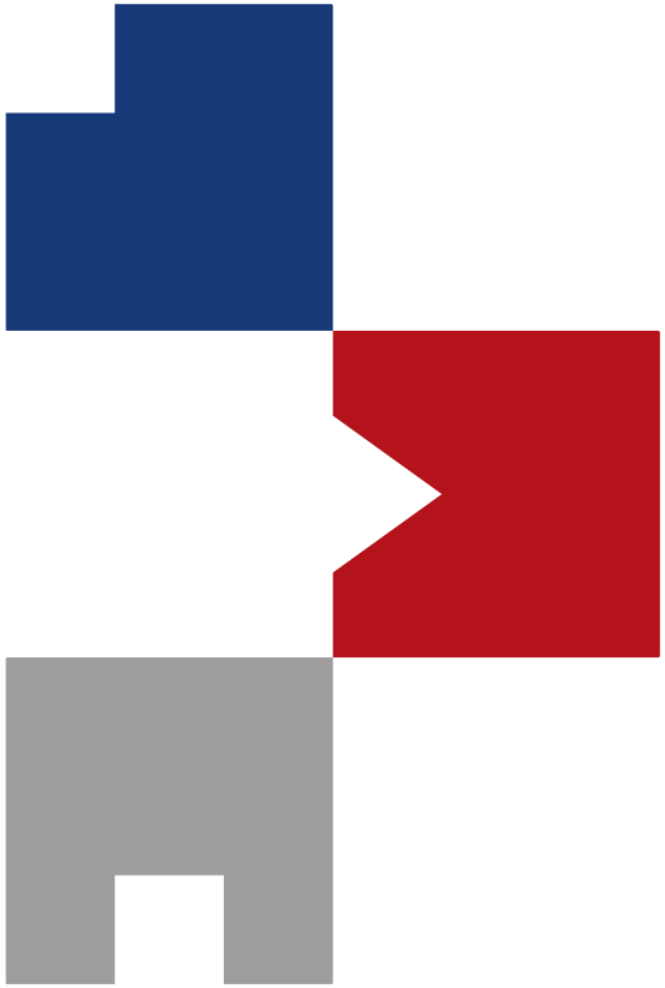
Note) Slides and example codes are available:
https://github.com/mint-lab/prog_meets_math



Math Lab #1:
Midterm and Final Exam Visualization

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Overview

- **Prerequisite**
  - Anaconda (Individual Edition)

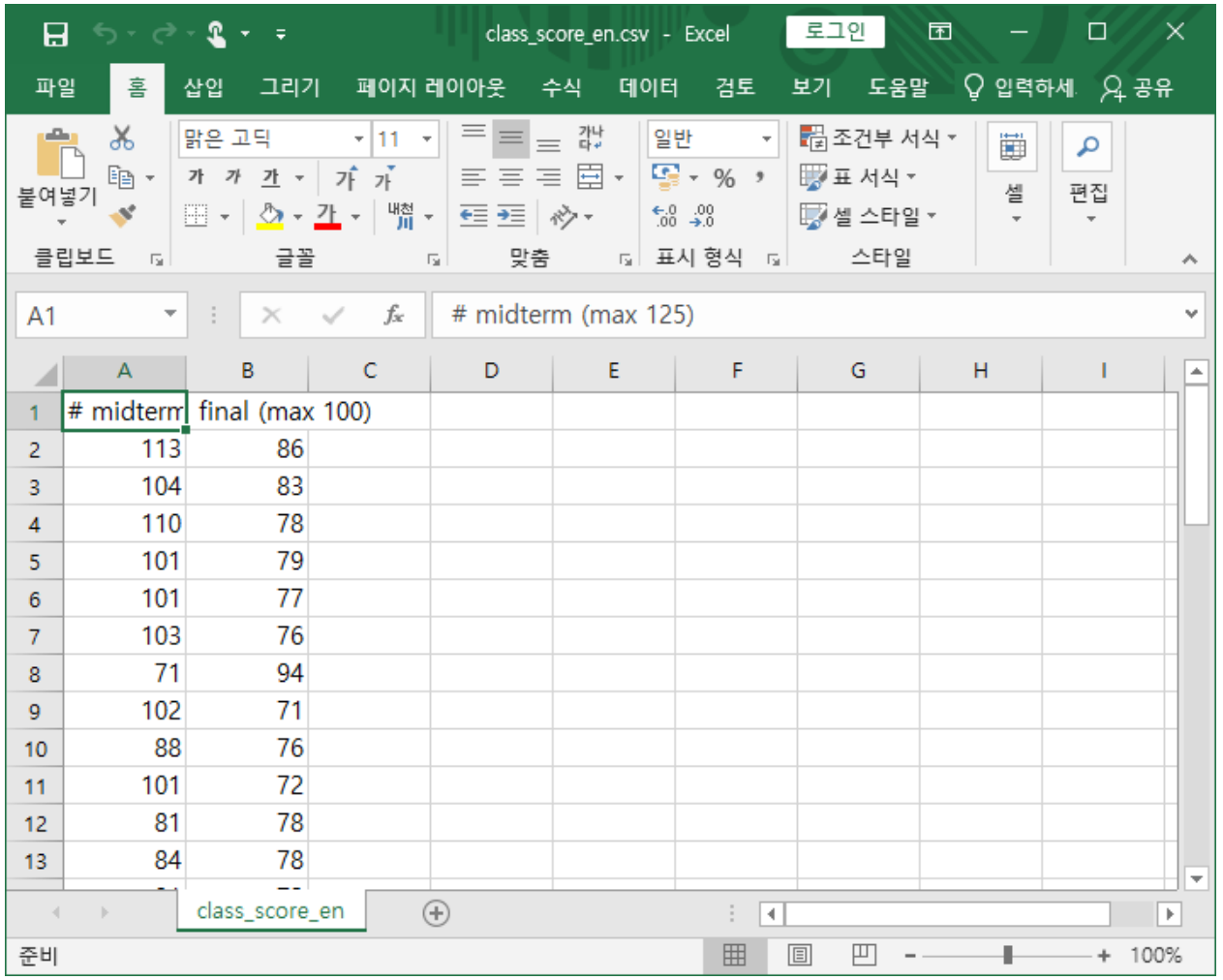
- **Practice) Midterm and Final Exam Visualization**
  - The given data
  - Expected results
  - Practice with the skeleton code
    - Step #1) Plot midterm and final scores as points
    - Step #2) Plot the total scores as a histogram

