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**Proposal for Online Retail Data Analysis**

**BDAT 1004 – Data Programming**

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# 1. Introduction

The Online Retail Store (ORS) is a UK-based retailer specializing in unique all-occasion gifts. ORS aims to expand its customer base, boost sales, and strengthen its market presence. Achieving these goals requires a comprehensive analysis of its current customer base, sales trends, and product performance.

Our team possesses the skills, experience, and expertise needed to acquire, process, and analyze ORS's data to generate meaningful and actionable insights. This proposal outlines our understanding of the project's objectives, scope, benefits, tools, techniques, and the capabilities of our team.

# 2. Project Description

Transactional data provided remotely by ORS will be used to identify patterns, trends, and business insights. The dataset provided consists of over 540,000 records and includes features such as invoice numbers, product codes, descriptions, quantities, prices, and customer locations.

# 3. Objectives

* **Data Acquisition and Database integration**: Retrieve data from a remote source, store it in a cloud-based database, and ensure its accessibility for analysis.
* **Perform Data Analysis**: Use Python libraries to clean, process, and visualize the data, uncovering key business trends and insights.
* **Deliver Presentation**: Prepare and present a 15-minute overview of the project outcomes, supported by visualizations and a comprehensive report.

# 4. Requirements

* Acquire and store the dataset in a cloud database (SQL/MySQL/PostgreSQL).
* Perform exploratory data analysis (EDA) using Python (e.g., Pandas, Matplotlib).
* Develop visualizations to highlight business insights using Power BI or Tableau.
* Provide a written summary of findings (250–500 words).

# 5. Scope of Project and Out of Scope

**In Scope**

* Data cleaning and preparation.
* Exploratory and descriptive analysis.
* Visualization of trends in the dataset.
* Summarizing insights and recommendations.

**Out of Scope**

* Development of a production-ready application.
* Implementation of identified business strategies.
* Advanced machine learning techniques (if unnecessary for the proof of concept).

# 6. Outcomes and Benefits

**Expected Outcomes**

* Identification of key trends, such as customer purchasing patterns and geographical sales distribution.
* Clear visualizations demonstrating data insights and actionable recommendations.

**Expected Benefits**

* Proof of analytical capabilities to secure a long-term contract.
* Enhanced decision-making for business operations through data-driven insights.

# 7. Deliverables

1. Cleaned and prepared dataset stored in a cloud database.
2. Python-based analysis script.
3. Data visualizations using Power BI or Tableau.
4. Written summary (250–500 words) of findings and insights.
5. Final presentation slides for stakeholders.

# 8. Team Profiles

* **Project Manager (Ujash Patel)**: Oversees timelines and deliverables, ensures team collaboration.
* **Business Analyst (Abdul Hujjati)**: Prepares documentation, manages requirements, and ensures alignment with objectives.
* **Data Analyst (Disha Patel & Karan)**: Acquires and preprocesses data, builds models and visualizations.
* **Developer (Abhin Devasia & Nissamudhin Mathirapali)**: Supports database integration and technical requirements.

# 9. Execution Process

1. **Data Acquisition**
   * Fetch data from the remote source and store it in a cloud database.
2. **Data Preparation**
   * Clean the dataset to address missing values, duplicates, and inconsistencies.
3. **Exploratory Data Analysis**
   * Identify trends and patterns using Python libraries such as Pandas and Matplotlib.
4. **Data Visualization**
   * Use Tableau or Power BI to create interactive dashboards.
5. **Report and Presentation Preparation**
   * Compile findings and insights into a report and presentation slides.

# 10. Tools and Techniques

**Tools**

* Python (Pandas, NumPy, Matplotlib)
* Cloud Database (MongoDB/SQL/MySQL/PostgreSQL)
* Tableau/Power BI

**Techniques**

* Data cleaning and preparation.
* Exploratory data analysis (EDA).
* Visualization and storytelling through data.

# 11. Challenges and Risk Management

**Challenges**

* Handling incomplete or inconsistent data.
* Technical issues with cloud database integration.

**Risk Management**

* Regular progress reviews to address issues promptly.
* Collaboration with team members to troubleshoot technical challenges.

# 12. Timeframe

| **Task** | **Completion Date** |
| --- | --- |
| Data Acquisition | Nov 10-15 |
| Data Preparation | Nov 16-20 |
| Exploratory Data Analysis | Nov 21-25 |
| Visualization Creation | Nov 26-30 |
| Final Report Preparation | Nov 31-Dec 1 |
| Presentation | 12/01/2024 |

# 13. Conclusion

By combining advanced data analytics, cloud technology, and visualization techniques, our team will generate actionable insights for ORS. The results will guide ORS achieve its business goals and serve as evidence of our team's competence and suitability for a long-term partnership.