# P10 Student Instructions – Case Study: Analytics Applications

**Objectives:** - Explore real‑world applications of data analytics across domains - Perform exploratory analysis on an e‑commerce dataset - Summarise findings in a concise report

**Prerequisites:** Completion of previous practicals **Estimated Time:** 3 hours **Learning Outcomes:** - Identify trends and patterns in transactional data - Aggregate metrics by category and subcategory - Communicate insights through tables and charts

**Dataset Description:** | Column | Type | Description | |——-|——|————-| | Date | datetime64[ns] | Synthetic column | | Category | object | Synthetic column | | SubCategory | object | Synthetic column | | Quantity | int64 | Synthetic column | | Price | float64 | Synthetic column | | Revenue | float64 | Synthetic column |

**Tasks and Steps:** 1. Load the e‑commerce transaction dataset 2. Compute total revenue by Category and SubCategory 3. Analyse quantity sold and average price per category 4. Create a bar chart of revenue by Category 5. Identify which categories drive the highest revenue and discuss why

**Formulas / Methods:** - Total Revenue: ((Price imes Quantity)) - Average Price: (rac{Price}{Quantity})

**Submission Checklist:** - Summary tables for revenue and quantity - Bar chart of revenue by category - Interpretation of which categories are most profitable

**मराठी सारांश (Marathi Summary):** या प्रात्यक्षिकात आपण ई‑कॉमर्स व्यवहारांचा डेटा विश्लेषित करून विविध श्रेणी आणि उपश्रेणींनी निर्माण केलेले उत्पन्न आणि एकूण विक्री पाहू.