- **Assignment**
  - Mission: Complete the given skeleton code

Practice) Midterm and Final Exam Visualization

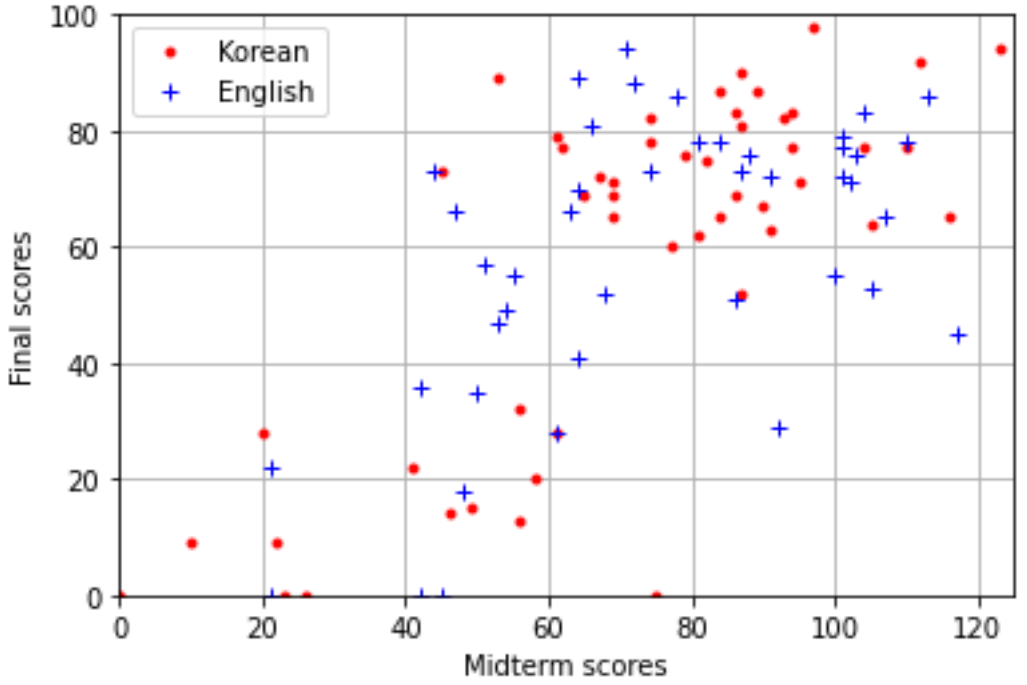
- The given data (file: `data/class_score_en.csv`)

