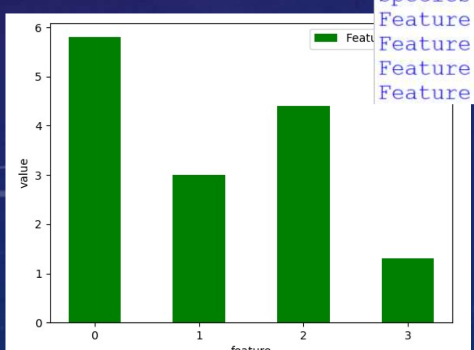
HOMEWORK 2

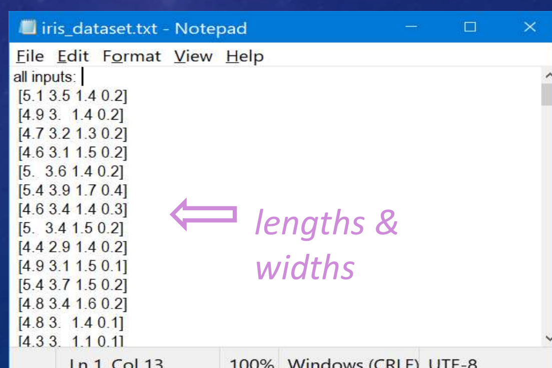
PROGRAMMING EXERCISE - IRIS SPECIES

1. Write a program (Python) to read the IRIS data file ("iris_dataset.txt").
2. Find the median values of each feature (length and with of petals and sepals, total 4) from the input data.
3. Print the median values (2 digits after decimal point), separated by comma, on the console screen.
4. Plot median values vs. feature numbers in a bar chart (*plt.bar* shown below).
5. Count how many for each species: *Setosa (0), versicolor (1), or virginica (2)* and print the finding on console.
6. Randomly rearrange 150 datasets and print each dataset in one line in a local text file named ("yourID_name_iris_data.csv"). The 5 values of each dataset are separated by comma.
7. The data and format of the "*iris_dataset.txt*" file in E3 is shown below.
8. Estimate time needed: 1-4 hours
9. Due time: submit your python program ("yourID_name_iris_io.py") before next lecture hour.

```
plt.bar (xp, yv, width = 0.5, label = 'Feature\'s Median', color = 'green', tick_label = xp)
plt.legend()
plt.xlabel('feature')
plt.ylabel('value')
```

```
species counts [50, 50, 50]
Feature 0, median = 5.8
Feature 1, median = 3.0
Feature 2, median = 4.4
Feature 3, median = 1.3
```




iris_dataset.txt - Notepad

File Edit Format View Help

```
all inputs:
 [5.1 3.5 1.4 0.2]
 [4.9 3.  1.4 0.2]
 [4.7 3.2 1.3 0.2]
 [4.6 3.1 1.5 0.2]
 [5.  3.6 1.4 0.2]
 [5.4 3.9 1.7 0.4]
 [4.6 3.4 1.4 0.3]
 [5.  3.4 1.5 0.2]
 [4.4 2.9 1.4 0.2]
 [4.9 3.1 1.5 0.1]
 [5.4 3.7 1.5 0.2]
 [4.8 3.4 1.6 0.2]
 [4.8 3.  1.4 0.1]
 [4.3 3.  1.1 0.1]
```

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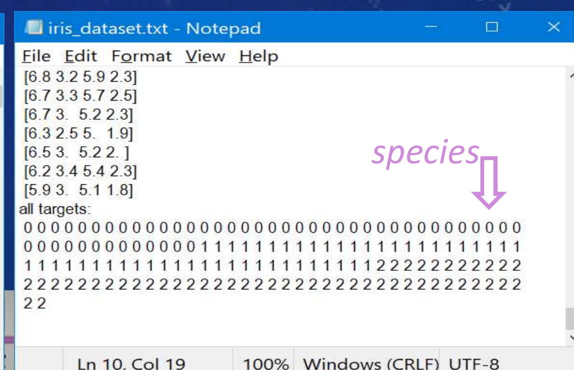
lengths & widths


iris_dataset.txt - Notepad

File Edit Format View Help

```
 [6.8 3.2 5.9 2.3]
 [6.7 3.3 5.7 2.5]
 [6.7 3.  5.2 2.3]
 [6.3 2.5 5.  1.9]
 [6.5 3.  5.2 2. ]
 [6.2 3.4 5.4 2.3]
 [5.9 3.  5.1 1.8]
all targets:
 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2
 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
 2 2
```

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species