

Chapter 0 Practical Review Series

Student Arithmetic Table Project

Project Overview

Build a C program that:

- Stores multiple students' names and marks (out of 20)
- Calculates total and average
- Assigns PASS/FAIL and grade mentions (Excellent, Very Good, etc.)
- Displays a structured arithmetic table

Exercise 1 Define the Student Structure

Create a structure `Student` that stores:

- Name (up to 50 characters)
- 3 marks (`float`) out of 20

Exercise 2 Input Multiple Students

- Declare an array of 3 students
- Use loops to input names and marks

Exercise 3 Total and Average Calculation

Write a function:

```
void calculate(const struct Student* s, float* total, float*
  average);
```

- Total = sum of 3 marks
- Average = total / 3

Exercise 4 Determine Result and Mention

Write a function:

```
void getMention(float average, char* mention, char* result);
```

Use the following scale:

Average (/20)	Result	Mention
17–20	PASS	Excellent
14–16.99	PASS	Very Good
12–13.99	PASS	Good
10–11.99	PASS	Pass
<10	FAIL	Fail

Exercise 5 Display One Student Row

Write a function:

```
void displayRow(struct Student s, float total, float avg, const
char* result, const char* mention);
```

Exercise 6 Display Full Table in main()

- Loop through students
- Call all functions above
- Display rows in this format:

Name	M1	M2	M3	Total	Avg	Result	Mention
Salim	14.5	16.0	18.0	48.5	16.16	PASS	Very Good

Exercise 7 [Bonus] Recursive Table Display

Replace your display loop with:

```
void displayAll(struct Student s[], int index, int size);
```

Use recursion to print all students' rows.