Ideation Phase
Define the Problem Statements

Date	15 October 2022
Team ID	PNT2022TMID03384
Project Name	Project - Visualizing and Predicting Heart Diseases with an Interactive Dash Board
Maximum Marks	2 Marks

Who does the problem affect?	In India in 2016, CVDs (Cardiovascular Diseases) contributed to 28·1% of total deaths and 14·1% of total disability-adjusted life years (DALYs). Most persons with coronary heart disease who pass away are 65 years of age or older. Although both sexes can get heart attacks in old age, women have a higher mortality rate (within a few weeks).
What are the boundaries of the problem?	Risk for heart disease can be increased by a number of medical issues, lifestyle, age, and family history.

What is the issue?	When a person is affected by heart disease, it causes side effects. Chest pain, chest tightness, chest pressure and chest discomfort Breathing difficulties, Neck, jaw, throat, upper abdomen, or back pain.
When does the issue occur?	Heart disease - and the conditions that lead to it - can happen at any age. High rates of obesity and high blood pressure among younger people (ages 35–64) are putting them at risk for heart disease earlier in life.

Where is the issue coming?	CAD happens when coronary arteries struggle to supply the heart with enough blood, oxygen and nutrients. Cholesterol deposits, or plaques, are almost always to blame. These buildups narrow your arteries, decreasing blood flow to your heart. This can cause chest pain, shortness of breath or even a heart attack.
Why is it important that we fix the problem?	Predict if the patient suffers from heart disease. The health professional enters the input values from the patient's health report. The data is fed into model which predicts the probability of having heart disease.

Which solution can be used to address this issue?	Different machine learning algorithms and deep learning are applied to compare the results and analysis of the UCI Machine Learning Heart Disease dataset. The dataset consists of 14 main attributes used for performing the analysis. Various promising results are achieved and are validated using accuracy and confusion matrix. The dataset consists of some irrelevant features which are handled using Isolation Forest, and data are also normalized for getting better results. And how this study can be combined with some multimedia technology like mobile devices is also discussed. Using deep learning approach, 94.2% accuracy was obtained.
What methodology used to solve the issue?	Supervised and Un-supervised machine learning, Data mining, Computer vision with OpenCV, Python web application interface - Flask, Jupyter Notebook, IBM Cloud.