# SMT. Z. S. Patel College of Computer Application (BCA)

## TYBCA SEM 5 Subject: Data Analytics using Python

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| 1 | **Student Performance Analysis**<br>**Objective:** Analyze how study time, attendance, gender, and parental education affect marks<br>**Tools:** Python, pandas, matplotlib, seaborn<br>**Output:** Bar charts, heatmap, pass–fail analysis<br>**Dataset:** Student Performance (UCI / Kaggle)<br><br>**UCI Machine Learning Repository**<br>https://archive.ics.uci.edu/ml/datasets/Student+Performance<br><br>**Kaggle (CSV)**<br>https://www.kaggle.com/datasets/uciml/student-alcohol-consumption |
| 2 | **Sales Data Analysis**<br>**Objective:** Identify best-selling products, monthly sales trends, and profit<br>**Tools:** Excel / Python<br>**Output:** Line charts, pie charts<br>**Dataset:** Superstore Sales dataset<br>https://www.kaggle.com/datasets/vivek468/superstore-dataset-final |
| 3 | **Weather Data Analysis**<br>**Objective:** Analyze temperature, rainfall, and humidity patterns<br>**Tools:** Python, pandas, matplotlib<br>**Output:** Trend analysis, seasonal comparison<br>**Dataset:** OpenWeather / Kaggle<br><br>https://www.kaggle.com/datasets/muthuj7/weather-dataset<br><br>**Open Weather Sample Data**<br>https://openweathermap.org/history |
| 4 | **Customer Segmentation Analysis**<br>**Objective:** Segment customers based on age, spending, income<br>**Tools:** Python, pandas, seaborn<br>**Output:** Clustering visualization<br>**Dataset:** Mall Customers Dataset<br>https://www.kaggle.com/datasets/vjchoudhary7/customer-segmentation-tutorial-in-python |
| 5 | **COVID-19 Data Analysis**<br>**Objective:** Analyze daily cases, recovery rate, death rate<br>**Tools:** Python, pandas<br>**Output:** Line graphs, growth rate analysis<br>**Dataset:** COVID-19 India / World data<br>https://www.kaggle.com/datasets/imdevskp/corona-virus-report |
| 6 | E**-Commerce Website Traffic Analysis**<br>**Objective:** Analyze visits, bounce rate, device usage<br>**Tools:** Python |

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| | **Output:** Dashboards, pie charts<br>**Dataset:** Google Analytics sample data<br>https://www.kaggle.com/datasets/bigquery/google-analytics-sample |
| 7 | **Movie Rating Analysis**<br>**Objective:** Analyze movie ratings by genre and year<br>**Tools:** Python<br>**Output:** Rating distribution charts<br>**Dataset:** IMDb / MovieLens<br>https://grouplens.org/datasets/movielens/ |
| 8 | **Social Media Usage Analysis**<br>**Objective:** Analyze screen time and platform usage trends<br>**Tools:** Python<br>**Output:** Bar and pie charts<br>**Dataset:** Social media usage dataset<br>https://www.kaggle.com/datasets/sauviksocial/social-media-advertising |

**Notice**:

1. All students are requested to create a GitHub repository from their own account and upload their project code to it.
2. Create an e-copy of the documentation for each practical, including plotting images as output.
3. Plot images must be clear, Font size: 12 Times New Roman.
4. Submission Date :27/1/2026