

AI ML ASSIGNMENT NO 1

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Q1 Create a pandas dataframe (DataFrame name as 'df') with numpy random values (4 features and 4 observation).

Code :

```
main.py
1 import pandas as pd
2 import numpy as np
3 np.random.seed(42)
4 data = {
5     'Feature1': np.random.rand(4),
6     'Feature2': np.random.rand(4),
7     'Feature3': np.random.rand(4),
8     'Feature4': np.random.rand(4)
9 }
10 df = pd.DataFrame(data)
11 print(df)
12
```

OUTPUT :

```
   Feature1  ...  Feature4
0  0.374540  ...  0.832443
1  0.950714  ...  0.212339
2  0.731994  ...  0.181825
3  0.598658  ...  0.183405

[4 rows x 4 columns]

...Program finished with exit code 0
Press ENTER to exit console.[]
```

Q2 Rename the task - 1 'df dataframe column names to 'Random value 1'. 'Random value 2'. 'Random value 3' & 'Random value 4'

CODE :

```
main.py
1  import pandas as pd
2  import numpy as np
3  np.random.seed(42)
4  data = {
5      'Feature1': np.random.rand(4),
6      'Feature2': np.random.rand(4),
7      'Feature3': np.random.rand(4),
8      'Feature4': np.random.rand(4)
9  }
10 df = pd.DataFrame(data)
11 df.rename(columns={
12     'Feature1': 'Random value 1',
13     'Feature2': 'Random value 2',
14     'Feature3': 'Random value 3',
15     'Feature4': 'Random value 4'
16 }, inplace=True)
17 print(df)
```

OUTPUT :

```
Random value 1  ...  Random value 4
0      0.374540  ...      0.832443
1      0.950714  ...      0.212339
2      0.731994  ...      0.181825
3      0.598658  ...      0.183405


[4 rows x 4 columns]
```

Q3 Find the descriptive statistics of the 'df' dataframe.

CODE :

```
main.py
1 import pandas as pd
2 import numpy as np
3 np.random.seed(42)
4 data = {
5     'Random value 1': np.random.rand(4),
6     'Random value 2': np.random.rand(4),
7     'Random value 3': np.random.rand(4),
8     'Random value 4': np.random.rand(4)
9 }
10 df = pd.DataFrame(data)
11 statistics = df.describe()
12 print(statistics)
13
```

OUTPUT :


input

	Random value 1	...	Random value 4
count	4.000000	...	4.000000
mean	0.663977	...	0.352503
std	0.241443	...	0.320267
min	0.374540	...	0.181825
25%	0.542629	...	0.183010
50%	0.665326	...	0.197872
75%	0.786674	...	0.367365
max	0.950714	...	0.832443

[8 rows x 4 columns]

Q4 Check for the null values in 'df' and find the data type of the columns.

CODE :

```

main.py
1 import pandas as pd
2 import numpy as np
3 np.random.seed(42)
4 data = {
5     'Random value 1': np.random.rand(4),
6     'Random value 2': np.random.rand(4),
7     'Random value 3': np.random.rand(4),
8     'Random value 4': np.random.rand(4)
9 }
10 df = pd.DataFrame(data)
11 null_values = df.isnull()
12 column_data_types = df.dtypes
13 print("Null values:\n", null_values)
14 print("\nData types of columns:\n", column_data_types)
15

```

OUTPUT :

```

Null values:
  Random value 1  ...  Random value 4
0          False  ...          False
1          False  ...          False
2          False  ...          False
3          False  ...          False

[4 rows x 4 columns]

Data types of columns:
  Random value 1    float64
Random value 2    float64
Random value 3    float64
Random value 4    float64
dtype: object

...Program finished with exit code 0
Press ENTER to exit console.

```

Q5 Display the 'Random value 2' & 'Random value 3' columns with location method and index location method.

CODE :

```

main.py
1 import pandas as pd
2 import numpy as np
3 np.random.seed(42)
4 data = {
5     'Random value 1': np.random.rand(4),
6     'Random value 2': np.random.rand(4),
7     'Random value 3': np.random.rand(4),
8     'Random value 4': np.random.rand(4)
9 }
10 df = pd.DataFrame(data)
11 columns_loc = df.loc[:, ['Random value 2', 'Random value 3']]
12 columns_iloc = df.iloc[:, [1, 2]]
13 print("Using loc:\n", columns_loc)
14 print("\nUsing iloc:\n", columns_iloc)
15

```

OUTPUT :

```
Using loc:
  Random value 2  Random value 3
0      0.156019      0.601115
1      0.155995      0.708073
2      0.058084      0.020584
3      0.866176      0.969910

Using iloc:
  Random value 2  Random value 3
0      0.156019      0.601115
1      0.155995      0.708073
2      0.058084      0.020584
3      0.866176      0.969910

...Program finished with exit code 0
Press ENTER to exit console.[]
```