```
C:\Users\HP\PycharmProjects\pythonProject\venv\Scripts\python.exe C:\Users\HP\PycharmProjects\pythonProject\Extract_Feature_feq.py
Output of frequency domain analysis:
Sample 1:
  Peak Frequency: 0.9765625
  Spectral Entropy: -592.518276515454
  Spectral Power: 150.2387566365609
  Delta Power: 83.87428433045058
  Theta Power: 41.91897335996049
  Alpha Power: 9.212440053993756
  Beta Power: 8.051898671080709
  Gamma Power: 0.005944469027865935

Sample 2:
  Peak Frequency: 0.9765625
  Spectral Entropy: -395.97944888896274
  Spectral Power: 111.83271403521933
  Delta Power: 80.09981512360594
  Theta Power: 17.764752196211298
  Alpha Power: 4.449190869091608
  Beta Power: 4.786891962932293
  Gamma Power: 0.08717903266895423

Sample 3:
  Peak Frequency: 0.9765625
  Spectral Entropy: -150.34270359531388
  Spectral Power: 80.75685928547819
  Delta Power: 21.322452589228696
  Theta Power: 17.868567046162983
  Alpha Power: 17.432445461450378
  Beta Power: 21.912351156495568
  Gamma Power: 0.2257668822033615

Sample 4:
  Peak Frequency: 0.9765625
  Spectral Entropy: -144.054726766892
  Spectral Power: 53.395018604159254
  Delta Power: 36.68673235207701
  Theta Power: 7.94899159641723
  Alpha Power: 2.7264531224618445
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  Beta Power: 2.0020820607583216
  Gamma Power: 0.002662042194853053

Sample 5:
  Peak Frequency: 0.9765625
  Spectral Entropy: -268.256821156992
  Spectral Power: 90.20782250571982
  Delta Power: 53.38335906431894
  Theta Power: 22.246183874338
  Alpha Power: 8.571847587865413
  Beta Power: 2.7224737305570166
  Gamma Power: 0.018805368189849854

Sample 6:
  Peak Frequency: 0.9765625
  Spectral Entropy: -632.0433581076584
  Spectral Power: 145.37342658861587
  Delta Power: 108.55649593299552
  Theta Power: 14.86029248242942
  Alpha Power: 4.672652972872211
  Beta Power: 5.90316474934372
  Gamma Power: 0.05317052673439511

Sample 7:
  Peak Frequency: 0.9765625
  Spectral Entropy: -223.16015601065934
  Spectral Power: 69.16915368894428
  Delta Power: 50.81057272397981
  Theta Power: 7.386589978600439
  Alpha Power: 2.8556902634129395
  Beta Power: 3.011259983808546
  Gamma Power: 0.04125272904513058

Sample 8:
  Peak Frequency: 0.9765625
  Spectral Entropy: -256.1675453937548
  Spectral Power: 79.81969092088129
  Delta Power: 59.26250805284944
  Theta Power: 8.404522134580533
  Alpha Power: 3.446467999735105
  Beta Power: 3.5846183345345626
```

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  Gamma Power: 0.058170976308592734

Sample 9:
  Peak Frequency: 0.9765625
  Spectral Entropy: -204.91741054709573
  Spectral Power: 67.7596991130186
  Delta Power: 48.10519620286493
  Theta Power: 10.376112603964986
  Alpha Power: 2.444686686918521
  Beta Power: 2.4300615158892223
  Gamma Power: 0.0035985249170206617

Sample 10:
  Peak Frequency: 0.9765625
  Spectral Entropy: -133.0436119009323
  Spectral Power: 50.038199676639145
  Delta Power: 36.54270647673768
  Theta Power: 5.27975190215208
  Alpha Power: 1.6856215638664462
  Beta Power: 2.38912406506972
  Gamma Power: 0.03282563606268738

Sample 11:
  Peak Frequency: 0.9765625
  Spectral Entropy: -123.1628528948376
  Spectral Power: 51.1007956401132
  Delta Power: 33.572571527683486
  Theta Power: 8.026470490039308
  Alpha Power: 2.1702091775750088
  Beta Power: 3.491161151571972
  Gamma Power: 0.00381454007363194

