# E-Commerce Data Visualization Assignment using Python

## Overview

In this assignment, you will work with a synthetic e-commerce dataset to perform various data visualization tasks using Python libraries, Matplotlib and Seaborn. The dataset includes 1000 entries representing sales data with attributes like Product ID, Category, Unit Price, Quantity Sold, Total Sales, Date of Sale, and Customer Region.

## Objectives

Your main objective is to extract meaningful insights from the dataset through visual analysis. This involves creating various types of plots and understanding the underlying distribution and relationships in the data.

## Tasks

### Data Loading and Exploration:

* Load the dataset into a Pandas DataFrame.
* Display the first few rows of the dataset to understand its structure.
* Provide summary statistics of the dataset.

### Time Series Analysis:

* Plot a line graph showing the trend of total sales over time.
* Interpret the trend and any noticeable patterns.

### Category-wise Sales Analysis:

* Create a bar chart to compare total sales across different product categories.
* Identify which categories contribute most to the revenue.

### Price Distribution Study:

* Plot a histogram to understand the distribution of unit prices.
* Analyze whether most products are low-cost or high-cost.

### Regional Sales Breakdown:

* Use a pie chart to visualize the proportion of total sales per customer region.
* Discuss which regions are the largest and smallest markets.

### Correlation Heatmap:

Generate a heatmap to explore correlations between numerical features (Unit Price, Quantity Sold, Total Sales).

Discuss any strong correlations or lack.