# Group Assignment-1

### IT 7123

### Business Intelligence

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**Team Domain:** Healthcare Informatics.

**Dataset:** Diabetes Informatics Management

## Problem Proposition:

Diabetes is a chronic health issue that is becoming more common everywhere. Diabetes must be properly managed in order to reduce complications and enhance patients' quality of life. However, patients may find it difficult to stick to their drug regimens, change their lifestyles, and check their blood glucose levels when controlling their diabetes. This initiative seeks to improve results by streamlining diabetes care, enhancing patient education, and using business intelligence technologies.

## Objective of the project

Examine diabetes patients' medical records to look for patterns and trends in blood glucose levels, medication compliance, and lifestyle choices.

Patient Education: Create educational and user-friendly resources for patients to learn about managing their diabetes based on data insights.

Create predictive models that estimate blood sugar levels, assisting patients and healthcare professionals in making well-informed choices.

Personalized Care: Create diabetes treatment programs specifically for each patient based on their medical history and personal preferences.

Create a thorough business intelligence dashboard that incorporates patient data, learning materials, and prediction technologies.

## Understanding Stakeholders:

Patients: Since they may access their health records, connect with their doctors, control their illnesses, and take part in the decision-making process about their care, patients are the main beneficiaries of healthcare informatics systems. Through a variety of channels, including electronic health records (EHRs), personal health records (PHRs), mobile health (mHealth) devices, patient portals, online surveys, social media platforms, etc., patients also provide useful information and input to the healthcare informatics system.

Providers: Since they can access, exchange, and analyze patient data, coordinate care with other providers, deliver evidence-based and individualized treatment, keep track of patient's progress, and enhance clinical performance and productivity, providers are the key consumers of healthcare informatics systems. By offering their experience, needs, preferences, and opinions, providers also contribute to the creation, implementation, and assessment of healthcare informatics systems. Physicians, nurses, chemists, nurse practitioners, and other health professionals who give patients direct or indirect treatment are considered medical professionals.

Managers: Managers are managers and executives of healthcare organizations (hospitals, clinics, health systems, insurance companies, etc.). Managers are responsible for planning, organizing, directing, and controlling their organization's resources, operations, and policies. Executives use healthcare solutions to improve their organizations' performance, efficiency, quality, safety and profitability. Leaders also support the adoption and implementation of health solutions by providing vision, leadership, finance, infrastructure, training, and motivating employees and stakeholders.

## Data resources:

*https://archive.ics.uci.edu/dataset/34/diabetes*

## Informational Data:

This dataset consists of 500 diabetic patients' digitized medical records that span many years. These records contain thorough information on the patient, including information about their lifestyle, medical history, blood glucose levels, and medication adherence.

500 Patients; 22 Clinical Variables Per Patient: Each of the 500 patients has a record that contains information on 22 clinical variables, including the results of important medical tests, lab results, and examination results.

250 patients from each gender make up the dataset, which is evenly split between male and female patients.

This dataset contains a variety of data for characterizing diabetes patients, tracking their health, and investigating variables influencing diabetes treatment and development. It is a useful tool for enhancing diabetes treatment by utilizing data-driven insights.

## Reference

Scikit-learn: Machine Learning in Python, Pedregosa et al., JMLR 12, pp. 2825-2830, 2011. [Online Article]

Link: https://scikit-learn.org/stable/modules/generated/sklearn.datasets.load_diabetes.html

The Strong Heart Study: Diabetes Mellitus and Its Complications in American Indians, Welty et al., 1995. [Research Study]

https://diabetesjournals.org/diabetes/article/45/Supplement_3/S6/12101/Diabetes-and-Coronary-Heart-Disease-in-American