```
#Diffrent way of handling missing valutes

import pandas as pd
import numpy as np

# Sample DataFrame with missing values
data = {'A': [1, 2, np.nan, 4, 5],
        'B': [6, np.nan, 8, 9, 10],
        'C': [11, 12, 13, np.nan, 15]}
df = pd.DataFrame(data)
print(df)
# 1. Removing rows with missing values
df_dropped = df.dropna()
print("DataFrame after dropping rows with missing values:\n", df_dropped)


# 2. Filling missing values with a specific value (e.g., 0)
df_filled_zero = df.fillna(0)
print("\nDataFrame after filling missing values with 0:\n", df_filled_zero)

# 3. Filling missing values with the mean of each column
df_filled_mean = df.fillna(df.mean())
print("\nDataFrame after filling missing values with column means:\n", df_filled_mean)

# 4. Filling missing values with the median of each column
df_filled_median = df.fillna(df.median())
print("\nDataFrame after filling missing values with column medians:\n", df_filled_median)

# 5. Forward fill (propagate last valid observation forward)
df_ffill = df.ffill()
print("\nDataFrame after forward fill:\n", df_ffill)

# 6. Backward fill (propagate next valid observation backward)
df_bfill = df.bfill()
print("\nDataFrame after backward fill:\n", df_bfill)

# 7. Filling missing values with a specific value based on column type
values = {'A': 0, 'B': df['B'].mean(), 'C': 'missing'} #Example for various imputation
df_filled_specific = df.fillna(value=values)
print("\nDataFrame after filling missing values with column specific values:\n", df_filled_specific)

# 8. Interpolation
df_interpolated = df.interpolate(method='linear')
print("\nDataFrame after linear interpolation:\n", df_interpolated)
```

```
0  1.0   6.0  11.0
4  5.0  10.0  15.0

DataFrame after filling missing values with 0:
      A     B     C
0  1.0   6.0  11.0
1  2.0   0.0  12.0
2  0.0   8.0  13.0
3  4.0   9.0   0.0
4  5.0  10.0  15.0

DataFrame after filling missing values with column means:
      A      B      C
0  1.0   6.00  11.00
1  2.0   8.25  12.00
2  3.0   8.00  13.00
3  4.0   9.00  12.75
4  5.0  10.00  15.00

DataFrame after filling missing values with column medians:
      A     B     C
0  1.0   6.0  11.0
1  2.0   8.5  12.0
2  3.0   8.0  13.0
3  4.0   9.0  12.5
4  5.0  10.0  15.0

DataFrame after forward fill:
      A     B     C
0  1.0   6.0  11.0
```

```
1  2.0   8.0  12.0
2  4.0   8.0  13.0
3  4.0   9.0  15.0
4  5.0  10.0  15.0

DataFrame after filling missing values with column specific values:
      A      B        C
0  1.0   6.00     11.0
1  2.0   8.25     12.0
2  0.0   8.00     13.0
3  4.0   9.00  missing
4  5.0  10.00     15.0

DataFrame after linear interpolation:
      A     B     C
0  1.0   6.0  11.0
1  2.0   7.0  12.0
2  3.0   8.0  13.0
3  4.0   9.0  14.0
4  5.0  10.0  15.0
```