Sample 12:
  Peak Frequency: 0.9765625
  Spectral Entropy: -23.918027748265384
  Spectral Power: 25.263441770669335
  Delta Power: 14.924919433973596
  Theta Power: 2.938054860368344
  Alpha Power: 1.515184522241051
  Beta Power: 4.25880929655274
  Gamma Power: 0.057277032133333518
```

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122
123 Sample 13:
124   Peak Frequency: 0.9765625
125   Spectral Entropy: -101.83133585132434
126   Spectral Power: 55.07364277114419
127   Delta Power: 27.032822225176204
128   Theta Power: 11.781876342862754
129   Alpha Power: 5.469541211506617
130   Beta Power: 8.406495449757513
131   Gamma Power: 0.08254554682357772
132
133 Sample 14:
134   Peak Frequency: 0.9765625
135   Spectral Entropy: -533.8703945433938
136   Spectral Power: 121.04338779512865
137   Delta Power: 95.57141034249099
138   Theta Power: 6.7918999110184
139   Alpha Power: 3.0651733254097797
140   Beta Power: 2.4306688774443588
141   Gamma Power: 0.005119000926090079
142
143 Sample 15:
144   Peak Frequency: 0.9765625
145   Spectral Entropy: -931.2461286246751
146   Spectral Power: 181.60763025703255
147   Delta Power: 143.0125819695081
148   Theta Power: 8.447746678180422
149   Alpha Power: 5.5196500939660265
150   Beta Power: 6.081311090393105
151   Gamma Power: 0.07448397145202054
152
153 Sample 16:
154   Peak Frequency: 5.859375
155   Spectral Entropy: -139.89121321017797
156   Spectral Power: 60.458830430096846
157   Delta Power: 26.363376876383235
158   Theta Power: 23.953271071068645
159   Alpha Power: 5.964454481512216
160   Beta Power: 2.374781304764479
161   Gamma Power: 0.01784326035887869
162
```

```
Sample 17:
  Peak Frequency: 0.9765625
  Spectral Entropy: -30.377565573909443
  Spectral Power: 29.64992900812067
  Delta Power: 16.787098369676364
  Theta Power: 6.093841312996939
  Alpha Power: 2.6540279749703877
  Beta Power: 3.185892069745946
  Gamma Power: 0.06164325970509674

Sample 18:
  Peak Frequency: 0.9765625
  Spectral Entropy: -442.4550320283476
  Spectral Power: 108.60215383244474
  Delta Power: 81.57181910851199
  Theta Power: 9.823062961341732
  Alpha Power: 2.7159851132555524
  Beta Power: 3.7126335205229246
  Gamma Power: 0.008633686464423852

Sample 19:
  Peak Frequency: 0.9765625
  Spectral Entropy: -4.39276211742858
  Spectral Power: 17.39409306869228
  Delta Power: 7.765582331270771
  Theta Power: 5.61643187331155
  Alpha Power: 2.0777689545421887
  Beta Power: 1.4483760873193703
  Gamma Power: 0.015021805972991992

Sample 20:
  Peak Frequency: 5.859375
  Spectral Entropy: -14.097056259156744
  Spectral Power: 24.030710622016365
  Delta Power: 8.987501659606014
  Theta Power: 8.64824734232957
  Alpha Power: 2.574351573784093
  Beta Power: 3.318322635125086
  Gamma Power: 0.04066963521588978

Sample 21:
```

```
  Peak Frequency: 0.9765625
  Spectral Entropy: -228.73611200660753
  Spectral Power: 82.4603686512344
  Delta Power: 50.40917472049491
  Theta Power: 13.686148593348658
  Alpha Power: 6.375227266748457
  Beta Power: 6.811024276294508
  Gamma Power: 0.07563215847274539

Sample 22:
  Peak Frequency: 0.9765625
  Spectral Entropy: -208.10985986256205
  Spectral Power: 69.3328189870314
  Delta Power: 46.17924264237077
  Theta Power: 12.00463776593325
  Alpha Power: 3.4302713198231998
  Beta Power: 2.4158167423625994
  Gamma Power: 0.003406519517377444

Sample 23:
  Peak Frequency: 0.9765625
  Spectral Entropy: -549.1641437629061
  Spectral Power: 130.59883065476257
  Delta Power: 91.71500640259028
  Theta Power: 20.43880333552564
  Alpha Power: 4.683669725845187
  Beta Power: 3.3150976762432096
  Gamma Power: 0.008515944756492689

Sample 24:
  Peak Frequency: 0.9765625
  Spectral Entropy: -466.3271507932959
  Spectral Power: 118.54207380210372
  Delta Power: 81.2173583816741
  Theta Power: 24.079403707372723
  Alpha Power: 3.632983891204572
  Beta Power: 1.868445262963981
  Gamma Power: 0.0019232749117058731

Sample 25:
  Peak Frequency: 0.9765625
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```
  Spectral Entropy: -201.88354568771908
  Spectral Power: 68.1241663059366
  Delta Power: 46.54020971711672
  Theta Power: 9.528166354340167
  Alpha Power: 3.4459864437852987
  Beta Power: 3.7706230803748806
  Gamma Power: 0.06730705560338547

Sample 26:
  Peak Frequency: 0.9765625
  Spectral Entropy: -1334.8166158386764
  Spectral Power: 241.46687316525225
  Delta Power: 196.81387423819137
  Theta Power: 20.170156991728945
  Alpha Power: 3.20749678273038
  Beta Power: 2.6369240859070504
