

# E-Learning Insights Hub

## Problem Statement:

E-Learning generate large amounts of learner data, but organizations often struggle to understand learner behaviour, course effectiveness, and performance differences across platforms, countries, and instructors. High dropout rates, low completion percentages, inconsistent course ratings, and varying engagement patterns make it challenging to improve course quality. This project aims to develop a comprehensive Power BI dashboard that delivers clear insights into learner progress, platform performance, drop reasons, and rating trends to support better decision-making and continuous improvement.

## Excel:

The screenshot shows two tabs in Microsoft Excel: "Multi\_platform\_course\_dataset" and "ETL-Process".

**Multi\_platform\_course\_dataset Tab:**

User ID	Name	Email	Platform	Category	Course Title	Course ID	Instructor Name	Hours Spent	Progress %	Quiz Score	Ass.
U0001	Priya Mehta	priya.mehta@example.com	Udemy	Data Science	Cyber Security Essentials	C3286	Alan Walker	38.08	95.07	73.2	
U0002	Sneha Das	sneha.das@example.com	LinkedIn Learning	Data Science	Ethical Hacking Basics	C5557	Dr. Sarah Khan	60.27	15.6	15.6	
U0003	Amit Mehta	amit.mehta@example.com	LinkedIn Learning	Web Development	Advanced Machine Learning	C7201	Dr. Sarah Khan	6.75	86.62	60.11	
U0004	Rahul Patel	rahul.patel@example.com	LinkedIn Learning	Cloud Computing	Data Visualization with Power BI	C3664	Emily Johnson	71.1	2.06	96.99	
U0005	Sneha Gupta	sneha.gupta@example.com	Coursera	Data Science	Python for Beginners	C6168	John Doe	83.41	21.23	18.18	
U0006	Sneha Das	sneha.das@example.com	Google Classroom	AI & ML	JavaScript Crash Course	C7543	Emily Johnson	19.16	30.42	52.48	
U0007	Rahul Nair	rahul.nair@example.com	LinkedIn Learning	Web Development	Cloud Fundamentals	C1188	Alan Walker	43.76	29.12	61.19	
U0008	Anjali Singh	anjali.singh@example.com	Google Classroom	Programming	Cloud Fundamentals	C9317	Neha Sinha	14.81	29.21	36.64	
U0009	Arjun Sharma	arjun.sharma@example.com	Google Classroom	Programming	Advanced Machine Learning	C8962	Dr. Sarah Khan	46.15	78.52	15.97	
U0010	Amit Reddy	amit.reddy@example.com	Udemy	Cyber Security	Ethical Hacking Basics	C2982	Prof. Rajesh Verma	51.91	59.24	4.65	
U0011	Arjun Gupta	arjun.gupta@example.com	Coursera	Web Development	Cyber Security Essentials	C5562	Alan Walker	61.15	17.05	6.51	
U0012	Priya Reddy	priya.reddy@example.com	Udemy	Cyber Security	JavaScript Crash Course	C8651	Alan Walker	94.94	96.56	80.84	
U0013	Rohan Patel	rohan.patel@example.com	LinkedIn Learning	Data Science	Advanced Machine Learning	C8260	Neha Sinha	31.16	9.77	68.42	
U0014	Rahul Mehta	rahul.mehta@example.com	LinkedIn Learning	AI & ML	Ethical Hacking Basics	C5673	John Doe	44.58	12.2	49.52	
U0015	Kavya Das	kavya.das@example.com	Google Classroom	Data Science	Python for Beginners	C9320	Dr. Sarah Khan	4.4	90.93	25.88	
U0016	Priya Reddy	priya.reddy@example.com	Google Classroom	Web Development	Data Visualization with Power BI	C5272	Prof. Rajesh Verma	66.59	31.17	52.01	
U0017	Vikram Nair	vikram.nair@example.com	Coursera	Programming	Cyber Security Essentials	C9288	Emily Johnson	55.12	18.49	96.96	
U0018	Amit Kumar	amit.kumar@example.com	edX	AI & ML	Advanced Machine Learning	C2753	Alan Walker	77.74	93.95	89.46	
U0019	Priya Reddy	priya.reddy@example.com	Udemy	Programming	Python for Beginners	C6464	Prof. Rajesh Verma	60.19	92.19	8.85	
U0020	Arjun Gupta	arjun.gupta@example.com	Google Classroom	Web Development	Web Development Masterclass	C8041	Prof. Rajesh Verma	20.4	4.52	32.53	
U0021	Rohan Sharma	rohan.sharma@example.com	edX	Data Science	JavaScript Crash Course	C1406	Prof. Rajesh Verma	39.48	27.13	82.87	
U0022	Sneha Sharma	sneha.sharma@example.com	LinkedIn Learning	AI & ML	Cloud Fundamentals	C4728	Prof. Rajesh Verma	36.32	28.09	54.27	
U0023	Priya Patel	priya.patel@example.com	edX	Web Development	Cloud Fundamentals	C1626	Dr. Sarah Khan	14.95	80.22	7.46	
U0024	Rahul Mehta	rahul.mehta@example.com	Google Classroom	Web Development	Cyber Security Essentials	C8567	John Doe	98.7	77.22	19.87	
U0025	Anjali Singh	anjali.singh@example.com	edX	Cyber Security	JavaScript Crash Course	C3851	Neha Sinha	1.55	81.55	70.69	
U0026	Kavya Yer	kavya.yer@example.com	edX	Web Development	Ethical Hacking Basics	C3780	Alan Walker	73.17	77.13	7.4	
U0027	Arjun Mehta	arjun.mehta@example.com	edX	Cyber Security	Advanced Machine Learning	C8461	John Doe	36.49	11.59	86.31	
U0028	Sneha Singh	sneha.singh@example.com	Google Classroom	Cyber Security	Python for Beginners	C5082	Dr. Sarah Khan	62.71	33.09	6.36	
U0029	Kavya Singh	kavya.singh@example.com	LinkedIn Learning	Cyber Security	Cloud Fundamentals	C5050	Alan Walker	31.79	32.52	72.96	
U0030	Priya Singh	priya.singh@example.com	edX	Data Science	JavaScript Crash Course	C3503	Alan Walker	64.12	88.72	47.22	

