Machine Learning Lab (PMCA507P)

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Exercise 7b : Non Linear SVM

Collab url : https://colab.research.google.com/drive/1B2LG--JGxlKVHkcf8DTh0e-KjoJzz6Mq?usp=sharing

Dataset url : https://www.kaggle.com/datasets/uciml/pima-indians-diabetes-database/data

Pima Indians Diabetes Database

```python
# Import necessary libraries
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.svm import SVC
import pandas as pd
```

```python
# Load the dataset
diabetes_data = pd.read_csv('/content/diabetes.csv')
```

```python
# Separate features and target variable
X = diabetes_data.drop('Outcome', axis=1)
y = diabetes_data['Outcome']

# Split the data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=4
```

```python
# Standardize the features
scaler = StandardScaler()
X_train = scaler.fit_transform(X_train)
X_test = scaler.transform(X_test)

# Create and train the non-linear SVM model
svm_model = SVC(kernel='rbf', gamma='auto')  # 'rbf' kernel for non-linear SVM
svm_model.fit(X_train, y_train)
```

```
▼           SVC
SVC(gamma='auto')
```

```python
# Evaluate the model on the test set
accuracy = svm_model.score(X_test, y_test)
print(f"Accuracy: {accuracy * 100:.2f}%")
```

```
Accuracy: 73.38%
```