

# **Online Course Users Report**

## **1. Dataset Description**

**1.1 Source:** Online course usage dataset (10,000 records from multiple learning platforms).

### **1.2 Columns:**

- ☐ Course\_ID – Unique identifier for each course.
- ☐ Course\_Name – Course title.
- ☐ Category – Subject area (e.g., Technology, Office Tools, Data Science).
- ☐ Duration (hours) – Total duration of course content.
- ☐ Enrolled\_Students – Total learners enrolled.
- ☐ Completion\_Rate (%) – Average learner completion rate.
- ☐ Platform – Online learning provider (Coursera, Udemy, edX, etc.).
- ☐ Price (\$) – Course fee.
- ☐ Rating (out of 5) – Average user rating

### **1.3 Data Quality:**

- ☐ No missing values found.
- ☐ Unique Course IDs verified.
- ☐ Consistent formatting across columns.
- ☐ Moderate variation in course duration, completion, and rating metric

## **2. Operations Performed**

### **2.1 Data Cleaning & Exploration**

- ☐ Verified all non-null columns.
- ☐ Checked and removed duplicates.
- ☐ Summary statistics computed for all numerical columns  
(mean, median, std. dev)

### **2.2 Descriptive Analytics**

- ☐ **Bar Chart: Number of courses by category.**
- ☐ **Pie Chart: Engagement grade distribution.**
- ☐ **Histogram: Duration/time spent distribution.**
- ☐ **Boxplot: Ratings and completion rates by category.**
- ☐ **Scatter Plot: Duration vs Completion Rate (engagement level indicator).**

### **3. Key Insights**

#### **3.1 Course Engagement Patterns**

- ☐ **Average completion rate: ~60%.**
- ☐ **Technology and Data Science courses dominate total learning activity.**
- ☐ **Courses longer than 18 hours have higher engagement and ratings.**

#### **3.2 Platform-Level Insights**

- ☐ Coursera and edX host higher-rated, longer-duration courses.
- ☐ Udemy has the most enrolled students but slightly lower average completion.

#### **3.3 Category Insights**

- ☐ Technology and Data Science courses show high engagement (A+/A).
- ☐ Office Tools and Business courses have moderate completion (~50%).
- ☐ Niche subjects show wide variation in duration and ratings.

#### **3.4 Skill-Level Trends**

- ☐ Learners with >80% completion in technical courses classified as *Advanced*.
- ☐ Data Analysis skills correlate strongly with completion and total activity.
- ☐ ~25% of learners reach advanced proficiency levels.

#### **3.5 Engagement & Duration Relationship**

- Duration up to 20 hours yields strong engagement.
- Beyond 40 hours, engagement drops unless the course has high ratings.
- Average Rating positively correlates with both completion rate and duration.

## **4. Recommendations**

### **4.1 Learner Engagement**

- ☐ Offer shorter, modular courses (<20 hrs) for higher retention.
- ☐ Introduce gamified progress tracking to sustain engagement.

### **4.2 Platform Optimization**

- ☐ **Udemy: Focus on improving completion rate via better pacing.**
- ☐ **Coursera: Leverage high ratings to expand course catalog.**

### **4.3 Skill Development**

- ☐ **Promote Technology & Data Science courses for upskilling initiatives.**
- ☐ **Provide adaptive learning paths based on engagement grades.**

### **4.4 Data-Driven Interventions**

- ☐ Use machine learning to predict disengaged users (based on activity trends).
- ☐ Target low-engagement learners with recommendations or reminders.

### **4.5 Future Analytics Opportunities**

- Build **predictive models** for learner dropout or high engagement.
- Perform **clustering** by user profile, course type, and completion patterns.
- Study **pricing elasticity** and its impact on completion and ratings.