**ETL-Process Tab:**

Count of UserID	Column Labels	Cloud Computing	Cyber Security	Data Science	Programming	Web Development	Grand Total
4	Row Labels	AI & ML					
5	Coursera	129	93	118	103	84	621
6	edX	91	92	101	117	111	598
7	Google Classroom	89	100	94	89	95	564
8	LinkedIn Learning	99	116	112	97	97	623
9	Udemy	98	109	88	106	101	594
10	Grand Total	506	510	513	512	488	3000

Below the PivotTable, there are three charts and four slicers:

- Stacked Bar Chart:** Shows the count of users by platform (Coursera, edX, Google Classroom, LinkedIn Learning, Udemy).
- Legend:** Categories include Web Development, Programming, Data Science, CyberSecurity, Cloud Computing, and AI & ML.
- Platform Slicer:** Options: Coursera, edX, Google Classroom, LinkedIn Learning, Udemy.
- Rating Slicer:** Options: 1, 2, 3, 4, 5.

## Power BI:

### ETL:

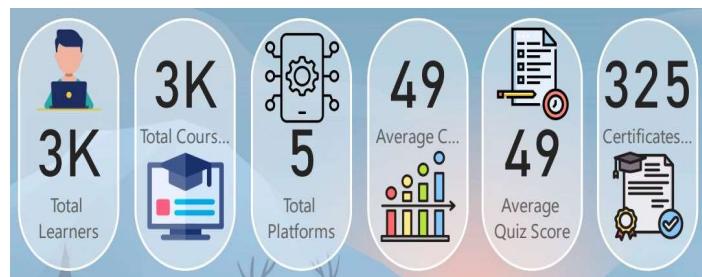
Split columns into 4 Tables. These are Users, Courses, Platform, and Performance.

- ✓ **Users** (UserID, Name, Email, Country, DeviceUsed)
- ✓ **Courses** (CourseID, CourseTitle, Category, InstructorName, CourseDifficulty, CourseLanguage)
- ✓ **Platform** (PlatformName, SubscriptionType, LearningMode)
- ✓ **Performance** (UserID, CourseID, PlatformName, EnrolledDate, CompletionDate, HoursSpent, Progress%, QuizScore, Rating, AssignmentsSubmitted, CertificateEarned, EngagementLevel, DropReason).

