

ASSESS SUPERSTEP

1. REPLACING NAN VALUES WITH MEAN

```
import pandas as pd
import numpy as np
df = pd.DataFrame([[10, np.nan, 30, 40], [7, 14, 21, 28], [55, np.nan, 8, 12],
[15, 14, np.nan, 8], [7, 1, 1, np.nan], [np.nan, 4, 9, 2]],
columns=['Apple', 'Orange', 'Banana', 'Pear'],
index=['Basket1', 'Basket2', 'Basket3', 'Basket4',
'Basket5', 'Basket6'])
print("THE ORIGINAL VALUES")
print(df)
print("REPLACING THE VALUES WITH MEAN")
df.fillna(df.mean(),inplace=True)
df
```

Output:

```
THE ORIGINAL VALUES
      Apple  Orange  Banana  Pear
Basket1  10.0    NaN    30.0  40.0
Basket2   7.0   14.0   21.0  28.0
Basket3  55.0    NaN     8.0  12.0
Basket4  15.0   14.0    NaN   8.0
Basket5   7.0    1.0    1.0  NaN
Basket6  NaN     4.0    9.0   2.0
REPLACING THE  VALUES WITH MEAN
```

2.REPLACING NAN VALUES WITH MEDIAN

```
import pandas as pd
import numpy as np
df = pd.DataFrame([[10, np.nan, 30, 40], [7, 14, 21, 28], [55, np.nan, 8, 12],
[15, 14, np.nan, 8], [7, 1, 1, np.nan], [np.nan, 4, 9, 2]],
columns=['Apple', 'Orange', 'Banana', 'Pear'],
index=['Basket1', 'Basket2', 'Basket3', 'Basket4',
'Basket5', 'Basket6'])
print("THE ORIGINAL VALUES")
print(df)
print("REPLACING THE VALUES WITH MEAN")
df.fillna(df.median(),inplace=True)
df
```

Output:

```
THE ORIGINAL VALUES
      Apple  Orange  Banana  Pear
Basket1  10.0    NaN    30.0  40.0
Basket2   7.0   14.0   21.0  28.0
Basket3  55.0    NaN     8.0  12.0
Basket4  15.0   14.0    NaN   8.0
Basket5   7.0    1.0    1.0  NaN
Basket6  NaN     4.0    9.0   2.0
REPLACING THE  VALUES WITH MEAN
```

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3.REPLACING NAN VALUES WITH MODE

```
import pandas as pd
import numpy as np
df = pd.DataFrame([[10, np.nan, 30, 40], [7, 14, 21, 28], [55, np.nan, 8, 12],
[15, 14, np.nan, 8], [7, 1, 1, np.nan], [np.nan, 4, 9, 2]],
columns=['Apple', 'Orange', 'Banana', 'Pear'],
index=['Basket1', 'Basket2', 'Basket3', 'Basket4',
'Basket5', 'Basket6'])
print("THE ORIGINAL VALUES")
print(df)
print("REPLACING THE VALUES WITH MEAN")
for column in df.columns:
    df[column].fillna(df[column].mode()[0], inplace=True)
df
```

Output:

```
THE ORIGINAL VALUES
      Apple  Orange  Banana  Pear
Basket1  10.0    NaN   30.0  40.0
Basket2   7.0   14.0   21.0  28.0
Basket3  55.0    NaN    8.0  12.0
Basket4  15.0   14.0    NaN   8.0
Basket5   7.0    1.0    1.0   NaN
Basket6   NaN    4.0    9.0   2.0
REPLACING THE  VALUES WITH MEAN
```

4.REPLACING NAN VALUES WITH MINIMUM

```
import pandas as pd
import numpy as np
df = pd.DataFrame([[10, np.nan, 30, 40], [7, 14, 21, 28], [55, np.nan, 8, 12],
[15, 14, np.nan, 8], [7, 1, 1, np.nan], [np.nan, 4, 9, 2]],
columns=['Apple', 'Orange', 'Banana', 'Pear'],
index=['Basket1', 'Basket2', 'Basket3', 'Basket4',
'Basket5', 'Basket6'])
print("THE ORIGINAL VALUES")
print(df)
print("REPLACING THE VALUES WITH MEAN")
df.fillna(df.min(),inplace=True)
df
```

Output:

```
THE ORIGINAL VALUES
      Apple  Orange  Banana  Pear
Basket1  10.0    NaN   30.0  40.0
Basket2   7.0   14.0   21.0  28.0
Basket3  55.0    NaN    8.0  12.0
Basket4  15.0   14.0    NaN   8.0
Basket5   7.0    1.0    1.0   NaN
Basket6   NaN    4.0    9.0   2.0
REPLACING THE  VALUES WITH MEAN
```