

# Parth Manoj Gajare AI&DS -15

## Experiment - 12

Program to demonstrate DataFrame using Pandas

```
import pandas as pd
```

Creating a DataFrame using a dictionary

```
data = {  
    'Name': ['Alice', 'Bob', 'Charlie', 'David'],  
    'Age': [24, 27, 22, 32],  
    'Marks': [85, 78, 90, 88]  
}  
  
df = pd.DataFrame(data)  
print("Initial DataFrame:\n", df)
```

Initial DataFrame:

	Name	Age	Marks
0	Alice	24	85
1	Bob	27	78
2	Charlie	22	90
3	David	32	88

Accessing columns

```
print("Accessing 'Name' column:\n", df['Name'])
```

Accessing 'Name' column:

0	Alice
1	Bob
2	Charlie
3	David

Name: Name, dtype: object

Adding a new column

```
df['Grade'] = ['B', 'C', 'A', 'A']  
print("DataFrame after adding 'Grade' column:\n", df)
```

DataFrame after adding 'Grade' column:

	Name	Age	Marks	Grade
0	Alice	24	85	B
1	Bob	27	78	C
2	Charlie	22	90	A
3	David	32	88	A

Accessing a specific row using loc

```
print("Accessing row at index 2:\n", df.loc[2])
```

Accessing row at index 2:

Name	Charlie
Age	22
Marks	90
Grade	A

Name: 2, dtype: object

Accessing multiple rows using iloc

```
print("Accessing rows from index 1 to 3:\n", df.iloc[1:4])
```

Accessing rows from index 1 to 3:

	Name	Age	Marks	Grade
1	Bob	27	78	C
2	Charlie	22	90	A
3	David	32	88	A

Filtering data

```
high_scorers = df[df['Marks'] > 85]  
print("Students scoring above 85 marks:\n", high_scorers)
```

Students scoring above 85 marks:

	Name	Age	Marks	Grade
2	Charlie	22	90	A
3	David	32	88	A

Basic statistics

```
print("Statistical summary:\n", df.describe())
```

Statistical summary:

	Age	Marks
count	4.000000	4.000000
mean	26.250000	85.250000
std	4.349329	5.251984
min	22.000000	78.000000
25%	23.500000	83.250000
50%	25.500000	86.500000
75%	28.250000	88.500000
max	32.000000	90.000000