## Overview Dashboard Page:

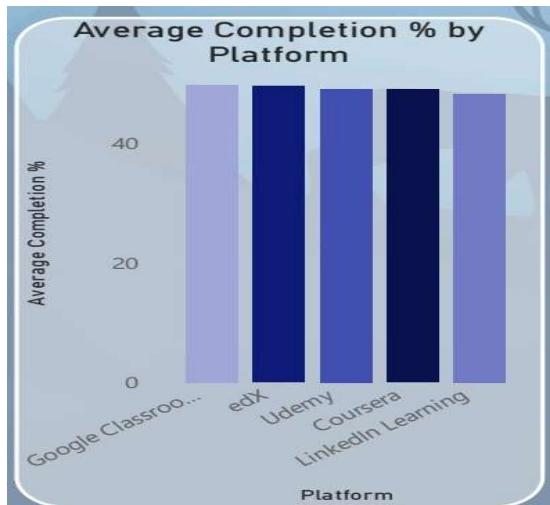
### KPI Cards (One-Line Descriptions)

- ✓ **Total Learners** – Shows the total number of unique learners in the system.
- ✓ **Total Courses** – Displays the total count of available courses.
- ✓ **Total Platforms** – Indicates how many learning platforms are included in the data.
- ✓ **Average Completion %** – Shows the overall average course completion percentage.
- ✓ **Average Quiz Score** – Displays the average quiz performance across all learners.
- ✓ **Certificates Earned** – Counts how many learners successfully earned certificates.

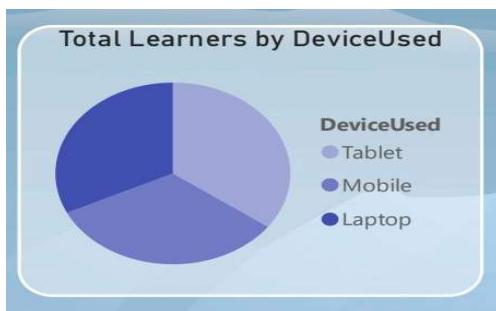


## Visuals

- ✓ **Completion % by Platform (Stacked Column Chart)** – Compares learners' completion percentages across platforms.



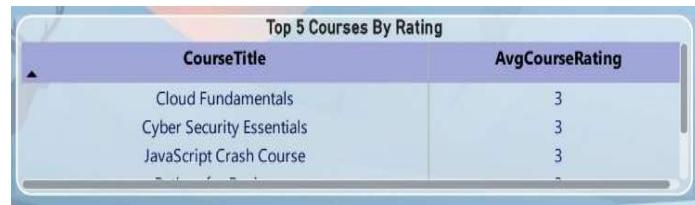
- ✓ **Learners by Device Used (Pie Chart)** – Shows which devices learners use most for accessing content.



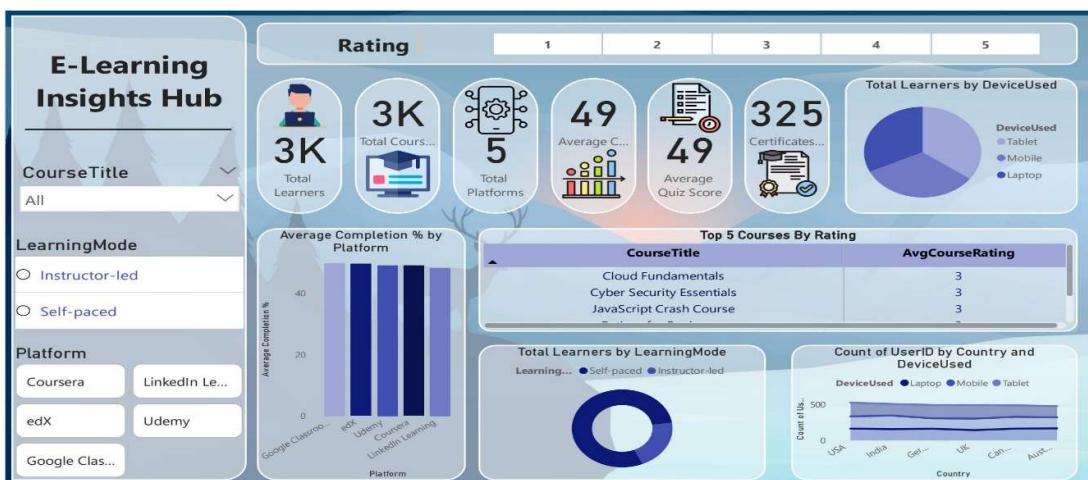
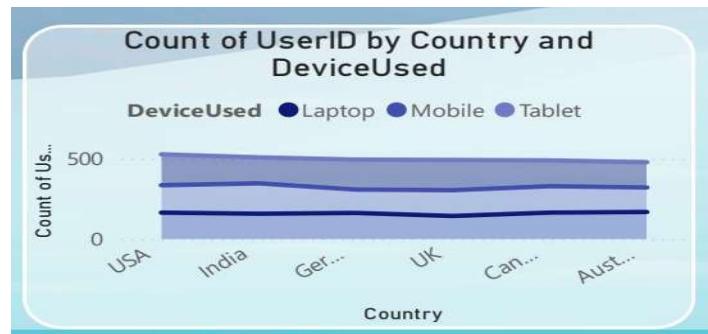
- ✓ **Learning Mode Distribution (Donut Chart)** – Displays the share of online, hybrid, and self-paced learning modes.



