Assignment 3.1: ANN for Medical Diagnosis

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| Assignment 3.1  ANN for Medical Diagnosis |  |

# Scenario and Instructions

#### **Scenario:**

A healthcare organisation wants to develop a diagnostic tool to predict whether a patient has diabetes based on various health metrics. Your task is to implement an Artificial Neural Network (ANN) to create an accurate prediction model that can assist healthcare providers in early diagnosis.

#### **Assignment Instructions:**

Create a Python notebook to construct, train, and evaluate an artificial neural network for diabetes prediction. This assignment will integrate supervised learning concepts with practical healthcare applications while exploring the capabilities of neural networks.

**Dataset**

The [enhanced\_diabetes\_dataset.csv](https://classroom.emeritus.org/courses/12437/files/4675205?wrap=1) contains health information for female patients of Pima Indian heritage, including:

* Pregnancies: Number of times pregnant
* Glucose: Plasma glucose concentration (mg/dL)
* BloodPressure: Diastolic blood pressure (mm Hg)
* SkinThickness: Triceps skin fold thickness (mm)
* Insulin: 2-Hour serum insulin (mu U/ml)
* BMI: Body mass index (weight in kg/(height in m)²)
* DiabetesPedigreeFunction: Diabetes pedigree function (a function which scores likelihood of diabetes based on family history)
* Age: Age in years
* Outcome: Class variable (0 or 1) indicating whether the patient has diabetes (1) or not (0)

# Assignment & Solutions

## Task 1: Utilise Libraries/Dataset

## Task 2: Generate at least three EDA visualisations