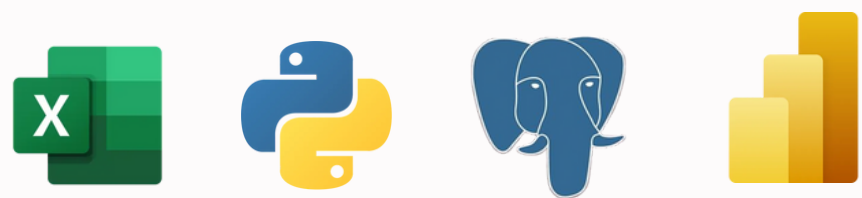


# Student Engagement Analytics

PRESENTER : PARVES AHAMED R



# Overview

<b>SOURCE</b>	Online Course Student Engagement Dataset
<b>DATASET</b>	~640,000+ records tracking user interaction on an EdTech platform
<b>COLUMNS</b>	userid_DI, registered, viewed, explored, certified etc...
<b>DESCRIPTION</b>	Rich behavioral data to analyze learner engagement, activity trends, and certification outcomes

# Goals

How can we identify patterns of student engagement and inactivity in online courses to improve learner success and platform effectiveness?

01



## Objective 01

Analyze engagement levels by user type (reg vs unreg)

02



## Objective 02

Understand what leads to course completion or drop-off

03



## Objective 03

Identify high-activity users who don't certify — and why

04



## Objective 04

Provide actionable insights for product improvements

# Exploratory Data Analysis (Python)

Performed detailed analysis on online course engagement data using Python. Cleaned and processed event-level metrics with Pandas, visualized learner behavior using Seaborn and Matplotlib, and derived insights on registration impact, certification rates, and engagement patterns.





# What We Explored

Engagement metrics by registration status

Certification rates for different user groups

Detection of high-activity users with no certification

Engagement duration patterns and user activity spread

## Key Observations

Registered users had more events and longer engagement

Certification rate is ~2.75% among registered users

Over 296K users had high activity but no certification

# SQL Insights – MySQL Workbench

Executed SQL queries in PostgreSQL to analyze learner engagement, registration patterns, and certification outcomes. Validated Python/Power BI findings with backend data exploration and ensured consistent insights across tools.



# Business Queries Used In PostgreSQL

Certification Rate by Registration Status	Comparison of Certified vs Non-Certified User Behavior
Average Engagement Metrics	Temporal Patterns of Student Activity
High Activity Users Without Certification	Course Completion Trends Over Time
Engagement Duration Distribution	Engagement vs Certification Correlation
Most Engaged Users by Event Count	Registered vs Non-Registered User Comparison

