📌 Title:

Online Course Platform Analytics – Case Study

By Raj Singh, June 2025

🏷 1. Business Problem

An online learning platform wanted to improve learner engagement, reduce dropouts, and understand revenue distribution.
The business needed answers to:

- Which courses drive the most engagement?
- Where are learners dropping out?
- Which instructors contribute most to revenue?
- What are the trends in monthly active learners?

🛠 2. Data Sources & Tools

Data Used:

- users.csv – Learner details (country, signup date)
- courses.csv – Course information (category, title, price)
- instructors.csv – Instructor details
- enrollments.csv – Enrollment and completion status
- progress.csv – Learner progress percentages
- SQL-generated outputs:
    - top_courses.csv
    - dropout_rates.csv
    - revenue_by_instructor.csv
    - learners_by_month.csv
    - completions_vs_dropouts.csv

Tech Stack:

- **PostgreSQL:** data preparation & aggregations
- **Excel Power Pivot:** data modeling & DAX measures
- **Excel:** interactive dashboard with KPIs, charts & slicers

📊 3. Approach & Process

✅ **Data Modeling:**

- Imported all main tables and SQL outputs into Power Pivot.
- Built lookup tables (CourseLookup, InstructorLookup, etc.) to unify data.
- Created relationships for a single connected data model.

✅ **KPI Creation:**

- **Total Revenue:** sum of course fees
- **Total Users:** count of unique users
- **Total Completions:** count of enrollments with status "Completed"
- **Avg Dropout Rate:** percentage of enrollments marked as "Dropped"

✅ **Visualization:**

- Created pivot tables and pivot charts from the unified data model:
    - **Top 5 Engaging Courses** (based on average completion %)
    - **Dropout Rate by Course**
    - **Revenue by Instructor**
    - **Monthly Active Learners**
    - **Dropouts vs Completions**

✅ **Interactivity:**

- Added slicers for Course Category, Instructor Name, Course Title, Enrollment Status, Country, and Signup Month.

✨ 4. Key Insights

📈 Top Engaging Courses:
Digital Marketing and Data Analysis courses showed the highest average completion (>40%).

📉 Dropout Analysis:
Machine Learning Essentials had a high dropout rate (~45%), suggesting content improvements are needed.

💰 Revenue by Instructor:
Instructor *Agata Kunrad* generated the highest revenue despite having fewer courses, indicating premium pricing or high demand.

📊 Monthly Learners:
Learner signups peaked in early 2024 and showed steady growth, with seasonal dips in mid-year months.

✅ 5. Recommendations

- **Improve High-Dropout Courses:** Revise Machine Learning Essentials content or prerequisites.
- **Focus on High-Performing Instructors:** Promote and expand courses from top revenue generators.
- **Seasonal Marketing:** Increase marketing spend in months with historically lower signups.

📌 6. Final Dashboard Preview

💡 This case study demonstrates end-to-end analytics: from data extraction in SQL to modeling and insight visualization in Excel.

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