

Lab Assignment 8

Fundamentals of Machine Learning

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Q. Implementing Pandas

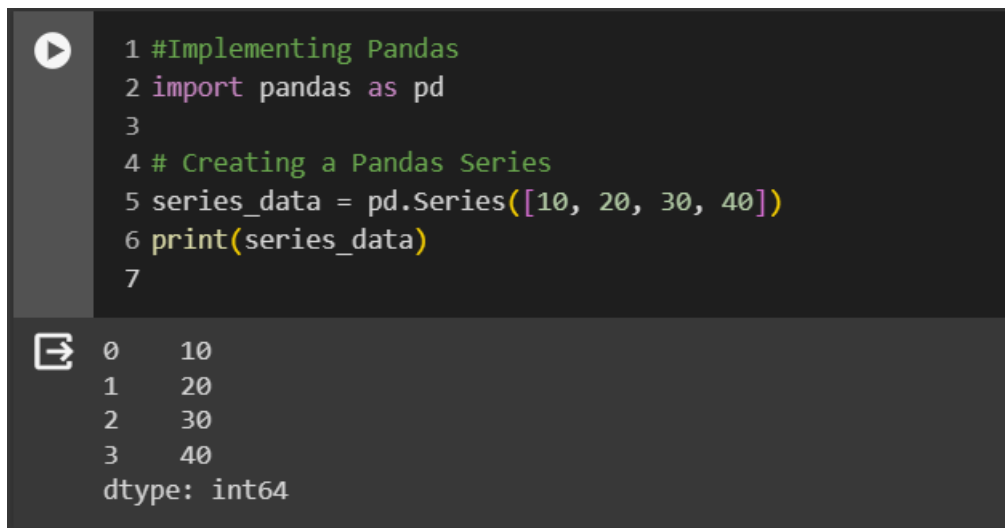
1, #Implementing Pandas

```
import pandas as pd
```

Creating a Pandas Series

```
series_data = pd.Series([10, 20, 30, 40])
```

```
print(series_data)
```



```
1 #Implementing Pandas
2 import pandas as pd
3
4 # Creating a Pandas Series
5 series_data = pd.Series([10, 20, 30, 40])
6 print(series_data)
7
```

0 10
1 20
2 30
3 40
dtype: int64

2, # Creating a Pandas DataFrame

```
data = {'Name': ['Alice', 'Bob', 'Charlie'],
        'Age': [25, 30, 22]}
```

```
df = pd.DataFrame(data)
```

```
print(df)
```

```
1 # Creating a Pandas DataFrame
2 data = {'Name': ['Alice', 'Bob', 'Charlie'],
3         'Age': [25, 30, 22]}
4
5 df = pd.DataFrame(data)
6 print(df)
7
```

	Name	Age
0	Alice	25
1	Bob	30
2	Charlie	22

3, # Selecting a column by label

```
ages = df['Age']
```

```
print(ages)
```

Selecting rows based on a condition

```
young_people = df[df['Age'] < 30]
```

```
print(young_people)
```

```
1 # Selecting a column by label
2 ages = df['Age']
3 print(ages)
4
5 # Selecting rows based on a condition
6 young_people = df[df['Age'] < 30]
7 print(young_people)
8
```

	Name	Age
0	Alice	25
2	Charlie	22

Name: Age, dtype: int64

4, # Handling missing values

```
df.dropna() # Drop rows with missing values
df.fillna(5) # Fill missing values with a specified value
```

Applying transformations

```
df['Age'] = df['Age'] + 1 # Incrementing ages by 1
print(df)
```

```
1 # Handling missing values
2 df.dropna() # Drop rows with missing values
3 df.fillna(5) # Fill missing values with a specified value
4
5 # Applying transformations
6 df['Age'] = df['Age'] + 1 # Incrementing ages by 1
7 print(df)
8
```

	Name	Age
0	Alice	26
1	Bob	31
2	Charlie	23

5, # Grouping by a column and calculating the mean

```
average_age_by_name = df.groupby('Name')['Age'].mean()
print(average_age_by_name)
```

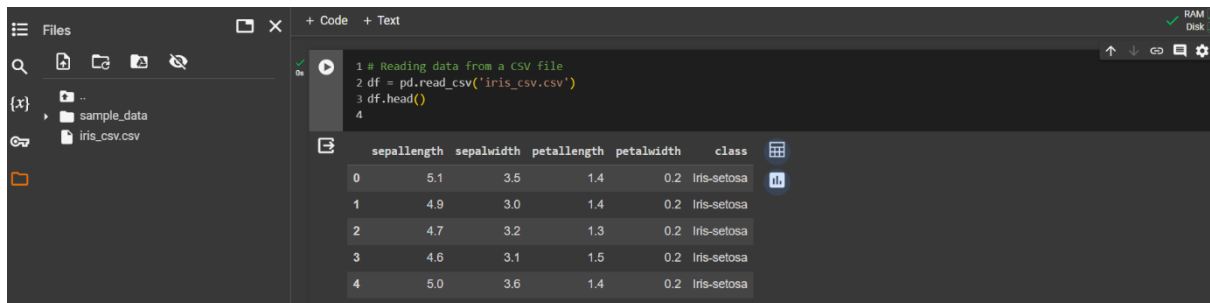
```
1 # Grouping by a column and calculating the mean
2 average_age_by_name = df.groupby('Name')['Age'].mean()
3 print(average_age_by_name)
4
```

Name	
Alice	26.0
Bob	31.0
Charlie	23.0

Name: Age, dtype: float64

6, # Reading data from a CSV file

```
df = pd.read_csv('iris_csv.csv')
df.head()
```



The screenshot shows a Jupyter Notebook interface. On the left is a file explorer with a folder icon, a search icon, and a list of files: `sample_data` and `iris_csv.csv`. The main area is split into two panes. The top pane is a code editor with the following Python code:

```
1 # Reading data from a CSV file
2 df = pd.read_csv('iris_csv.csv')
3 df.head()
4
```

The bottom pane displays the output of the code as a table with 5 rows and 6 columns. The columns are labeled: `sepalength`, `sepalwidth`, `petallength`, `petalwidth`, and `class`. The rows are indexed from 0 to 4.

	sepalength	sepalwidth	petallength	petalwidth	class
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

Github Link: <https://github.com/Jeyapathy/Machine-Learning>