

## LAB-1

|   | ID  | No_Pation | Gender | AGE | Urea | Cr | HbA1c | Chol | TG  | HDL | LDL | VLDL | \ |
|---|-----|-----------|--------|-----|------|----|-------|------|-----|-----|-----|------|---|
| 0 | 502 | 17975     | F      | 50  | 4.7  | 46 | 4.9   | 4.2  | 0.9 | 2.4 | 1.4 | 0.5  |   |
| 1 | 735 | 34221     | M      | 26  | 4.5  | 62 | 4.9   | 3.7  | 1.4 | 1.1 | 2.1 | 0.6  |   |
| 2 | 420 | 47975     | F      | 50  | 4.7  | 46 | 4.9   | 4.2  | 0.9 | 2.4 | 1.4 | 0.5  |   |
| 3 | 680 | 87656     | F      | 50  | 4.7  | 46 | 4.9   | 4.2  | 0.9 | 2.4 | 1.4 | 0.5  |   |
| 4 | 504 | 34223     | M      | 33  | 7.1  | 46 | 4.9   | 4.9  | 1.0 | 0.8 | 2.0 | 0.4  |   |

  

|   | BMI  | CLASS |
|---|------|-------|
| 0 | 24.0 | N     |
| 1 | 23.0 | N     |
| 2 | 24.0 | N     |
| 3 | 24.0 | N     |
| 4 | 21.0 | N     |

First few rows of the dataset:

|   | ID  | No_Pation | Gender | AGE | Urea | Cr | HbA1c | Chol | TG  | HDL | LDL | VLDL | \ |
|---|-----|-----------|--------|-----|------|----|-------|------|-----|-----|-----|------|---|
| 0 | 502 | 17975     | F      | 50  | 4.7  | 46 | 4.9   | 4.2  | 0.9 | 2.4 | 1.4 | 0.5  |   |
| 1 | 735 | 34221     | M      | 26  | 4.5  | 62 | 4.9   | 3.7  | 1.4 | 1.1 | 2.1 | 0.6  |   |
| 2 | 420 | 47975     | F      | 50  | 4.7  | 46 | 4.9   | 4.2  | 0.9 | 2.4 | 1.4 | 0.5  |   |
| 3 | 680 | 87656     | F      | 50  | 4.7  | 46 | 4.9   | 4.2  | 0.9 | 2.4 | 1.4 | 0.5  |   |
| 4 | 504 | 34223     | M      | 33  | 7.1  | 46 | 4.9   | 4.9  | 1.0 | 0.8 | 2.0 | 0.4  |   |

  

|   | BMI  | CLASS |
|---|------|-------|
| 0 | 24.0 | N     |
| 1 | 23.0 | N     |
| 2 | 24.0 | N     |
| 3 | 24.0 | N     |
| 4 | 21.0 | N     |

```
Missing values in each column
ID                0
No_Pation         0
Gender            0
AGE              0
Urea             0
Cr               0
HbA1c            0
Chol             0
TG               0
HDL              0
LDL              0
VLDL             0
BMI              0
CLASS            0
dtype: int64
```

### Cleaned and Scaled Data:

|    | Gender | CLASS | ID       | No_Pation | AGE      | Urea     | Cr       | \ |
|----|--------|-------|----------|-----------|----------|----------|----------|---|
| 5  | 0.0    | 0.0   | 0.706767 | 0.451762  | 0.354839 | 0.578947 | 0.619048 |   |
| 6  | 0.0    | 0.0   | 0.744361 | 0.451775  | 0.354839 | 0.631579 | 0.369048 |   |
| 7  | 1.0    | 0.0   | 0.911028 | 0.451788  | 0.322581 | 0.144737 | 0.071429 |   |
| 13 | 0.0    | 0.0   | 0.130326 | 0.451881  | 0.161290 | 0.421053 | 0.321429 |   |
| 14 | 0.0    | 0.0   | 0.170426 | 0.451894  | 0.290323 | 0.842105 | 0.714286 |   |

  

|    | HbA1c    | Chol     | TG       | HDL      | LDL      | VLDL     | BMI  | \ |
|----|----------|----------|----------|----------|----------|----------|------|---|
| 5  | 0.230769 | 0.271186 | 0.170213 | 0.400000 | 0.306122 | 0.190476 | 0.10 |   |
| 6  | 0.261538 | 0.559322 | 0.106383 | 0.466667 | 0.714286 | 0.095238 | 0.10 |   |
| 7  | 0.161538 | 0.508475 | 0.212766 | 0.533333 | 0.551020 | 0.238095 | 0.25 |   |
| 13 | 0.153846 | 0.610169 | 0.234043 | 0.666667 | 0.612245 | 0.238095 | 0.15 |   |
| 14 | 0.261538 | 0.203390 | 0.319149 | 0.800000 | 0.061224 | 0.333333 | 0.20 |   |

