In [ ]:
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# Advait Deochakke
# SmartBridge AI course
# Assignment 1
```

In [ ]:
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#Task 1 -  Create a pandas dataframe (DataFrame name as 'df') with numpy random values (4 features and 4 observation)
import pandas as pd
import numpy as np

# Create a DataFrame with random values
df = pd.DataFrame(np.random.randn(4, 4))
```

In [ ]:
```
df
```

Out[ ]:

	0	1	2	3
0	-0.476860	-1.057946	-1.475657	-1.283709
1	-1.219413	-0.164464	1.439776	-1.805391
2	0.292083	-0.196847	0.459241	-0.554409
3	1.693819	-0.664003	-2.371417	-0.798959

In [ ]:
```
# Task - 2 Rename the task - 1 'df' dataframe column names to 'Random value 1', 'Random value 2', 'Random value 3' & 'Random value 4'
df.columns = ['Random value 1', 'Random value 2', 'Random value 3', 'Random value 4']
df
```

Out[ ]:

	Random value 1	Random value 2	Random value 3	Random value 4
0	-0.476860	-1.057946	-1.475657	-1.283709
1	-1.219413	-0.164464	1.439776	-1.805391
2	0.292083	-0.196847	0.459241	-0.554409
3	1.693819	-0.664003	-2.371417	-0.798959

In [ ]:
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# Task - 3 Find the descriptive statistics of the 'df' dataframe.
df_descriptive_stats = df.describe()
df_descriptive_stats
```

Out[ ]:

	Random value 1	Random value 2	Random value 3	Random value 4
count	4.000000	4.000000	4.000000	4.000000
mean	0.072407	-0.520815	-0.487014	-1.110617
std	1.244686	0.424638	1.745118	0.553525
min	-1.219413	-1.057946	-2.371417	-1.805391
25%	-0.662498	-0.762489	-1.699597	-1.414129
50%	-0.092389	-0.430425	-0.508208	-1.041334
75%	0.642517	-0.188752	0.704375	-0.737822
max	1.693819	-0.164464	1.439776	-0.554409

In [ ]:
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# Task - 4 Check for the null values in 'df' and find the data type of the columns.
# Check for null values
df_null_values = df.isnull().sum()

# Find the data types of the columns
df_data_types = df.dtypes

print("count of null vals:\n", df_null_values)
print("data types:\n", df_data_types)
```

```
count of null vals:
 Random value 1    0
Random value 2    0
Random value 3    0
Random value 4    0
dtype: int64
data types:
 Random value 1    float64
Random value 2    float64
Random value 3    float64
Random value 4    float64
dtype: object
```

In [ ]:
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# Task - 5 Display the 'Random value 2' & 'Random value 3' columns with location method and index location method
# Using the location method (iloc)
random_values_2_3_loc = df.iloc[:, 1:3]

# Using the index location method (loc)
random_values_2_3_index_loc = df.loc[:, 'Random value 2':'Random value 3']
```

In [ ]:
```
df
```

Out[ ]:

	Random value 1	Random value 2	Random value 3	Random value 4
0	-0.476860	-1.057946	-1.475657	-1.283709
1	-1.219413	-0.164464	1.439776	-1.805391
2	0.292083	-0.196847	0.459241	-0.554409
3	1.693819	-0.664003	-2.371417	-0.798959

In [ ]:
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random_values_2_3_loc
```

Out[ ]:

	Random value 2	Random value 3
0	-1.057946	-1.475657
1	-0.164464	1.439776
2	-0.196847	0.459241
3	-0.664003	-2.371417

In [ ]:
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random_values_2_3_index_loc
```

Out[ ]:

	Random value 2	Random value 3
0	-1.057946	-1.475657
1	-0.164464	1.439776
2	-0.196847	0.459241
3	-0.664003	-2.371417

In [ ]:
```

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