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ITMD 413 HW 8
Learning Report Summary

1. Yes, the assignment produced the required numeric outputs for question 1 as well as all of the proper data for question 2. The minimum, max, average, median, mode, standard deviation, 25th/75th percentiles, the quantities of each grade, and a pie chart of all the grades. It ran without errors and it was tested sufficiently.
2. I spent about 4 hours on this assignment.
3. The assignment became more challenging near the end since I couldn't understand the numpy documentation very well.
4. I wrote the assignment myself.
5. I referenced Google, notes, and the numpy documentation to solve my issues.
6. I learned how to use arrays in numpy and how to manipulate them.
7. None.

Output:

```
PS Z:\ITMD 413 Open Source Programming (Python)\ITMD-413\HW 8> python -u "z:\ITMD 41
[[ 1  2  3  4  5]
 [ 6  7  8  9 10]
 [11 12 13 14 15]]
a):  [11 12 13 14 15]
b):  [ 5 10 15]
c):
 [[ 1  2  3  4  5]
 [ 6  7  8  9 10]]
d):
 [[ 3  4  5]
 [ 8  9 10]
 [13 14 15]]
e):  10
f):
 [[ 6  8 10]
 [11 13 15]]
<class 'numpy.ndarray'>
a) [[  15.        50.        50.        24.        50.        50.
     42.        50.        44.        26.        30.        30.
     50.        42.        93.        50.         0.        20.
     50.        50.        50.        45.        24.        50.
     50.        50.        50.        50.        50.       207.
   1442.        94.1868 ]
 [   15.        50.        50.        12.        50.        50.
     40.        50.        44.        32.        30.        30.
     50.        50.        93.        25.        38.        14.
     50.        50.        45.        45.        30.         0.
      0.        50.        40.        42.        50.       197.
   1322.        86.34879]
 [   15.        50.        50.        24.        50.        50.
     40.        50.        50.        26.        30.        30.
     50.        50.        99.        50.        44.        18.
     50.        50.        50.        50.        28.        50.
     50.        50.        46.        50.        50.       210.
   1510.        98.62834]
 [   15.        50.        50.        24.        48.        50.
     42.        50.        30.        30.        15.        30.
     50.        42.        90.        50.        46.        16.
     50.        50.        45.        44.        32.        40.
     50.        40.        38.        43.        50.       180.
   1390.        90.79033]
```

```
b) There are  33 students.
c) There are 33 rows and 32 columns
d) float64
e)

Minimum score:  29.65382
Max score:  99.86936
Average:  87.66996787878789
Median:  92.88047
Mode:  [94.1868]
This is the standard deviation:  15.553686425410683
25th Percentile:  87.1979
75th Percentile:  96.73416
A:   21
B:   8
C:   1
D:   1
F:   2
```

Figure 1   —   □   ✕