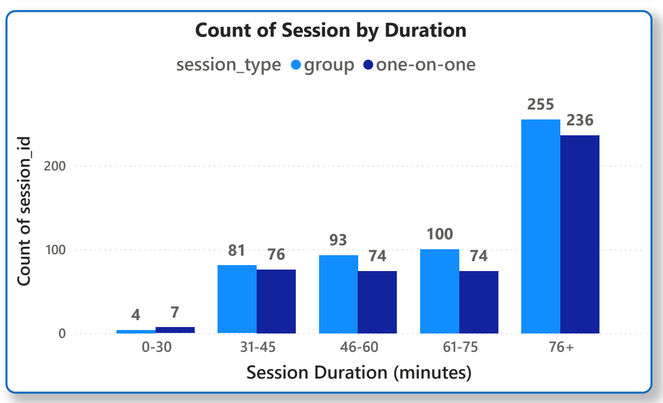


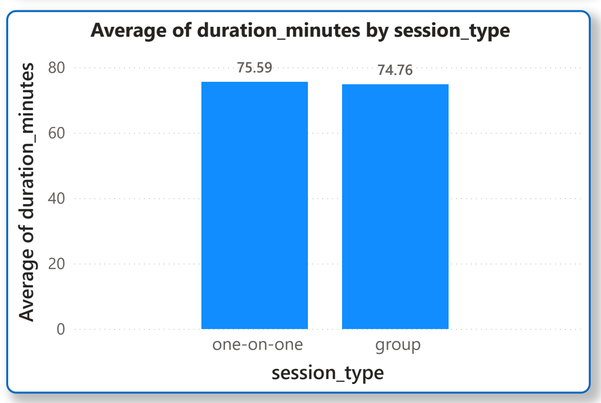


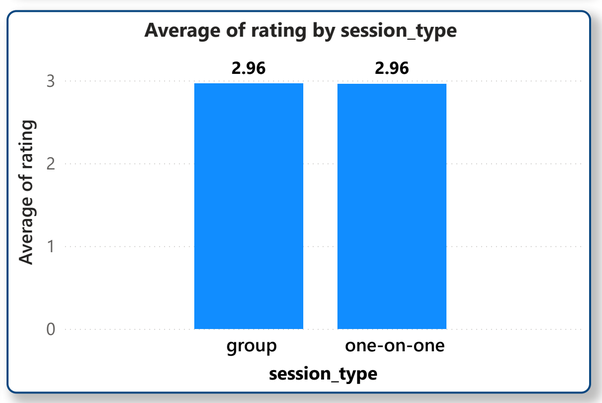


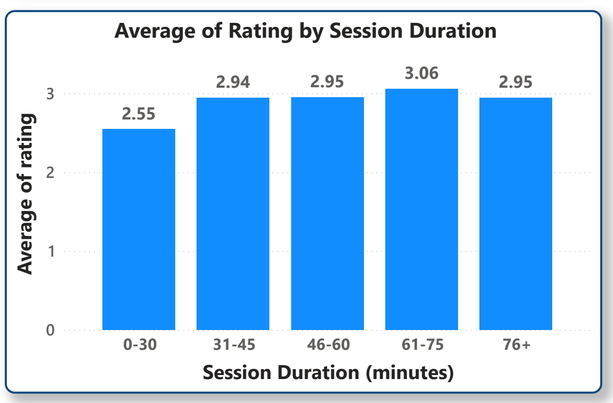


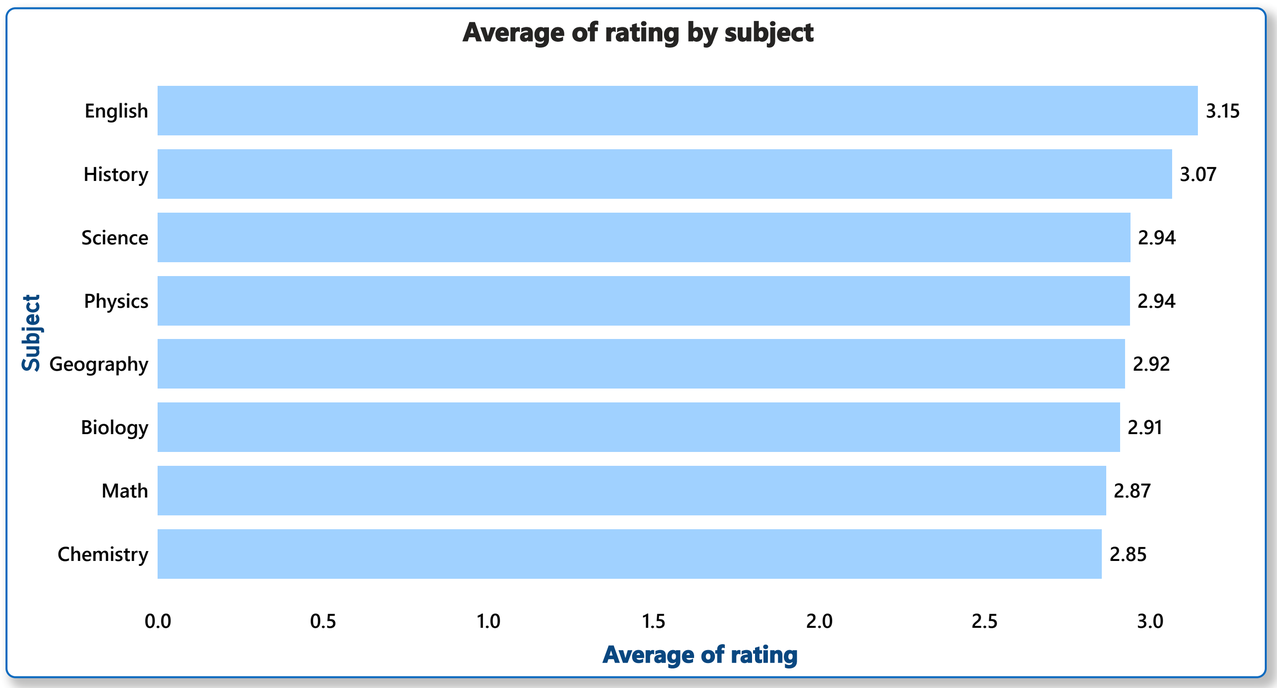


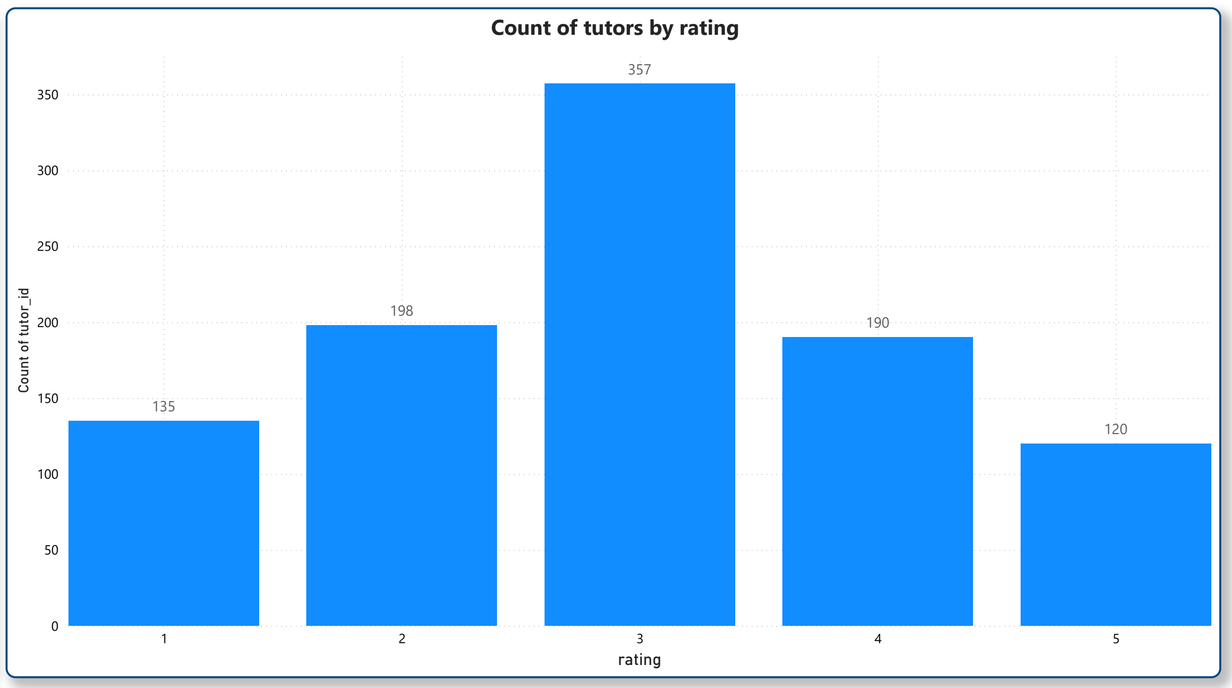












Summary of Findings

📝 Session Duration Trends

Most sessions, both group and one-on-one, lasted more than 76 minutes, indicating a preference for extended learning durations. However, sessions between 61-75 minutes received the highest ratings, suggesting that this duration might be the most effective for learning.

📝 Tutor Performance & Subject Analysis

Subjects like Biology, History, and Chemistry have the longest average session durations (76-77 minutes), implying they require more time for explanation. In contrast, English and Geography have the shortest durations (73 minutes), suggesting that these subjects might be easier to grasp. Tutor session distribution also varies, with some tutors specializing in one-on-one sessions while others handle more group sessions.

📝 Student Satisfaction Factors

One-on-one sessions generally receive higher ratings than group sessions, particularly in English, History, and Geography, highlighting the benefits of personalized learning. Meanwhile, Science and Physics