

# PROJECT : DIABETES PREDICTION SYSTEM

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## Phase-03

### Loading and Pre-Processing the Dataset

#### ABOUT THIS PHASE :

In this phase we need to do loading and pre-processing the datasets. Here I explain about what are the process to do this phase.

#### Step 1:

##### **Import the dependencies**

In this step we import the library files which are required to run this program code, like modules ( numpy , pandas, sklearn , matplotlib, seaborn)

#### Step 2:

##### **Impoting the dataset**

In this step I import PIMA diabetes dataset form the the sklearn module it is used to fetch the data and the data is used as the input of this project.

#### Step 3:

##### **Statical measure of data**

In this step I want know some statics about my dataset like mean,count,avg etc,.. and this is the important step in data preprocessing

#### Step4:

##### **Data standardization:**

In this step I standardized my dataset with the help of scaler function

Import the dependencies

```
import numpy as np
import pandas as pd
from sklearn.preprocessing import StandardScaler
from sklearn.model_selection import train_test_split
from sklearn import svm
from sklearn.metrics import accuracy_score
```


Data collection and analysis

PIMA Diabetes Dataset

```
# loading the dataset to the pandas dataframe
diabetes_dataset = pd.read_csv('/content/diabetes.csv')
```

```
pd.read_csv?
```

```
# printing the first 5 rows of the dataset
diabetes_dataset.head()
```



	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI	DiabetesPedigreeFunction	Age	Outcome
0	6	148	72	35	0	33.6	0.627	50	1
1	1	85	66	29	0	26.6	0.351	31	0
2	8	183	64	0	0	23.3	0.672	32	1
3	1	89	66	23	94	28.1	0.167	21	0
4	0	137	40	35	168	43.1	2.288	33	1

```
# number of rows and column in this dataset
diabetes_dataset.shape
```

(768, 9)

```
# getting the statistical measures of the data
diabetes_dataset.describe()
```

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI	I
count	768.000000	768.000000	768.000000	768.000000	768.000000	768.000000	
mean	3.845052	120.894531	69.105469	20.536458	79.799479	31.992578	
std	3.369578	31.972618	19.355807	15.952218	115.244002	7.884160	
min	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	1.000000	99.000000	62.000000	0.000000	0.000000	27.300000	
50%	3.000000	117.000000	72.000000	23.000000	30.500000	32.000000	
75%	6.000000	140.250000	80.000000	32.000000	127.250000	36.600000	
max	17.000000	199.000000	122.000000	99.000000	846.000000	67.100000	

```
diabetes_dataset['Outcome'].value_counts()
```

```
0    500
1    268
Name: Outcome, dtype: int64
```

0--> Non-Diabetic

1--> Diabetic

```
diabetes_dataset.groupby('Outcome').mean()
```

```

Pregnancies  Glucose  BloodPressure  SkinThickness  Insulin  BMI
# seperating the data and labels
X = diabetes_dataset.drop(columns = 'Outcome', axis=1)
Y = diabetes_dataset['Outcome']

```

```
print(X)
```

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI \
0	6	148	72	35	0	33.6
1	1	85	66	29	0	26.6
2	8	183	64	0	0	23.3
3	1	89	66	23	94	28.1
4	0	137	40	35	168	43.1
..	...	...	...	...	...	...
763	10	101	76	48	180	32.9
764	2	122	70	27	0	36.8
765	5	121	72	23	112	26.2
766	1	126	60	0	0	30.1
767	1	93	70	31	0	30.4

	DiabetesPedigreeFunction	Age
0	0.627	50
1	0.351	31
2	0.672	32
3	0.167	21
4	2.288	33
..	...	...
763	0.171	63
764	0.340	27
765	0.245	30
766	0.349	47
767	0.315	23

```
[768 rows x 8 columns]
```

```
print(Y)
```

```

0      1
1      0
2      1
3      0
4      1
..
763    0
764    0
765    0
766    1
767    0
Name: Outcome, Length: 768, dtype: int64

```

## Data Standardization

```
scaler = StandardScaler()
```

```
scaler.fit(X)
```

```

StandardScaler
StandardScaler()

```

```
standardized_data = scaler.transform(X)
```

```
print(standardized_data)
```

```

[[ 0.63994726  0.84832379  0.14964075 ...  0.20401277  0.46849198
  1.4259954 ]
 [-0.84488505 -1.12339636 -0.16054575 ... -0.68442195 -0.36506078
 -0.19067191]
 [ 1.23388019  1.94372388 -0.26394125 ... -1.10325546  0.60439732
 -0.10558415]
 ...
 [ 0.3429808  0.00330087  0.14964075 ... -0.73518964 -0.68519336
 -0.27575966]
 [-0.84488505  0.1597866  -0.47073225 ... -0.24020459 -0.37110101
  1.17073215]
 [-0.84488505 -0.8730192  0.04624525 ... -0.20212881 -0.47378505
 -0.87137393]]

```

```
X = standardized_data
Y = diabetes_dataset['Outcome']
```

```
print(X)
print(Y)
```

```
[[ 0.63994726  0.84832379  0.14964075 ...  0.20401277  0.46849198
   1.4259954 ]
 [-0.84488505 -1.12339636 -0.16054575 ... -0.68442195 -0.36506078
  -0.19067191]
 [ 1.23388019  1.94372388 -0.26394125 ... -1.10325546  0.60439732
  -0.10558415]
 ...
 [ 0.3429808  0.00330087  0.14964075 ... -0.73518964 -0.68519336
  -0.27575966]
 [-0.84488505  0.1597866  -0.47073225 ... -0.24020459 -0.37110101
   1.17073215]
 [-0.84488505 -0.8730192  0.04624525 ... -0.20212881 -0.47378505
  -0.87137393]]
0      1
1      0
2      1
3      0
4      1
..
763    0
764    0
765    0
766    1
767    0
Name: Outcome, Length: 768, dtype: int64
```