- ✓ **Top 5 Courses by Rating (Clustered Bar Chart)** – Highlights the highest-rated courses.

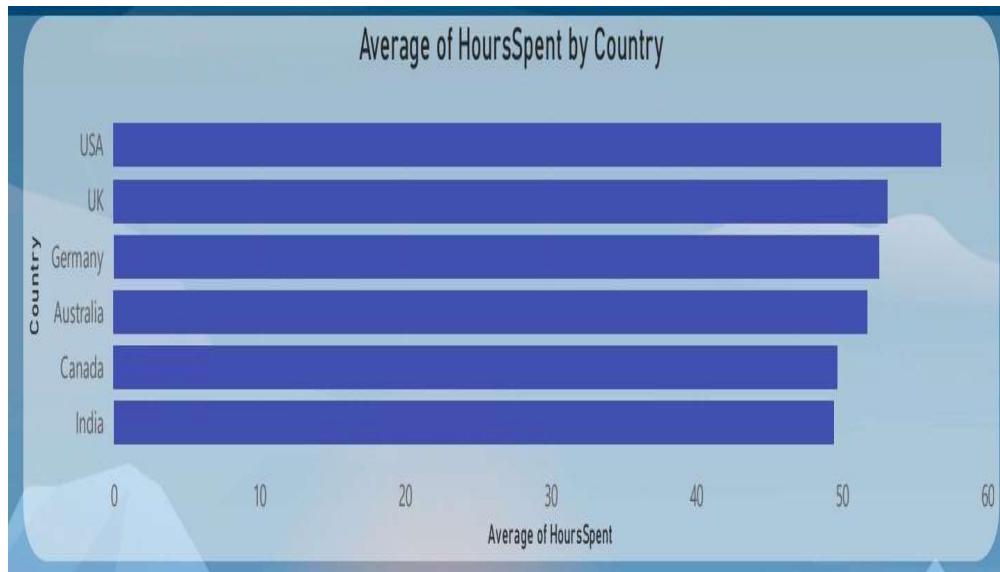


- ✓ **Learners by Country (Area Visual)** – Maps the geographic distribution of learners worldwide.

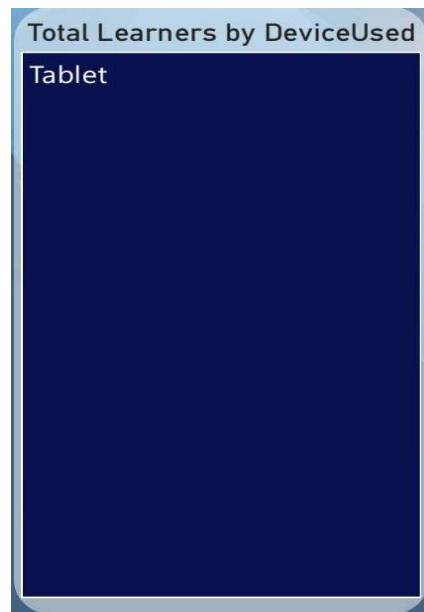


## Learner Insights:

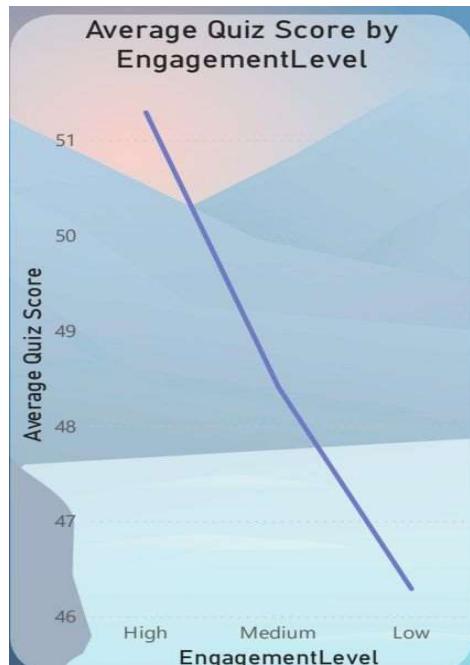
- ✓ **Average Hours Spent by Country (Bar Chart)** – Compares learning time across different countries.