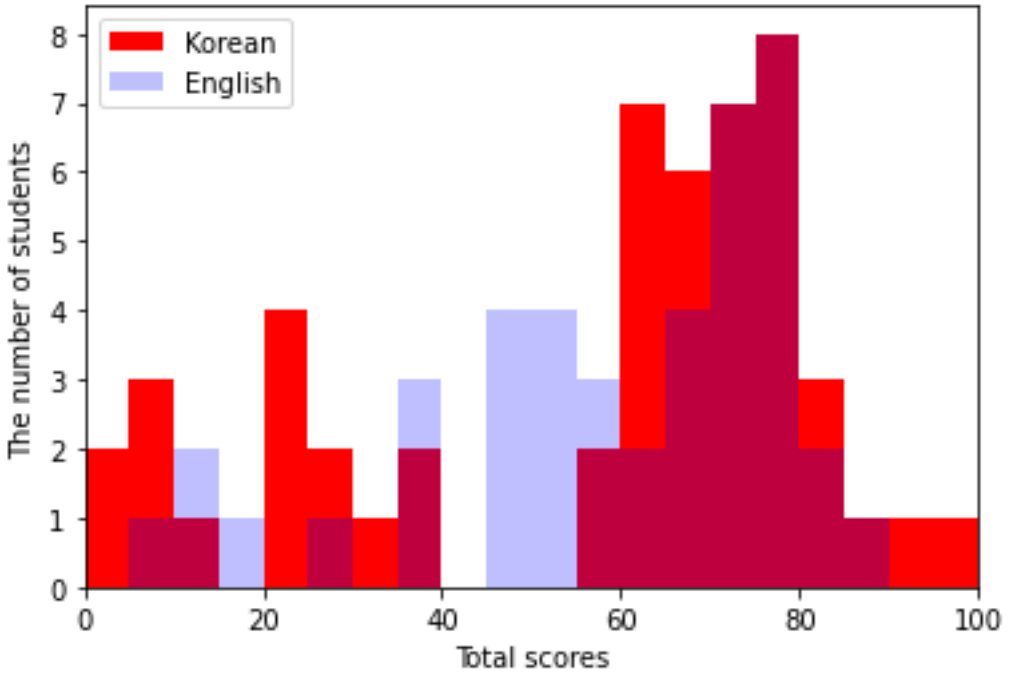
```
# midterm (max 125), final (max 100)
113, 86
104, 83
110, 78
101, 79
101, 77
103, 76
71, 94
102, 71
88, 76
101, 72
81, 78
84, 78
. . .
```



Practice) Midterm and Final Exam Visualization

- Expected results
  - Scatter plot
    - Data: Midterm scores (X) and final scores (Y)
    - X and Y ranges: [0, 125] and [0, 100] with a grid
    - Note) `plt.plot()` or `plt.scatter()`
  - Histogram
    - Data: Total scores
    - Histogram range: [0, 100] with bin width 5
    - Note) `plt.hist()`
  - Common
    - X and Y labels
    - Legend





Practice) Midterm and Final Exam Visualization

- The given skeleton code (`class_score_plot_skeleton.py`)
  - Step #0) Prepare midterm, final, and total scores for Korean and English classes
  - Step #1) Plot midterm/final scores as points
  - Step #2) Plot total scores as a histogram

```python
import matplotlib.pyplot as plt

def read_data(filename):
    # ...
    return data

if __name__ == '__main__':
    # Load score data
    class_kr = read_data('data/class_score_kr.csv')
    class_en = read_data('data/class_score_en.csv')

    # TODO) Prepare midterm, final, and total scores
    midterm_kr, final_kr = zip(*class_kr)
    total_kr = [40/125*midterm + 60/100*final for (midterm, final) in class_kr]
    midterm_en, final_en = [0, 0]
    total_en = [0]

    # TODO) Plot midterm/final scores as points

    # TODO) Plot total scores as a histogram
```

Assignment

- Mission
  - Complete the given skeleton code (`class_score_plot_skeleton.py`)
  - Submit your code (`class_score_plot.py`) and its two figures (`class_score_scatter.png`, `class_score_hist.png`)

- Condition
  - Please follow the above filename convention.
  - You can start from scratch (without using the given skeleton code).
    - However, you should use the given data.
  - You can freely change the given skeleton code if necessary.

- Submission
  - Deadline: **October 8, 2025 23:59** (firm deadline; no extension)
  - Where: e-Class > Assignments
  - Score: Max 10 points