Making separate dataframe with the Selected features :

```
import pandas as pd

def select_features(input_file, output_file):

    selected_features = ["latitude", "longitude", "gap", "nst", "mag",
"depth"]
    data = pd.read_csv(input_file)

    selected_data = data[selected_features]

    selected_data.to_csv(output_file, index=False)
    print("Selected features have been saved to", output_file)

input_file = "earthquakes_2023_global.csv"
output_file = "selected_features.csv"
select_features(input_file, output_file)
```

```
Selected features have been saved to selected_features.csv
```

Applying statistical Measures :

```
df = pd.read_csv('selected_features.csv')

for column in df.columns:
    print(f"Descriptive statistics for feature '{column}':\n")

    mean = df[column].mean()
    print("Mean:", mean)

    median = df[column].median()
    print("Median:", median)

    mode = df[column].mode().iloc[0]  # Mode may have multiple values,
so taking the first one
    print("Mode:", mode)

    std_dev = df[column].std()
    print("Standard Deviation:", std_dev)

    variance = df[column].var()
    print("Variance:", variance)

    range_values = df[column].max() - df[column].min()
    print("Range:", range_values)


    print("\n")  # Add a newline for clarity between features
```

```
Descriptive statistics for feature 'latitude':

Mean: 16.852798052699125
Median: 18.884166665000002
Mode: 31.641
Standard Deviation: 30.389199810319738
Variance: 923.5034651115373
Range: 152.4436


Descriptive statistics for feature 'longitude':

Mean: -11.487497455815628
Median: -64.811833335
Mode: -100.6529869
Standard Deviation: 130.053398654644
Variance: 16913.886501623758
Range: 359.9981


Descriptive statistics for feature 'gap':

Mean: 124.93097106256097
Median: 111.0
Mode: 69.0
Standard Deviation: 67.43014521617596
Variance: 4546.824483874577
Range: 342.0


Descriptive statistics for feature 'nst':

Mean: 42.57133230269156
Median: 30.0
Mode: 18.0
Standard Deviation: 37.66235153154889
Variance: 1418.452722885963
Range: 423.0


Descriptive statistics for feature 'mag':

Mean: 4.007395125744689
Median: 4.3
Mode: 4.5
Standard Deviation: 0.7944225133241298
Variance: 0.6311071296762272
Range: 5.199999999999999


Descriptive statistics for feature 'depth':
```

```
Mean: 67.49122422782396
Median: 21.998
Mode: 10.0
Standard Deviation: 116.76245579360159
Variance: 13633.471082952767
Range: 684.6080000000001
```

Finding Co - Relation of Selected features:

```
correlation_matrix = df.corr()

# Print correlation of each feature with others
print("Correlation of each feature with others:")
print(correlation_matrix)
```

```
Correlation of each feature with others:
           latitude  longitude       gap       nst       mag     depth
latitude   1.000000  -0.223116  0.297569  0.022081 -0.562814 -0.274161
longitude -0.223116   1.000000 -0.274366  0.130999  0.519695 -0.047986
gap        0.297569  -0.274366  1.000000 -0.462943 -0.516086 -0.179902
nst        0.022081   0.130999 -0.462943  1.000000  0.492849  0.068208
mag       -0.562814   0.519695 -0.516086  0.492849  1.000000  0.149929
depth     -0.274161  -0.047986 -0.179902  0.068208  0.149929  1.000000
```

Quick Overview Selected features:

```
summary_stats = df.describe()
print("The summary of Statistics for each features are : \
n",summary_stats)
```

```
The summary of Statistics for each features are :
            latitude     longitude           gap           nst
mag  \
count  26642.000000  26642.000000  25225.000000  25227.000000
26642.000000
mean      16.852798    -11.487497    124.930971     42.571332
4.007395
std       30.389200    130.053399     67.430145     37.662352
0.794423
min      -65.849700   -179.998700      8.000000      0.000000
2.600000
25%       -6.415275   -149.608650     73.000000     19.000000
3.220000
50%       18.884167    -64.811833    111.000000     30.000000
4.300000
75%       41.827950    126.965100    165.000000     52.000000
4.500000
```

```
max       86.593900    179.999400    350.000000    423.000000
7.800000

               depth
count  26642.000000
mean      67.491224
std      116.762456
min       -3.370000
25%       10.000000
50%       21.998000
75%       66.833000
max      681.238000
```