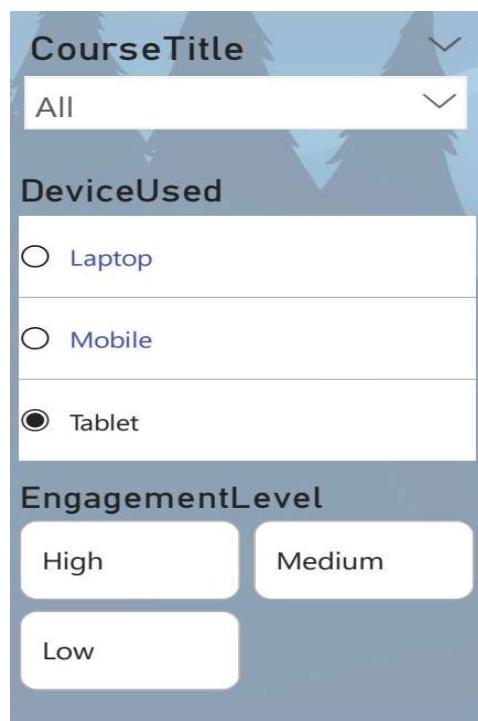
- ✓ **Learners by Device (Tree map)** – Represents device usage with proportional blocks.



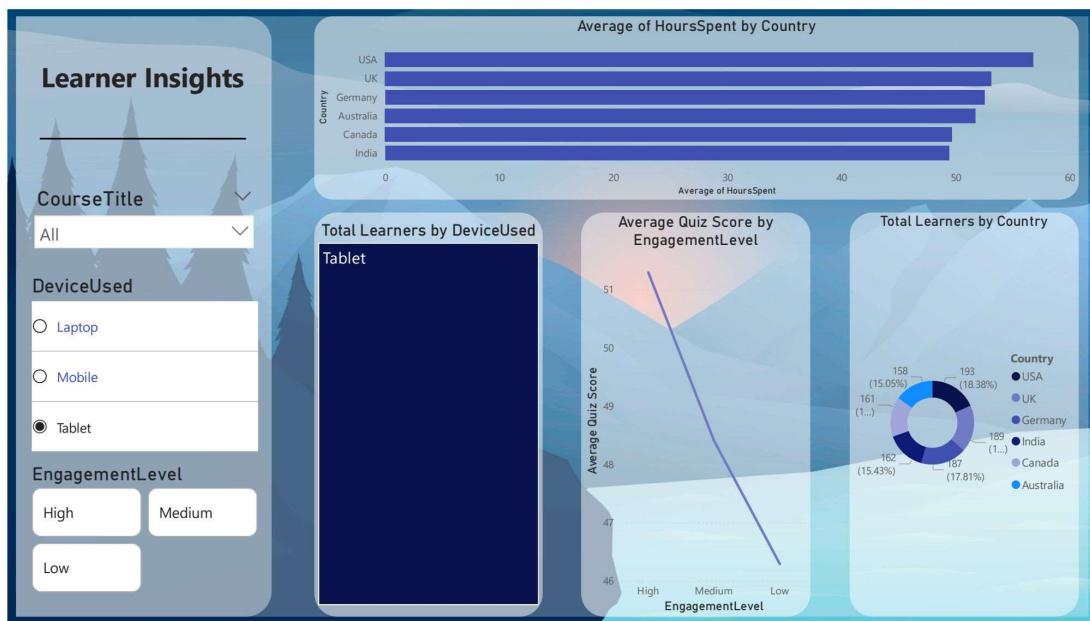
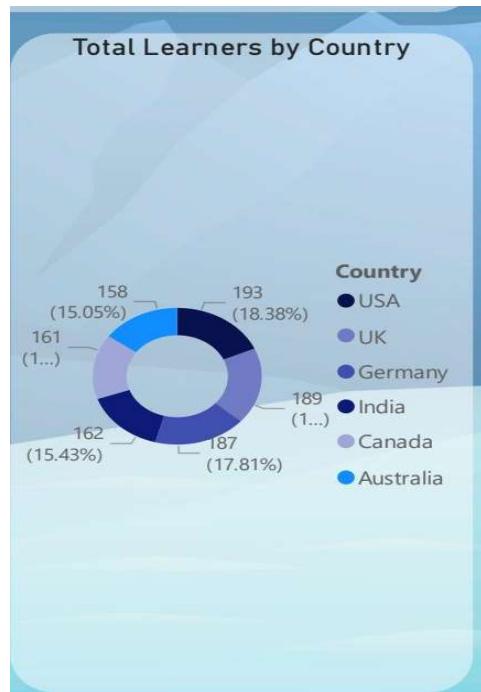
- ✓ **Engagement vs Quiz Score (Line Chart)** – Shows how engagement levels affect quiz performance.



