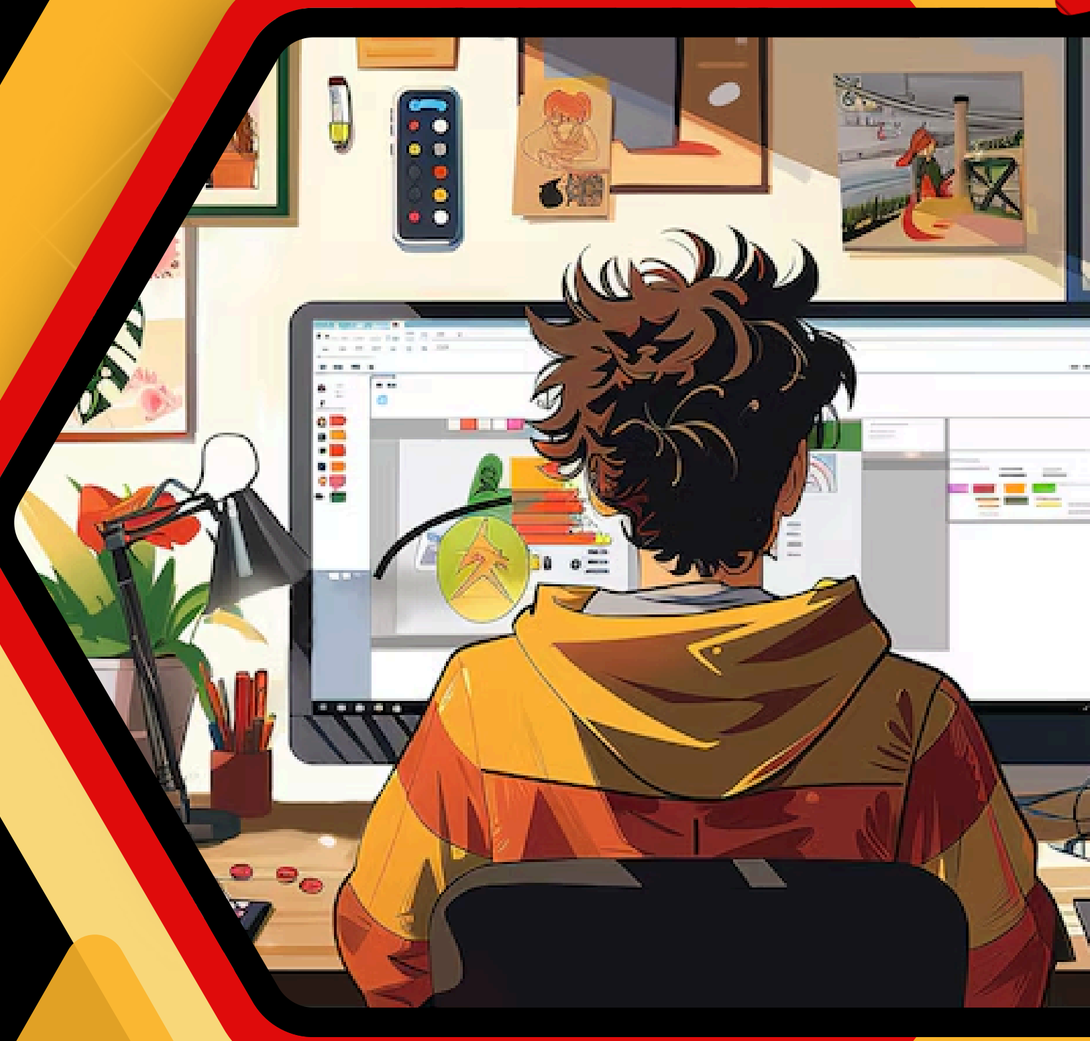
AI AND DATA SCIENCE

Student Exam Manager mini project



Date: 3-12-2025

Instructor: Ahmed Diab

Hw - Week 1

- Introduction
- Python Basics

STUDENT EXAM MANAGER

- Write project in .py structure file in functions
- Write try&except whenever needed to prevent errors
- Make the code clean and readable

STUDENT EXAM MANAGER

- **Create a Python program to manage student exam scores. Your program should:**
- Allow the user to input multiple students with their name, age, and exam scores for three subjects.
- Validate that age is positive and scores are between 0 and 100 (use error handling).
- Store student data in a dictionary where the key is the student's name, and value is a tuple of (age, [scores]).

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- Calculate each student’s average score and store in another dictionary.
- List all students above a certain average score entered by the user.
- Allow saving all student data to a file (students.txt) and reading it back.
- Use lists, sets, tuples, loops, conditions, functions, and exception handling properly.

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- Structure the project in functions

```
> def get_valid_int(prompt, min_val=None, max_val=None): ...

> def get_student_info(): ...

> def calculate_averages(student_data): ...

> def save_to_file(filename, student_data): ...

> def read_from_file(filename): ...
```

STUDENT EXAM MANAGER

- Write main() function that that take inputs and output your results

```
def main():
    student_data = {}
    while True:
        print("\n1. Add student\n2. Show averages\n3. List students above average\n4. Save to file\n5. Read from file\n6. Exit")
        choice = get_valid_int("Enter choice: ", 1, 6)

        if choice == 1:…

        elif choice == 2:…

        elif choice == 3:…

        elif choice == 4:…

        elif choice == 5:…

        elif choice == 6:…

if __name__ == "__main__":
    main()
```

STUDENT EXAM MANAGER

```
PS C:\Users\pc> & C:/Users/pc/AppData/Local/Programs/Python/Python311/python.exe e:/Main_Folder/Zag_Eng/

1. Add student
2. Show averages
3. List students above average
4. Save to file
5. Read from file
6. Exit
Enter choice: 1
Enter student name: ahmed
Enter age for ahmed: 20
Enter score 1 (0-100) for ahmed: 80
Enter score 2 (0-100) for ahmed: 77
Enter score 3 (0-100) for ahmed: 68

1. Add student
2. Show averages
3. List students above average
4. Save to file
5. Read from file
6. Exit
Enter choice: 2
ahmed: Average = 75.00
```

دمتم سالمين