

Bangladesh University of Business & Technology

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Course Code : CSE 4176

Course Title : Data Mining Lab

Assignment - 1

Submitted By	Submitted To
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CO1. Apply data preprocessing steps (such as: Viewing your data, Handling duplicates, Column cleanup, DataFrame slicing, selecting, extracting) in the following dataset - <https://www.kaggle.com/datasets/selinraja/irish-data> .

1.Import library

```
✓ 0s [3] import pandas as pd
```

2. Upload the dataset & Viewing the data

```
✓ 0s iris = pd.read_csv("/content/Iris_Data.csv")  
iris
```

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
...
145	6.7	3.0	5.2	2.3	Iris-virginica
146	6.3	2.5	5.0	1.9	Iris-virginica
147	6.5	3.0	5.2	2.0	Iris-virginica
148	6.2	3.4	5.4	2.3	Iris-virginica
149	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 5 columns

✓ 0s completed at 11:35 PM

3. View the top 10 rows of the dataset.

✓
0s

▶

iris.head(10)

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
5	5.4	3.9	1.7	0.4	Iris-setosa
6	4.6	3.4	1.4	0.3	Iris-setosa
7	5.0	3.4	1.5	0.2	Iris-setosa
8	4.4	2.9	1.4	0.2	Iris-setosa
9	4.9	3.1	1.5	0.1	Iris-setosa

4. View the bottom 10 rows of the dataset.

✓
0s

▶

iris.tail(10)

	sepal_length	sepal_width	petal_length	petal_width	species
140	6.7	3.1	5.6	2.4	Iris-virginica
141	6.9	3.1	5.1	2.3	Iris-virginica
142	5.8	2.7	5.1	1.9	Iris-virginica
143	6.8	3.2	5.9	2.3	Iris-virginica
144	6.7	3.3	5.7	2.5	Iris-virginica
145	6.7	3.0	5.2	2.3	Iris-virginica
146	6.3	2.5	5.0	1.9	Iris-virginica
147	6.5	3.0	5.2	2.0	Iris-virginica
148	6.2	3.4	5.4	2.3	Iris-virginica
149	5.9	3.0	5.1	1.8	Iris-virginica

5. Showing the description of the whole dataset.

✓
0s



```
iris.describe()
```

	sepal_length	sepal_width	petal_length	petal_width
count	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.054000	3.758667	1.198667
std	0.828066	0.433594	1.764420	0.763161
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.350000	1.300000
75%	6.400000	3.300000	5.100000	1.800000
max	7.900000	4.400000	6.900000	2.500000



6. Showing the info of the dataset.

✓
0s



```
iris.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 150 entries, 0 to 149  
Data columns (total 5 columns):  
#   Column          Non-Null Count  Dtype  
---  ---  
0   sepal_length    150 non-null   float64  
1   sepal_width     150 non-null   float64  
2   petal_length    150 non-null   float64  
3   petal_width     150 non-null   float64  
4   species         150 non-null   object  
dtypes: float64(4), object(1)  
memory usage: 6.0+ KB
```

7. Dropping the duplicate data

✓
0s



```
display(iris.drop_duplicates())
```

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
...
145	6.7	3.0	5.2	2.3	Iris-virginica
146	6.3	2.5	5.0	1.9	Iris-virginica
147	6.5	3.0	5.2	2.0	Iris-virginica
148	6.2	3.4	5.4	2.3	Iris-virginica
149	5.9	3.0	5.1	1.8	Iris-virginica

147 rows × 5 columns



8. Column cleanup

```
✓ [25] for x in iris.index:  
1s      if iris.loc[x, "sepal_length"] > 5:  
        iris.loc[x, "sepal_length"] = 5
```

```
✓ 0s ▶ iris.head(10)
```

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.0	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
5	5.0	3.9	1.7	0.4	Iris-setosa
6	4.6	3.4	1.4	0.3	Iris-setosa
7	5.0	3.4	1.5	0.2	Iris-setosa
8	4.4	2.9	1.4	0.2	Iris-setosa
9	4.9	3.1	1.5	0.1	Iris-setosa

9. Showing the unique data of specific column.

```
✓ 0s ▶ print("Species")  
print(iris['species'].unique())
```

```
Species  
['Iris-setosa' 'Iris-versicolor' 'Iris-virginica']
```

10. Showing the DataFrame slicing,

✓
0s

▶

iris1=iris.iloc[0:7]
iris1

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.0	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
5	5.0	3.9	1.7	0.4	Iris-setosa
6	4.6	3.4	1.4	0.3	Iris-setosa

11. Showing the DataFrame selecting,

✓
0s

▶

iris1=iris.iloc[0:7]
iris1

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.0	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
5	5.0	3.9	1.7	0.4	Iris-setosa
6	4.6	3.4	1.4	0.3	Iris-setosa

12. Showing the DataFrame slicing.

```
✓ [14] iris2=iris.loc[:, 'sepal_length': 'petal_width']  
0s iris2
```

	sepal_length	sepal_width	petal_length	petal_width
0	5.0	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2
...
145	5.0	3.0	5.2	2.3
146	5.0	2.5	5.0	1.9
147	5.0	3.0	5.2	2.0
148	5.0	3.4	5.4	2.3
149	5.0	3.0	5.1	1.8

150 rows × 4 columns

```
✓ [15] copy=iris[['sepal_length', 'sepal_width', 'petal_length']]  
0s copy
```

	sepal_length	sepal_width	petal_length
0	5.0	3.5	1.4
1	4.9	3.0	1.4
2	4.7	3.2	1.3
3	4.6	3.1	1.5
4	5.0	3.6	1.4
...
145	5.0	3.0	5.2
146	5.0	2.5	5.0
147	5.0	3.0	5.2
148	5.0	3.4	5.4
149	5.0	3.0	5.1

150 rows × 3 columns

13. Showing the dataframe extracting.

✓
0s



```
first = iris.iloc[3]  
first
```

```
sepal_length    4.6  
sepal_width     3.1  
petal_length    1.5  
petal_width     0.2  
species         Iris-setosa  
Name: 3, dtype: object
```

✓
0s



```
row2 = iris.iloc [[3, 5, 7]]  
row2
```

	sepal_length	sepal_width	petal_length	petal_width	species
3	4.6	3.1	1.5	0.2	Iris-setosa
5	5.0	3.9	1.7	0.4	Iris-setosa
7	5.0	3.4	1.5	0.2	Iris-setosa