- ✓ **Country/Device/Engagement Slicers** – Allows filtering of learner data by key attributes.



- ✓ **Total Learners by Country (Donut Chart)** – Displays the total learners by country.

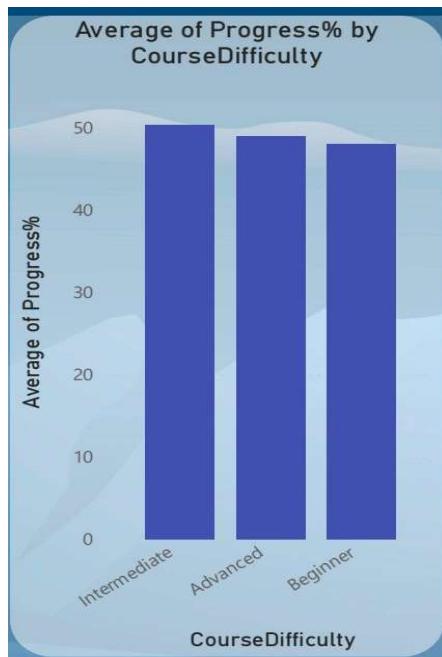


## Course Performance:

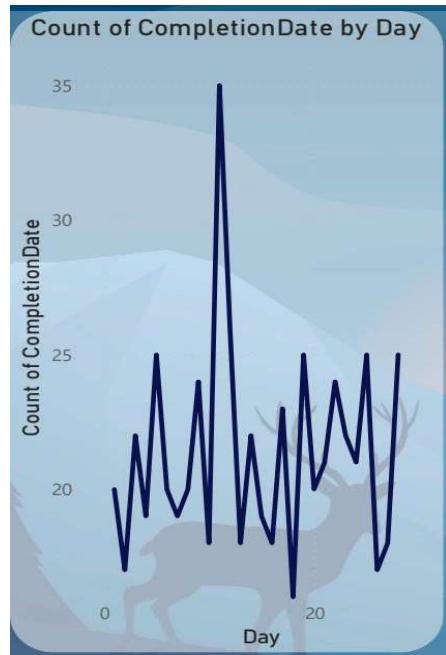
- ✓ **Course Performance Table** – Lists each course with ratings, quiz scores, and completion rate.

Course by Instructor Name,Avg Course Rating,Average Quiz Score				
CourseTitle	InstructorName	AvgCourseRating	Average Quiz Score	Average Completion %
Advanced Machine Learning	Alan Walker	4	53.65	58.64
Advanced Machine Learning	Dr. Sarah Khan	3	52.16	55.50
Advanced Machine Learning	Emily Johnson	3	48.80	54.20
Advanced Machine Learning	John Doe	3	54.84	36.80
Advanced Machine Learning	Neha Sinha	3	45.00	44.30
Advanced Machine Learning	Prof. Rakesh Verma	2	42.91	51.04

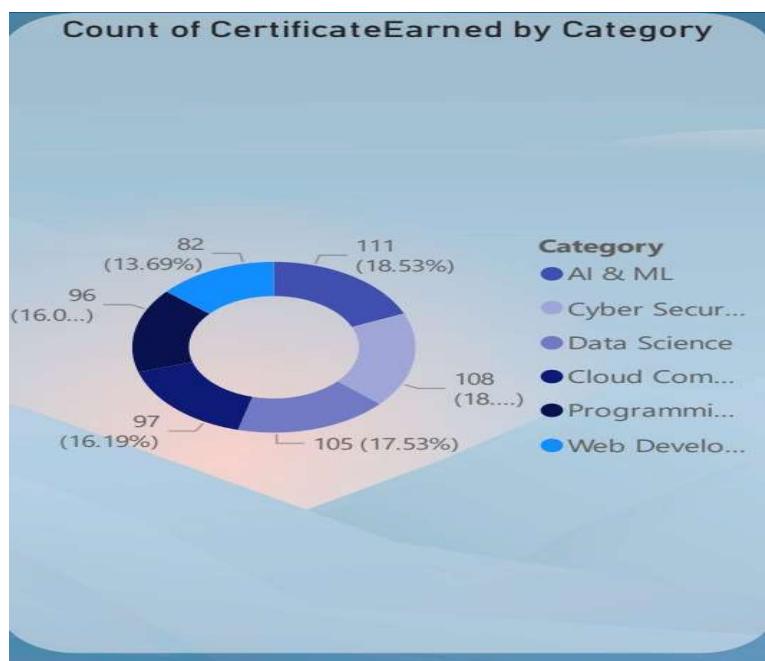
- ✓ **Course Difficulty vs Progress (Column Chart)** – Shows how difficulty level impacts learners' progress.

