

ARTIFICIAL INTELLIGENCE – GROUP 5

Project 2: AI Based Diabetes Prediction System

Phase 1: Problem Definition and Design Thinking

Problem Definition:

The problem is to build an AI-powered diabetes prediction system that uses machine learning algorithms to analyze medical data and predict the likelihood of an individual developing diabetes. The system aims to provide early risk assessment and personalized preventive measures, allowing individuals to take proactive actions to manage their health.

Design Thinking:

- 1. Data Collection:** We need a dataset containing medical features such as glucose levels, blood pressure, BMI, etc., along with information about whether the individual has diabetes or not.
- 2. Data Preprocessing:** The medical data needs to be cleaned, normalized, and prepared for training machine learning models.
- 3. Feature Selection:** We will select relevant features that can impact diabetes risk prediction.
- 4. Model Selection:** We can experiment with various machine learning algorithms like Logistic Regression, Random Forest, and Gradient Boosting.
- 5. Evaluation:** We will evaluate the model's performance using metrics like accuracy, precision, recall, F1-score, and ROC-AUC.
- 6. Iterative Improvement:** We will fine-tune the model parameters and explore techniques like feature engineering to enhance prediction accuracy.