Question 2 - A Coach tracked the number of points that each of his 30 players on the team had in one game. The points scored by each player is given below. Visualize the data using ordered stem-leaf plot and also detect the outliers and shape of the distribution. 22, 21, 24, 19, 27, 28, 24, 25, 29, 28, 26, 31, 28, 27, 22, 39, 20, 10, 26, 24, 27, 28, 26, 28, 18, 32, 29, 25, 31, 27.

```
import sys
         !{sys.executable} -m pip install stemgraphic
        Collecting stemgraphic
          Downloading stemgraphic-0.9.1-py3-none-any.whl (61 kB)
        Requirement already satisfied: matplotlib in c:\users\hp\anaconda3\lib\site-pa
        ckages (from stemgraphic) (3.3.4)
        Requirement already satisfied: seaborn in c:\users\hp\anaconda3\lib\site-packa
        ges (from stemgraphic) (0.11.1)
        Collecting docopt
          Downloading docopt-0.6.2.tar.gz (25 kB)
        Requirement already satisfied: pandas in c:\users\hp\anaconda3\lib\site-packag
        es (from stemgraphic) (1.2.4)
        Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\hp\anaconda3\lib\
        site-packages (from matplotlib->stemgraphic) (1.3.1)
        Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.3 in c:\
        users\hp\anaconda3\lib\site-packages (from matplotlib->stemgraphic) (2.4.7)
        Requirement already satisfied: python-dateutil>=2.1 in c:\users\hp\anaconda3\l
        ib\site-packages (from matplotlib->stemgraphic) (2.8.1)
        Requirement already satisfied: numpy>=1.15 in c:\users\hp\anaconda3\lib\site-p
        ackages (from matplotlib->stemgraphic) (1.20.1)
        Requirement already satisfied: cycler>=0.10 in c:\users\hp\anaconda3\lib\site-
        packages (from matplotlib->stemgraphic) (0.10.0)
        Requirement already satisfied: pillow>=6.2.0 in c:\users\hp\anaconda3\lib\site
        -packages (from matplotlib->stemgraphic) (8.2.0)
        Requirement already satisfied: six in c:\users\hp\anaconda3\lib\site-packages
        (from cycler>=0.10->matplotlib->stemgraphic) (1.15.0)
        Requirement already satisfied: pytz>=2017.3 in c:\users\hp\anaconda3\lib\site-
        packages (from pandas->stemgraphic) (2021.1)
        Requirement already satisfied: scipy>=1.0 in c:\users\hp\anaconda3\lib\site-pa
        ckages (from seaborn->stemgraphic) (1.6.2)
        Building wheels for collected packages: docopt
          Building wheel for docopt (setup.py): started
          Building wheel for docopt (setup.py): finished with status 'done'
          Created wheel for docopt: filename=docopt-0.6.2-py2.py3-none-any.whl size=13
        705 sha256=e7dd94fa6f08f25f99489cb5090e51648c3b0970762f418df119aa9b301789b8
          Stored in directory: c:\users\hp\appdata\local\pip\cache\wheels\56\ead
        137b087d9e326852a851351d1debf4ada529b6ac0ec4e8c
        Successfully built docopt
        Installing collected packages: docopt, stemgraphic
        Successfully installed docopt-0.6.2 stemgraphic-0.9.1
         import stemgraphic
         from matplotlib import pyplot as plt
         points = [22, 21, 24, 19, 27, 28, 24, 25, 29, 28, 26, 31, 28, 27, 22, 39, 20,
         stemgraphic.stem graphic(points, scale = 10)
Out[]: (<Figure size 540x108 with 1 Axes>,
         <matplotlib.axes. axes.Axes at 0x164d96cfd90>)
```

1 of 2 27-01-2022, 13:59

```
39 | Key: aggr|stem|leaf | 3 | 1129 | 3 | 1 | 2 | 3.1 x10 = 31.0 | 3 | 1 | 089 | 10
```

The leftmost column in the above plot is the frequency count. Then there are two values, one at bottom most we have 10. While at the topmost we have 39, these values are nothing but the minimum and maximum values respectively in the given data set. After that, we have the stem values and following that we have leaves values separating stem by the vertical line.

```
plt.ylabel('Points Scored')
       plt.xlabel('Stem')
       plt.xlim(0, 10)
       plt.stem(stems, points)
Out[]: <StemContainer object of 3 artists>
        40
        35
        30
      Points Scored
        25
        20
        15
        10
         5
         0
                 ż
                       4
                                     8
          0
                              6
                                            10
                          Stem
```

As we can see from the plot, the values 10 and 19 are the outliers. The shape of the stem-leaf plot distribution is bell shaped.

2 of 2 27-01-2022, 13:59