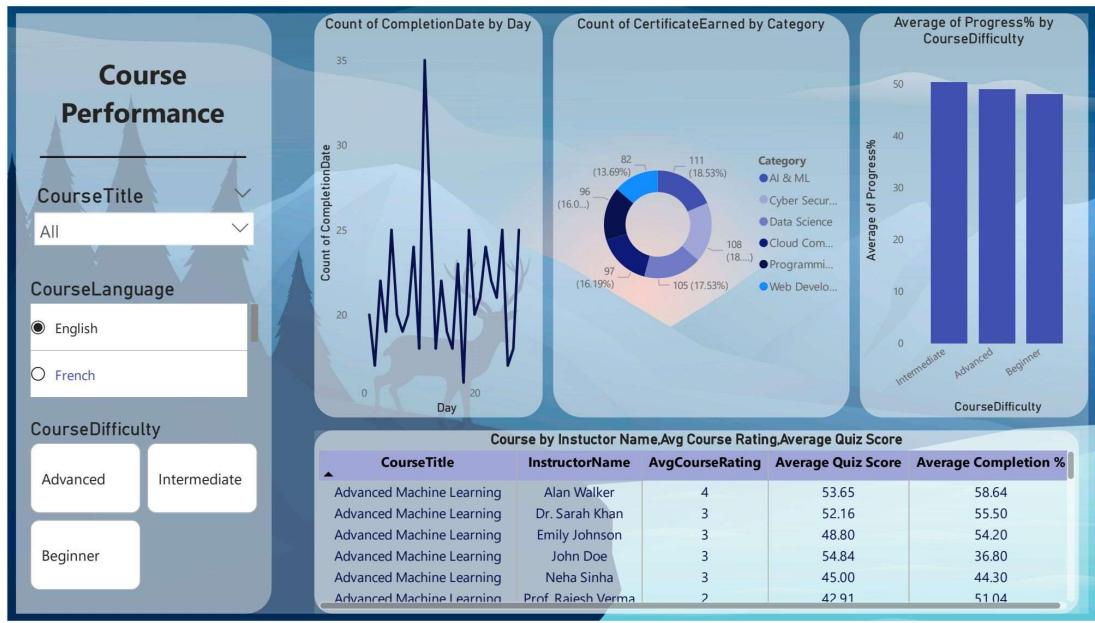


- ✓ **Completion Trend Over Time (Line Chart)** – Tracks course completion patterns over time.



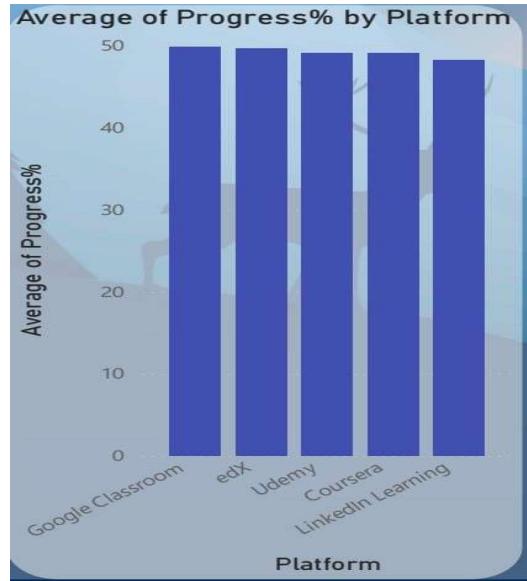
- ✓ **Certificates by Course Category (Donut Chart)** – Shows which course categories earn the most certificates.



