## Project Design Phase-I
## Solution Architecture

| Date | 19 September 2022 |
|------|-------------------|
| Team ID | Team-593101 |
| Project Name | Project - Disease Prediction Using Machine Learning |
| Maximum Marks | 4 Marks |

**Solution Architecture:**

The solution to the challenge of predicting diseases incorporates a machine leaplatform for users to input symptoms and receive probable disease predictions. The classification model, equipped with diverse algorithms, swiftly analyzes rning model using various classification algorithms, providing flexibility for optimal performance. This robust model is seamlessly integrated into a user-friendly web application built with the Flask framework, offering an intuitive symptoms, offering real-time and reliable disease predictions. This solution aims to streamline healthcare access, allowing users to make informed decisions about seeking medical attention promptly.

**Data Collection and Processing:**

- Gather a diverse dataset with labeled symptoms for various diseases.

- Convert symptoms into numerical representations suitable for the chosen classification algorithm.

**Model Development:**

- Choose a classification algorithm (e.g., Random Forest, XGBoost) for disease prediction.

- Fine-tune the model using the dataset, splitting it into training, validation, and test sets.

**Training the Model:**

- Train the classification model on the training dataset, optimizing criteria for accuracy.

- Use the validation dataset to prevent overfitting.

**Model Evaluation:**

- Assess the model's performance on the test dataset using metrics like accuracy, precision, and recall.

**Web Application:**

- Create a user-friendly web app with Flask for inputting symptoms and getting predictions.

**User Interface Design:**

- Design an interface allowing users to input symptoms and receive prompt predictions.

**Security Measures:**

- Implement measures to protect user data and ensure secure communication.

**Continuous Improvement:**

- Set up a process for periodic model updates with new data to improve accuracy.

**Example - Solution Architecture Diagram:**