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**Course Number: MMA 831**

**Course Name: Marketing Analytics**

**Professor Name: Dr. Ceren Kolsarici**

**Assignment Name: Assignment 1 Proposal**

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**Choice #1 Parachute Project**

Focuses on analyzing the customer data to understand the customers financial wellbeing. By categorizing customers into distinct segments, Parachute can offer suitable products, improve customer engagement. The segmentation will allow for more personalized strategies, to better deliver the right service to the customer.

**Project Objective**

1. Identify Customer Segments: Based on the customers financials, demographics and behavioral data.
2. Personalize Service and Offerings: Develop targeted financial solutions and personalized recommendation.
3. Predict Financial Wellbeing: Using the segments to predict financial welling.

**Method**

1. Data Exploration
   1. Financial Data
   2. Demographic
2. Data Cleaning
   1. Remove any duplicates
   2. Remove Null Values
   3. Normalizing variables
3. Feature Engineering
   1. Segmentation of Customers – Explore the different types of clustering.
   2. Group by factors such as financial health, risk and demographics.

**Deliverables**

1. Customer Segmentation Patterns – from the clustering deliver the groupings of customer profiles
2. Personalized Product Recommendation - From the segments, Parachute can improve customer retention, increase app engagement and increase revenue.

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#### **2. Methodological Framework**

* **Data Integration & Cleaning:**
  + Merge data from the mobile app, financial records, and demographics.
  + Address missing values and outliers to ensure data integrity.
* **Feature Engineering:**
  + Create indicators like debt-to-income ratio and savings rate.
  + Develop engagement scores from app usage data.
* **Exploratory Data Analysis (EDA):**
  + Summarize key data characteristics.
  + Identify patterns and correlations using charts and heatmaps.
* **Predictive Modeling:**
  + Utilize Random Forests and Neural Networks to capture complex relationships.
  + Apply cross-validation techniques to ensure model robustness.
* **Deployment & Monitoring:**
  + Implement models within Parachute’s systems using cloud platforms.
  + Create visual tools like Dashboards for stakeholders to monitor predictions and insights.

#### **3. Key Outputs**

* Identification of key drivers influencing financial wellbeing.
* Predictive models forecasting customer financial health.
* Interactive dashboards for ongoing monitoring and decision support.
* Strategic recommendations to enhance financial stability.

#### **4. Managerial Implications**

* **Informed Strategy Development:** Shape financial products and services based on data insights.
* **Personalized Customer Engagement:** Tailor interventions to individual customer needs.
* **Optimized Resource Allocation:** Focus efforts on initiatives with the highest impact.
* **Enhanced Customer Support:** Better assist customers in achieving their financial goals.

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**Choice #2 Credit Canada Project**

Improving success rates of the Debt Consolidation Program. Credit Canada provides credit counselling and financial education to Canadians struggling with debt. By identifying success factors of clients who can successfully complete the DCP. The segmentation of clients will allow Credit Canada to offer tailored support and resources to clients most at risk of failing to complete the DCP.

**Project Objective**

1. Identify Customer Segments: Based on the client’s financials, demographics and geography data, the influences that make client successful in completing the DCP.
2. Create a model that identifies clients at risk of not being to complete the DCP.
3. The model will be able to assist in allocating resources accordingly to clients who are at risk of not completing the DCP.

**Method**

1. Data Exploration
   1. Financial Data
   2. Demographic
   3. Geography
2. Data Cleaning
   1. Remove any duplicates
   2. Remove Null Values
   3. Normalizing variables
3. Feature Engineering/ Model building
   1. Logistic Regression
      1. Looking at factors like demographics, financials and geography to identify successful clients.
   2. Decision Tree
      1. To be able to identify factors that assist in completing the DCP.

**Deliverables**

1. Predictive Model that classifies clients whether they can complete DCP.
2. Factors that influence DCP success.
3. Identify the group of clients Credit Canada to focus on to increase success rates.

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#### **2. Methodological Framework**

* **Data Preparation:**
  + Combine demographic, financial, and geographic data from ~3,500 DCPs.
  + Address missing values and ensure consistency in data entries.
* **Feature Engineering:**
  + Create variables such as credit utilization rate and employment duration.
  + Develop features that capture interactions between key variables.
* **Exploratory Data Analysis (EDA):**
  + Understand the distribution of key variables.
  + Use charts and correlation matrices to uncover relationships related to DCP success.
* **Predictive Modeling:**
  + Employ Logistic Regression, Random Forests, and XGBoost for classification.
  + Utilize k-fold cross-validation to ensure model reliability.
* **Insights & Recommendations:**
  + Identify significant predictors of DCP success.
  + Develop targeted strategies to improve completion rates.

#### **3. Key Outputs**

* Accurate predictive models forecasting DCP completion.
* Identification of significant factors influencing program success.
* Strategic recommendations to enhance DCP effectiveness.
* Dashboards for real-time monitoring of program performance.

#### **4. Managerial Implications**

* **Enhanced Program Design:** Optimize DCP structures based on key success factors.
* **Targeted Client Support:** Provide personalized assistance to clients at higher risk of unsuccessful completion.
* **Efficient Resource Management:** Allocate resources to areas that most effectively improve outcomes.
* **Data-Driven Decision Making:** Empower leadership with insights to refine and improve the DCP continuously.

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