**Group Details** :   
Ayush Gupta (20233096) - Leader

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**Title** : Cardiovascular Disease Prediction Model

**Objectives** :

1. Gather a high-quality dataset containing cardiovascular risk factors (e.g., age, cholesterol levels, blood pressure, BMI, smoking habits, diabetes status, etc.).

2.Handle missing values, normalize numerical features, and encode categorical variables to prepare the data for modeling.

3.Identify and select the most relevant features using techniques like correlation matrices, feature importance, or Principal Component Analysis (PCA).

4.Choose appropriate classification model , based on accuracy score , choosen random forest model since it has best accuracy.

5. Try to Train and fine-tune models using cross-validation and hyperparameter tuning to improve performance.

6.Develop an API (using Flask, FastAPI, or Django) to integrate the AI model into a web or mobile application.

7.Build an intuitive UI (using React, Vite, or a similar frontend framework) to allow users to input their health data and receive predictions.

8.Explore deep learning and federated learning techniques for improved predictions and privacy preservation.

**Progress Till Date** :

1. Gather a high-quality dataset containing cardiovascular risk factors (e.g., age, cholesterol levels, blood pressure, BMI, smoking habits, diabetes status, etc.).

2.Handle missing values, normalize numerical features, and encode categorical variables to prepare the data for modeling.

3.Identify and select the most relevant features using techniques like correlation matrices, feature importance, or Principal Component Analysis (PCA).

4. Choose appropriate classification model , based on accuracy score , choosen random forest model since it has best accuracy

5.Train and fine-tune models to improve performance.

**Work Done in Percentage** : 62.5%

**Tasks Remaining (To be completed before 20th April)** :

6.Develop an API (using Flask, FastAPI, or Django) to integrate the AI model into a web or mobile application.

7.Build an intuitive UI (using React, Vite, or a similar frontend framework) to allow users to input their health data and receive predictions.

8.Explore deep learning and federated learning techniques for improved predictions and privacy preservation.