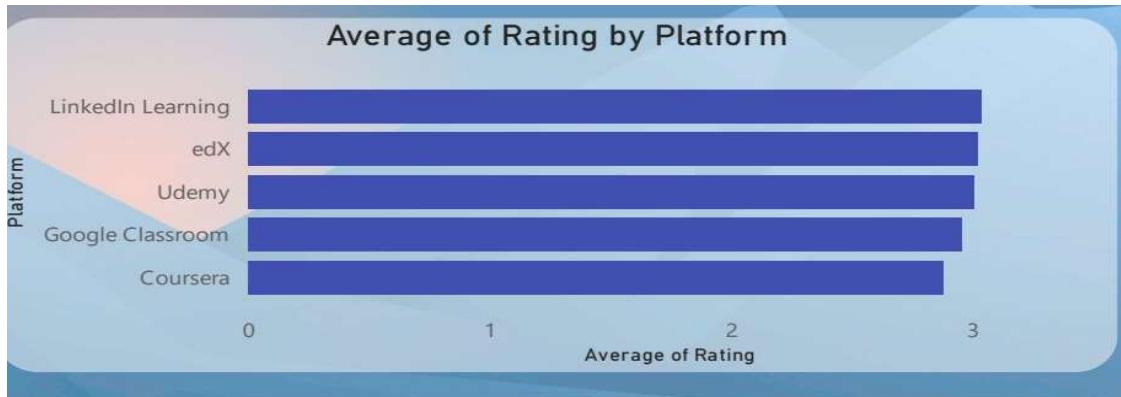


## Platform Comparison:

- ✓ **Progress by Platform (Stacked Column Chart)** – Compares average progress across platforms.



- ✓ **Average Rating by Platform (Bar Chart)** – Highlights differences in learner satisfaction across platforms.



- ✓ **Subscription Type Distribution (Pie Chart)** – Shows the share of premium, free, and trial subscriptions.

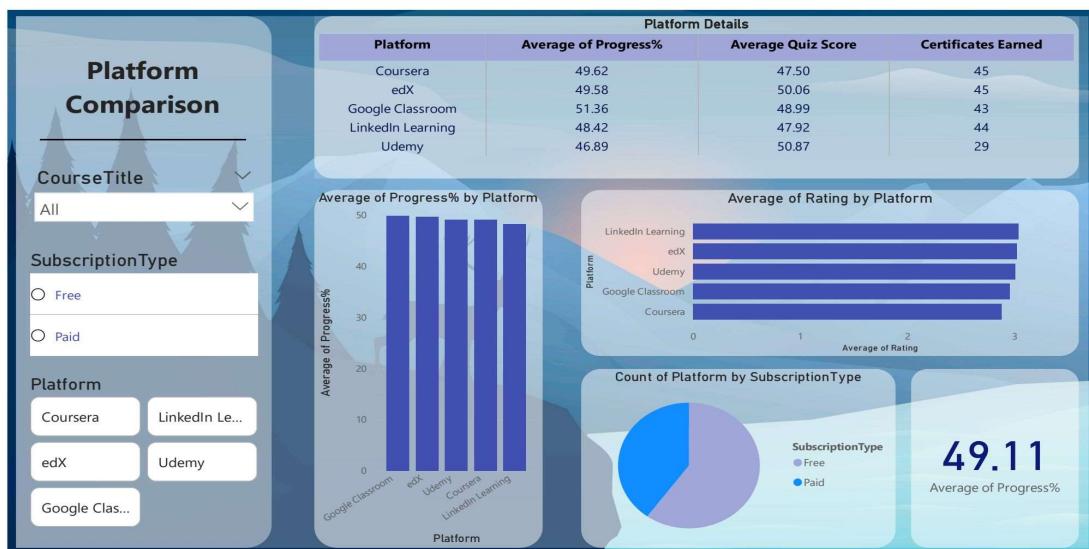


- ✓ **Top Performing Platform (Card)** – Displays the platform with the highest average progress.



- ✓ **Platform Comparison Table** – Summarizes progress, quiz scores, and certificates for each platform.

Platform Details			
Platform	Average of Progress%	Average Quiz Score	Certificates Earned
Coursera	49.62	47.50	45
edX	49.58	50.06	45
Google Classroom	51.36	48.99	43
LinkedIn Learning	48.42	47.92	44
Udemy	46.89	50.87	29



## Solution:

E-Learning insights hub Dashboard serves as a powerful analytical tool that transforms raw learner data into meaningful insights. By highlighting engagement gaps, platform-level performance, content quality issues, and geographic trends, it enables e-learning teams to take targeted actions that improve overall learning outcomes. The dashboard not only enhances course quality and user experience but also supports strategic decisions that drive higher learner satisfaction, better completion rates, and long-term growth for the e-learning ecosystem.