sessions are rated higher in group settings, suggesting that collaborative learning is more effective for these subjects. Chemistry and Math have relatively low ratings for both formats, indicating potential challenges in delivering these subjects effectively.

Action & Recommendation

Optimizing Session Durations

✅**Action**

- Adjust session lengths to align with student satisfaction trends.

💡 **Recommendation:**

- Promote sessions within the 61-75 minute range, as they receive the highest ratings and are likely the most effective.
- Minimize short sessions (<30 minutes) as they are less preferred and rated poorly.
- Reevaluate the structure of long sessions (>76 minutes) to ensure they remain engaging and beneficial for students.

Enhancing Teaching Strategies by Subject

✅**Action**

- Adapt teaching approaches to fit the unique demands of each subject.

💡 **Recommendation:**

- For Biology, History, and Chemistry: Allocate sufficient time for in-depth discussions and hands-on activities to match their longer session durations.
- For English and Geography: Explore more concise, interactive teaching methods that maximize efficiency within shorter sessions.
- For Math and Chemistry: Introduce alternative instructional strategies (e.g., problem-solving workshops, step-by-step concept reinforcement) to improve engagement and comprehension.

Optimizing Session Formats for Better Learning Outcomes

✅**Action**

- Align session types (group vs. one-on-one) with subjects that benefit most from each format.

💡 **Recommendation:**

- Increase one-on-one sessions for English, History, and Geography, as personalized learning proves more effective in these subjects.
- Encourage more group sessions for Science and Physics, leveraging collaborative learning to enhance engagement.
- Review teaching methods for Chemistry and Math, as both formats show relatively low ratings, indicating potential challenges in content delivery.

Resources

- I got the reference for this project from https://app.entrylevel.net/job-simulations/portal. This portal provides job simulations, where we are given raw datasets without specific guidelines on how to process them. This allows me to freely explore, analyze, and interpret the data from my own perspective. I created this project to sharpen my skills in data processing, analysis, and visualization, while also understanding how data can be interpreted to generate meaningful insights.
- You can access Tutero's Dashboard here: Tutero's Dashboard
- You can access my query for Tutero here: Tutero’s Analytics Project