1)

Code:

```
#Scaling
from pandas import read_csv
from numpy import set_printoptions
from sklearn import preprocessing
names=['preg','plas','pres','skin','test','mass','pedi','age','class']
df=read_csv("pima-indians-diabetes.csv")
array=df.values
data=preprocessing.MinMaxScaler(feature_range=(0,1))
data_r=data.fit_transform(array)
set_printoptions(precision=2)
print("\nScaled data:\n",data_r[0:10])
```

```
Scaled data:
 [[0.35 0.74 0.59 0.35 0.    0.5  0.23 0.48 1.  ]
 [0.06 0.43 0.54 0.29 0.    0.4  0.12 0.17 0.  ]
 [0.47 0.92 0.52 0.   0.    0.35 0.25 0.18 1.  ]
 [0.06 0.45 0.54 0.23 0.11 0.42 0.04 0.   0.  ]
 [0.   0.69 0.33 0.35 0.2  0.64 0.94 0.2  1.  ]
 [0.29 0.58 0.61 0.   0.    0.38 0.05 0.15 0.  ]
 [0.18 0.39 0.41 0.32 0.1  0.46 0.07 0.08 1.  ]
 [0.59 0.58 0.   0.   0.    0.53 0.02 0.13 0.  ]
 [0.12 0.99 0.57 0.45 0.64 0.45 0.03 0.53 1.  ]
 [0.47 0.63 0.79 0.   0.    0.   0.07 0.55 1.  ]]
```

2)

Code: l1

```
#Normalising
from pandas import read_csv
from numpy import set_printoptions
from sklearn.preprocessing import Normalizer
names=['preg','plas','pres','skin','test','mass','pedi','age','class']
df=read_csv("pima-indians-diabetes.csv")
array=df.values
Data_Normalizer=Normalizer(norm='l1').fit(array)
Data_Normalized=Data_Normalizer.fit_transform(array)
set_printoptions(precision=2)
print("\nNormalized data:\n",Data_Normalized[0:3])
```

```
Normalized data:
 [[0.02 0.43 0.21 0.1  0.   0.1  0.   0.14 0.  ]
 [0.   0.36 0.28 0.12 0.   0.11 0.   0.13 0.  ]
 [0.03 0.59 0.21 0.   0.   0.07 0.   0.1  0.  ]]
```

Code: l2
#Normalising
from pandas import read_csv
from numpy import set_printoptions
from sklearn.preprocessing import Normalizer
names=['preg','plas','pres','skin','test','mass','pedi','age','class']
df=read_csv("pima-indians-diabetes.csv")
array=df.values
Data_Normalizer=Normalizer(norm='l2').fit(array)
Data_Normalized=Data_Normalizer.fit_transform(array)
set_printoptions(precision=2)
print("\nNormalized data:\n",Data_Normalized[0:3])

```
Normalized data:
 [[0.03 0.83 0.4  0.2  0.   0.19 0.   0.28 0.01]
 [0.01 0.72 0.56 0.24 0.   0.22 0.   0.26 0.  ]
 [0.04 0.92 0.32 0.   0.   0.12 0.   0.16 0.01]]
```

3)

Code:

#Binarization
from pandas import read_csv
from numpy import set_printoptions
from sklearn.preprocessing import Binarizer
names=['preg','plas','pres','skin','test','mass','pedi','age','class']
df=read_csv("pima-indians-diabetes.csv")
array=df.values
Binarizer=Binarizer(threshold=0.5).fit(array)
Data_Binarized=Binarizer.fit_transform(array)
set_printoptions(precision=2)
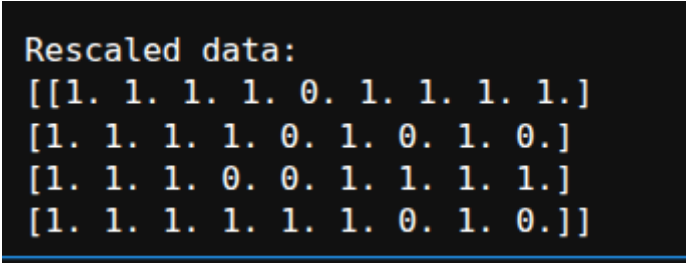print("\n Binary data:\n",Data_Binarized[0:3])

```
Binary data:
 [[1. 1. 1. 1. 0. 1. 1. 1. 1.]
 [1. 1. 1. 1. 0. 1. 0. 1. 0.]
 [1. 1. 1. 0. 0. 1. 1. 1. 1.]]
```

4)
Code:

```
#Standardization
from sklearn.preprocessing import StandardScaler
from pandas import read_csv
from numpy import set_printoptions
names=['preg','plas','pres','skin','test','mass','pedi','age','class']
df=read_csv("pima-indians-diabetes.csv")
array=df.values
data_scaler=StandardScaler().fit(array)
data_rescaled=data_scaler.transform(array)
set_printoptions(precision=2)
print("\n Rescaled data:\n",Data_Binarized[0:4])
```

```
Rescaled data:
[[1. 1. 1. 1. 0. 1. 1. 1. 1.]
 [1. 1. 1. 1. 0. 1. 0. 1. 0.]
 [1. 1. 1. 0. 0. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 0. 1. 0.]]
```