Business Analytics Project

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# Instructions

Welcome to the Business Analytics Project! This project will guide you through a series of deliverables, from selecting a relevant topic to analyzing data and providing actionable business insights. Below are the instructions for each deliverable (D1–D4). Make sure to meet the deadlines for each phase and follow the guidelines for a successful project outcome.

### Deliverable 1 (D1): Topic Selection

* **Marks**: 20

The first step in your business analytics project is to choose a relevant and impactful topic. Your topic should reflect a real-world business problem where data-driven decision-making can provide value.

* Select a business area of interest (e.g., marketing, finance, operations, supply chain, HR, etc.).
* Clearly define the problem you aim to address (e.g., customer churn, inventory management, market segmentation, etc.).
* Briefly justify why the topic is important and how predictive analytics can offer insights.

**Submission Requirements**:

* A 1-page summary of your topic selection, including the problem statement and its significance to the business.
* Justification of how data analytics will be used to address the problem.

### Deliverable 2 (D2): Data Set Selection/Collection

* **Marks**: 30

In this phase, you will either collect or select an appropriate dataset that aligns with your chosen topic.

* Identify a dataset that is suitable for analyzing your chosen business problem.
* The dataset should have sufficient data points and variables to support meaningful analysis. It can be obtained from public sources (e.g., Kaggle, UCI Machine Learning Repository) or collected through surveys, business databases, etc.
* Include a brief description of the data (variables, number of observations, source).

**Submission Requirements**:

* Submit a 1-page document that describes the dataset (source, variables, and why it fits the project).
* Attach the dataset in .csv or Excel format.

### Deliverable 3 (D3): Data Cleaning, Exploratory Data Analysis (EDA), and Predictive Analytics

* **Marks**: 50

In this deliverable, you will clean the dataset, perform EDA, and apply predictive analytics tools to generate business insights.

* **Data Cleaning**: Handle missing values, remove duplicates, and correct inconsistencies.
* **Exploratory Data Analysis (EDA)**: Use statistical summaries and visualizations (e.g., histograms, box plots) to understand data distributions, relationships, and trends.
* **Predictive Analytics**: Apply predictive models (e.g., regression, classification, clustering) to analyze the data and make predictions relevant to the business problem.
* **Model Training and Evaluation**: Train the model and evaluate its performance using metrics like accuracy, RMSE, etc.

**Submission Requirements**:

* Submit a PowerPoint presentation (8-10 slides) including:
  + Data cleaning and EDA results.
  + Predictive model approach, findings, and business relevance.
  + Model training, evaluation, and any actionable insights.
* Be prepared to present your findings in class.

### Deliverable 4 (D4): Term Paper – Business Insights and Recommendations

* **Marks**: 100

The final step is to synthesize your project into a formal term paper.

* Provide a detailed report of your analysis, focusing on key business insights from the data and predictive model.
* Discuss the business implications of your findings and offer recommendations based on your analysis.
* Highlight any limitations of your analysis and areas for further research.

**Submission Requirements**:

* A 8-10 page term paper in APA format, including:
  + Introduction: Recap of the problem and project objectives.
  + Data and Methods: Dataset description, data cleaning, and predictive analytics methods used.
  + Findings: Key insights from the analysis.
  + Business Recommendations: Practical solutions or actions for the business based on your findings.
  + Conclusion: Summary and potential future directions for research or business practice.

### General Guidelines:

* This is an individual project; ensure that you complete all work independently.
* Stay organized and meet deadlines for each deliverable.
* Provide clear, concise, and professional documentation for each phase.

Good luck, and I look forward to seeing your analytical insights!