### First few rows of the dataset:

|   | age | workclass | fnlwgt | education    | educational-num | marital-status     | \ |
|---|-----|-----------|--------|--------------|-----------------|--------------------|---|
| 0 | 25  | Private   | 226802 | 11th         | 7               | Never-married      |   |
| 1 | 38  | Private   | 89814  | HS-grad      | 9               | Married-civ-spouse |   |
| 2 | 28  | Local-gov | 336951 | Assoc-acdm   | 12              | Married-civ-spouse |   |
| 3 | 44  | Private   | 160323 | Some-college | 10              | Married-civ-spouse |   |
| 4 | 18  | ?         | 103497 | Some-college | 10              | Never-married      |   |

  

|   | occupation        | relationship | race  | gender | capital-gain | capital-loss | \ |
|---|-------------------|--------------|-------|--------|--------------|--------------|---|
| 0 | Machine-op-inspct | Own-child    | Black | Male   | 0            | 0            |   |
| 1 | Farming-fishing   | Husband      | White | Male   | 0            | 0            |   |
| 2 | Protective-serv   | Husband      | White | Male   | 0            | 0            |   |
| 3 | Machine-op-inspct | Husband      | Black | Male   | 7688         | 0            |   |
| 4 | ?                 | Own-child    | White | Female | 0            | 0            |   |

  

|   | hours-per-week | native-country | income |
|---|----------------|----------------|--------|
| 0 | 40             | United-States  | <=50K  |
| 1 | 50             | United-States  | <=50K  |
| 2 | 40             | United-States  | >50K   |
| 3 | 40             | United-States  | >50K   |
| 4 | 30             | United-States  | <=50K  |

Missing values in each column:

|                 |       |
|-----------------|-------|
| age             | 0     |
| workclass       | 0     |
| fnlwgt          | 0     |
| education       | 0     |
| educational-num | 0     |
| marital-status  | 0     |
| occupation      | 0     |
| relationship    | 0     |
| race            | 0     |
| gender          | 0     |
| capital-gain    | 0     |
| capital-loss    | 0     |
| hours-per-week  | 0     |
| native-country  | 0     |
| income          | 0     |
| dtype:          | int64 |

Cleaned and Scaled Data:

|   | workclass | education | marital-status | occupation | relationship | race | \ |
|---|-----------|-----------|----------------|------------|--------------|------|---|
| 0 | 4.0       | 1.0       | 4.0            | 7.0        | 3.0          | 2.0  |   |
| 1 | 4.0       | 11.0      | 2.0            | 5.0        | 0.0          | 4.0  |   |
| 2 | 2.0       | 7.0       | 2.0            | 11.0       | 0.0          | 4.0  |   |
| 6 | 0.0       | 11.0      | 4.0            | 0.0        | 4.0          | 2.0  |   |
| 8 | 4.0       | 15.0      | 4.0            | 8.0        | 4.0          | 4.0  |   |

|   | gender | native-country | income | age      | fnlwgt   | educational-num | \ |
|---|--------|----------------|--------|----------|----------|-----------------|---|
| 0 | 1.0    | 39.0           | 0.0    | 0.131148 | 0.527441 | 0.181818        |   |
| 1 | 1.0    | 39.0           | 0.0    | 0.344262 | 0.188277 | 0.363636        |   |
| 2 | 1.0    | 39.0           | 1.0    | 0.180328 | 0.800155 | 0.636364        |   |
| 6 | 1.0    | 39.0           | 0.0    | 0.147541 | 0.169156 | 0.363636        |   |
| 8 | 0.0    | 39.0           | 0.0    | 0.426230 | 0.823028 | 0.818182        |   |

|   | capital-gain | capital-loss | hours-per-week |
|---|--------------|--------------|----------------|
| 0 | 0.0          | 0.0          | 0.368421       |
| 1 | 0.0          | 0.0          | 0.894737       |
| 2 | 0.0          | 0.0          | 0.368421       |
| 6 | 0.0          | 0.0          | 0.315789       |
| 8 | 0.0          | 0.0          | 0.894737       |