  Gamma Power: 0.012150127162527315

Sample 27:
  Peak Frequency: 0.9765625
  Spectral Entropy: -285.6151071124686
  Spectral Power: 80.499813167664
  Delta Power: 58.16811076726213
  Theta Power: 9.074028180720838
  Alpha Power: 2.3612771850323204
  Beta Power: 2.4736104944773567
  Gamma Power: 0.01431345467485138

Sample 28:
  Peak Frequency: 0.9765625
  Spectral Entropy: -174.6136797293275
  Spectral Power: 67.24315305253388
  Delta Power: 45.881597620893885
  Theta Power: 9.319644469638842
  Alpha Power: 3.8074151084531747
  Beta Power: 5.281103493111112
  Gamma Power: 0.07190188871023837

Sample 29:
  Peak Frequency: 0.9765625
  Spectral Entropy: -559.8888596319742
```

```
  Spectral Power: 155.99271937473628
  Delta Power: 78.73648062950433
  Theta Power: 45.076131462679584
  Alpha Power: 16.71913984557322
  Beta Power: 9.759392055999646
  Gamma Power: 0.0664087022106797

Sample 30:
  Peak Frequency: 0.9765625
  Spectral Entropy: -204.27021007844687
  Spectral Power: 77.15886304158965
  Delta Power: 33.94342997356456
  Theta Power: 27.99334471538418
  Alpha Power: 4.844484456895328
  Beta Power: 6.922117650895224
  Gamma Power: 0.06579253935823356

Sample 31:
  Peak Frequency: 0.9765625
  Spectral Entropy: -346.82260661967973
  Spectral Power: 90.67170839969327
  Delta Power: 67.39365843444475
  Theta Power: 10.531324497553312
  Alpha Power: 2.6487763520837815
  Beta Power: 1.8055193353734822
  Gamma Power: 0.012875475285796384

Sample 32:
  Peak Frequency: 2.9296875
  Spectral Entropy: -82.78134103616118
  Spectral Power: 46.84939183565466
  Delta Power: 25.6022532467218
  Theta Power: 11.05235867636239
  Alpha Power: 3.651914924958406
  Beta Power: 5.062588106181907
  Gamma Power: 0.09487509335589053

Sample 33:
  Peak Frequency: 4.8828125
  Spectral Entropy: -361.9951313929262
  Spectral Power: 109.94548588215572
```

```
  Delta Power: 58.51526717662627
  Theta Power: 34.49894064036616
  Alpha Power: 5.8584111336734725
  Beta Power: 6.788647761691694
  Gamma Power: 0.0989991913580771

Sample 34:
  Peak Frequency: 0.9765625
  Spectral Entropy: -152.0127134127526
  Spectral Power: 55.33692642356762
  Delta Power: 41.54992982761632
  Theta Power: 7.202182017622779
  Alpha Power: 2.36839699738659
  Beta Power: 1.8236470075329816
  Gamma Power: 0.0014449771064714008

Sample 35:
  Peak Frequency: 0.9765625
  Spectral Entropy: -182.72657389386472
  Spectral Power: 68.15009518398226
  Delta Power: 41.32390253737737
  Theta Power: 13.629359575300562
  Alpha Power: 6.0695024990777044
  Beta Power: 3.4517343289086018
  Gamma Power: 0.03466397502467434

Sample 36:
  Peak Frequency: 0.9765625
  Spectral Entropy: -222.8105636371757
  Spectral Power: 79.10435149616289
  Delta Power: 52.48603888333573
  Theta Power: 8.72840609644972
  Alpha Power: 5.514713814017423
  Beta Power: 7.025364667356481
  Gamma Power: 0.10544994869338459

Traceback (most recent call last):
  File "C:\Users\HP\PycharmProjects\pythonProject\
Extract_Feature_feq.py", line 186, in <module>
    plt.bar(bands, band_powers, color=['red', 'green
', 'blue', 'orange', 'purple'])
```

```
366   File "C:\Users\HP\PycharmProjects\pythonProject\
    venv\Lib\site-packages\matplotlib\pyplot.py", line
    2754, in bar
367     return gca().bar(
368            ^^^^^^^^^^
369   File "C:\Users\HP\PycharmProjects\pythonProject\
    venv\Lib\site-packages\matplotlib\__init__.py", line
     1478, in inner
370     return func(ax, *map(sanitize_sequence, args
    ), **kwargs)
371            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
    ^^^^^^^^
372   File "C:\Users\HP\PycharmProjects\pythonProject\
    venv\Lib\site-packages\matplotlib\axes\_axes.py",
    line 2461, in bar
373     x, height, width, y, linewidth, hatch = np.
    broadcast_arrays(
374                                                ^^^^^^^^
    ^^^^^^^^^^^^
375   File "C:\Users\HP\PycharmProjects\pythonProject\
    venv\Lib\site-packages\numpy\lib\stride_tricks.py",
    line 540, in broadcast_arrays
376     shape = _broadcast_shape(*args)
377             ^^^^^^^^^^^^^^^^^^^^^^
378   File "C:\Users\HP\PycharmProjects\pythonProject\
    venv\Lib\site-packages\numpy\lib\stride_tricks.py",
    line 422, in _broadcast_shape
379     b = np.broadcast(*args[:32])
380         ^^^^^^^^^^^^^^^^^^^^^^^
381 ValueError: shape mismatch: objects cannot be
    broadcast to a single shape.  Mismatch is between
    arg 0 with shape (5,) and arg 1 with shape (149,).
382
383 Process finished with exit code 1
384
```