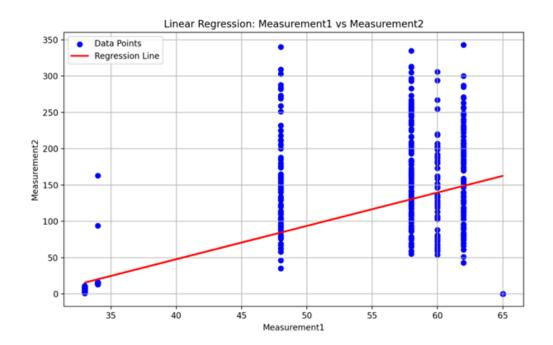# Machine Learning

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

**Diabetes Data Analysis Report**

**Mean Squared Error: Diabetes Data Analysis Report 4209.41**

## Regression Plot:



Reflection: This analysis focused on the relationship between two measurements related to diabetes data. A linear regression model was applied to predict Measurement2 based on Measurement1. The Mean Squared Error (MSE) of the model was found to be 4209.41, indicating the average squared difference between the predicted and actual values. The regression plot visually demonstrates the fit of the model, showing how well Measurement1 predicts Measurement2. Overall, the analysis highlights the potential of using linear regression in understanding diabetes-related measurements and their interdependencies

Code Used :

```python
# Import necessary libraries
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_squared_error

# Define features and target variable
X = data_01_df[['Measurement1']]
Y = data_01_df['Measurement2']

# Split the dataset into training and testing sets
X_train, X_test, Y_train, Y_test = train_test_split(X, Y, test_size=0.2, random_state=42)

# Train the linear regression model
model = LinearRegression()
model.fit(X_train, Y_train)

# Make predictions on the test set
Y_pred = model.predict(X_test)

# Evaluate the model using Mean Squared Error
mse = mean_squared_error(Y_test, Y_pred)
print("Mean Squared Error:", mse)
```