



Python: From Beginner to **Intermediate**



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Overview

- **Prerequisite**
 - Anacodna (Individual Edition)
- **Practice: Midterm and Final Score Analysis**
 - The given data
 - Expected results
 - Step #1) Read a CSV file as a list of numbers
 - Step #2) Calculate the weight average of each line
 - Step #3) Calculate mean, variance, median, min, and max of all columns
- **Assignment**
 - Mission: Complete the given skeleton code

Practice: Midterm and Final Score Analysis

- 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

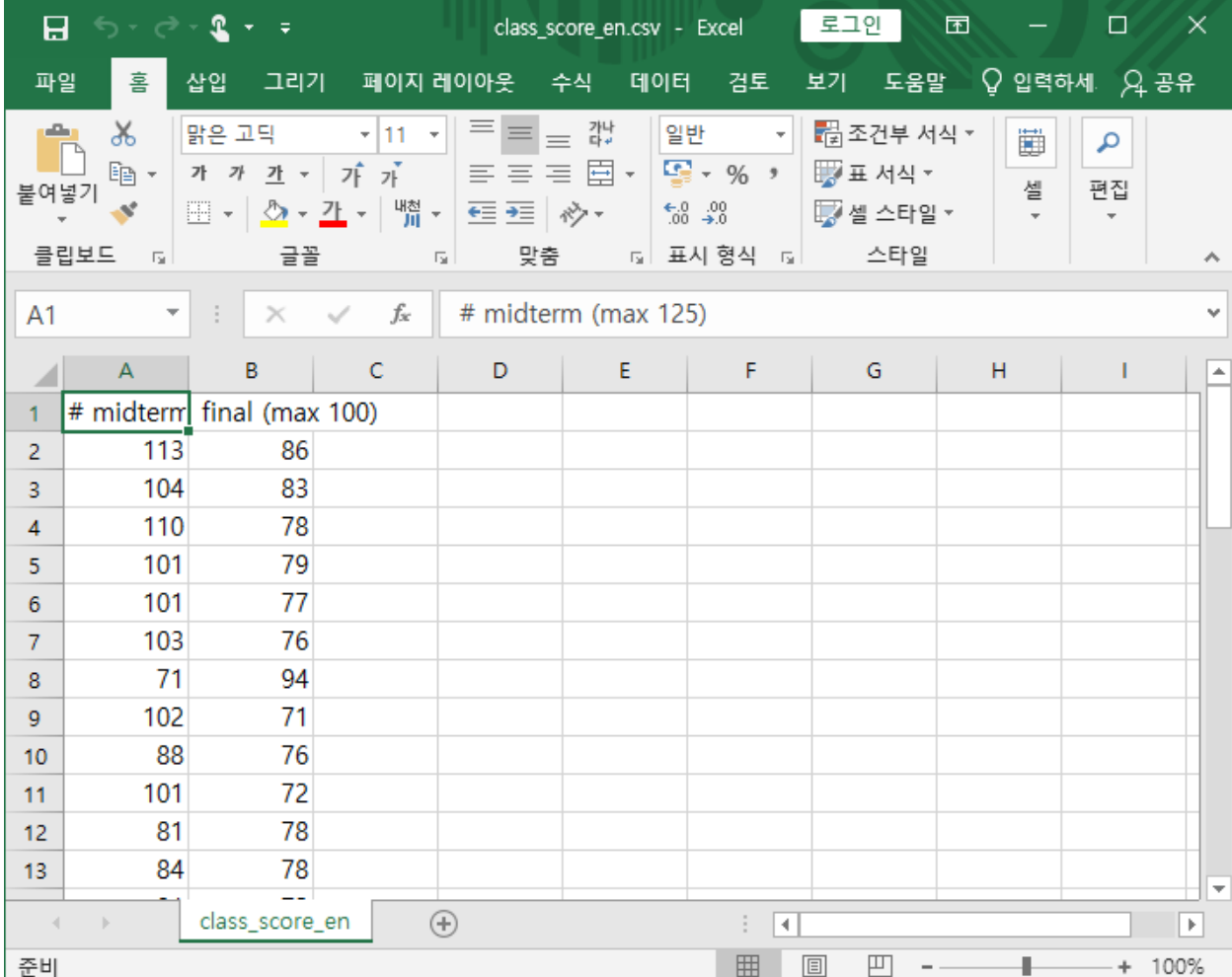
88, 76

101, 72

81, 78

84, 78

. . .



	# midterm (max 125)	final (max 100)
1	113	86
2	104	83
3	110	78
4	101	79
5	101	77
6	103	76
7	71	94
8	102	71
9	88	76
10	101	72
11	81	78
12	84	78
13		

Practice: Midterm and Final Score Analysis

- Expected results
 - Individual Score
 - Print *midterm*, *final*, and its *total* score
 - $total = 40/125 \times midterm + 60/100 \times final$
 - Exam Score Analysis
 - Print mean, variance, median, and min/max

class_score_analysis.md - Typora

파일(F) 편집(E) 본문(P) 서식(O) 보기(V) 테마(T) 도움말(H)

Individual Score

Midterm	Final	Total
113	86	87.760
104	83	83.080
110	78	82.000
101	79	79.720
101	77	78.520
103	76	78.560
71	94	79.120
102	71	75.240
88	76	73.760
101	72	75.520
81	78	72.720
84	78	73.680
...		

Exam Score Analysis

- Midterm
 - Mean: **74.209**
 - Variance: 632.817
 - Median: **72.000**
 - Min/Max: (21.000, 117.000)
- Final
 - Mean: **58.674**
 - Variance: 618.545
 - Median: **66.000**
 - Min/Max: (0.000, 94.000)
- Total
 - Mean: **58.952**
 - Variance: 423.546
 - Median: **65.000**
 - Min/Max: (6.720, 87.760)

74 단어

Practice: Midterm and Final Score Analysis

- The given skeleton code

```
from mean_var import mean_var

def read_data(filename):
    data = []
    # TODO

def add_weighted_average(data, weight):
    for row in data:
        row.append(0)    # TODO

def analyze_data(data):
    mean = 0            # TODO
    var = 0             # TODO
    median = 0          # TODO
    return mean, var, median, min(data), max(data)

if __name__ == '__main__':
    data = read_data('data/class_score_en.csv')
    if data and len(data[0]) == 2:
        print('### Individual Score')
        add_weighted_average(data, [40/125, 60/100])
        if len(data[0]) == 3:
            print()
            print('| Midterm | Final | Total |')
            print('| ----- | ----- | ----- |')
            for row in data:
                print(f'| {row[0]} | {row[1]} | {row[2]:.3f} |')
            print()

        print('### Exam Score Analysis')
        col_n = len(data[0])
        col_name = ['Midterm', 'Final', 'Total']
        colwise_data = [ [row[c] for row in data] for c in range(col_n) ]
        for c, score in enumerate(colwise_data):
            mean, var, median, min_, max_ = analyze_data(score)
            print(f'* {col_name[c]}')
            print(f' * Mean: **{mean:.3f}**')
            ...
```

Assignment

- Mission
 - Complete the given skeleton code (`class_score_analysis_skeleton.py`)
 - Submit your code (`class_score_analysis.py`) and its output (`README.md`)
- Condition
 - Please follow the above filename convention.
 - You **can** start from scratch (without using the given skeleton code).
 - However, you **should** use the same data shown in the slide 5.
 - You **can** freely change the given skeleton code if necessary.
- Submission
 - Deadline: **October 6, 2021 23:59** (**firm deadline**; no extension)
 - Where: e-Class > Assignments
 - Score: Max 10 points