**Assignment 1:**

Imagine you're a data scientist working with a medical research team aiming to predict individuals' susceptibility to heart disease based on various health factors. Your objective is to develop a robust machine learning model capable of accurately identifying individuals at risk of heart disease.

Tasks: Your assignment involves the following tasks:

1. **Data Analysis and Model Selection**: Begin by thoroughly analyzing the provided dataset, which includes a range of health-related features. Based on your analysis, select and train a machine learning model that you believe is most suitable for predicting heart disease risk.
2. **Accuracy Evaluation**: Calculate the accuracy score of your trained model.
3. **Improving Model Performance**: If the accuracy score falls below a certain threshold (e.g., Accuracy Score < 0.8), explore strategies to enhance the model's performance. Experiment with various techniques such as feature engineering, hyperparameter tuning, or trying alternative machine learning algorithms to achieve an acceptable accuracy score of at least 0.8.

**Deliverables:**

1. A comprehensive Jupyter Notebook detailing your data analysis, model training process, and performance evaluation.
2. Presentation of the accuracy score and any attempts made to improve model performance.
3. Detailed explanations of the selected model, features, and any optimization techniques applied.

**Evaluation Criteria:**

1. Depth of data analysis and understanding of the dataset.
2. Selection and justification of the chosen machine learning model.
3. Clarity and effectiveness of model training and evaluation procedures.
4. Presentation and interpretation of accuracy scores.
5. Creativity and effectiveness in improving model performance if necessary.

**Deadline: 02/02/2024**

**Note:** Feel free to explore additional data preprocessing techniques, model evaluation metrics, or advanced machine learning concepts beyond the scope of this assignment. Your goal is to develop a well-structured and insightful analysis that demonstrates your understanding of machine learning principles and techniques in the context of predicting heart disease risk.