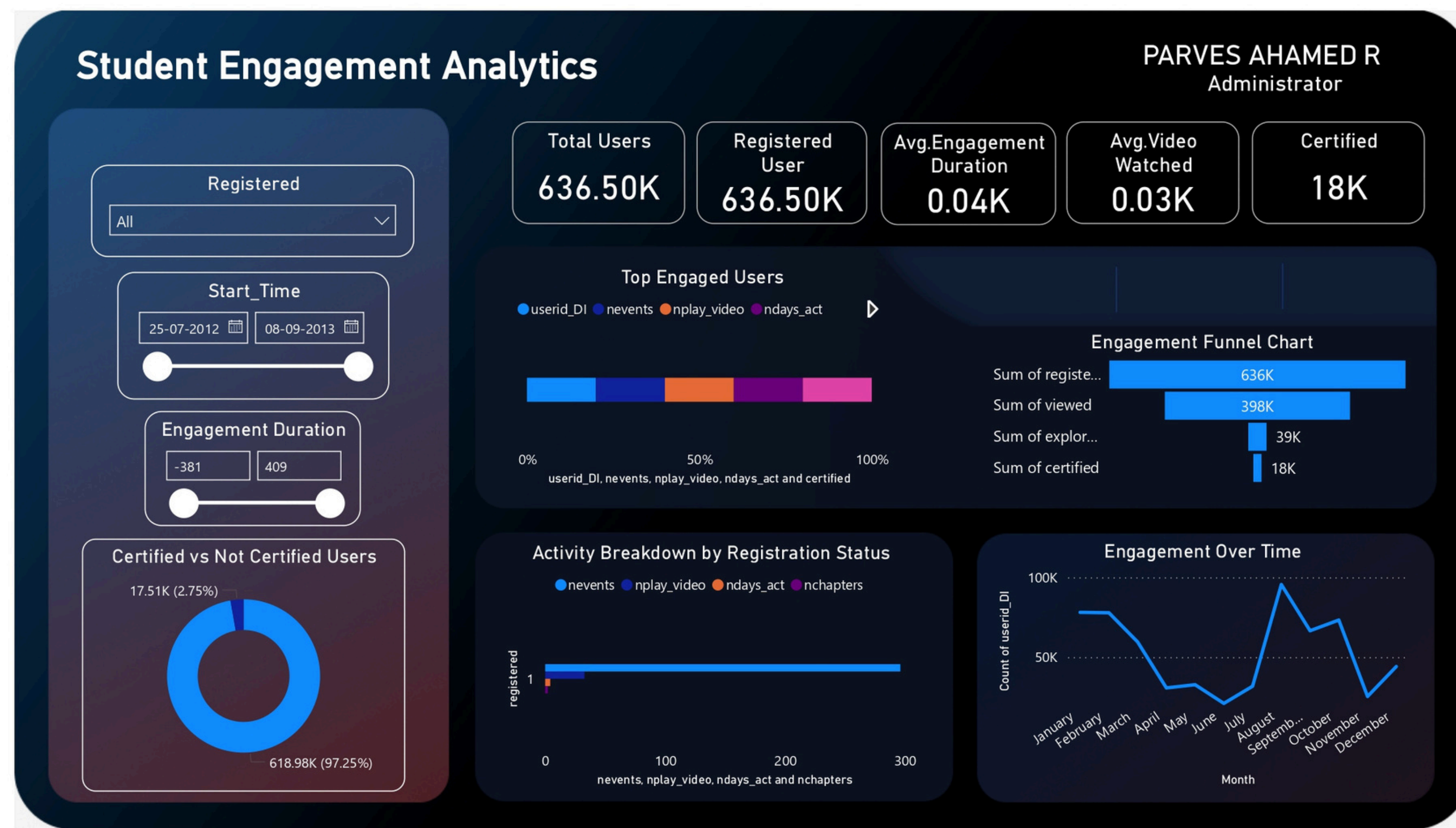


# Interactive Dashboard – Power BI

Built a professional dashboard in Power BI to visualize student engagement metrics. Showcased KPIs like activity days, video plays, and certification rates. Enabled dynamic filtering and intuitive visuals for stakeholder-ready reporting.



# Interactive Dashboard – Power BI



# Key Insights & Business Recommendations

INSIGHTS	RECOMMENDATIONS
Only ~2.8% of registered users achieved certification, indicating high drop-off	Introduce nudges and support during early stages to increase certification conversion
Majority of users with high engagement (events, days active) didn't convert to certified learners	Develop re-engagement strategies for users showing initial interest but dropping off
Users with longer engagement durations tended to have higher chapter completion and video views	Implement personalized learning paths for highly active but uncertified learners
Most engagement happened in the first few weeks post-registration	Use engagement duration as a key feature to predict at-risk users early

# Learnings & Skills Applied

## Technical Skills

- Data Cleaning & Analysis (Pandas, NumPy, Seaborn, Matplotlib)
- SQL Querying & Aggregation (PostgreSQL Via pgAdmin )
- Dashboard Creation & KPI Design (Power BI)

## Product & Analytical Thinking





- Translated educational product goals into engagement metrics
- Identified key student behaviors impacting certification rates
- Applied cross-platform validation for product-driven decisions



# THANK YOU

For watching this presentation

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