

WRAV101/MSEV101: Practical 7 (Monday 11:45)

Show your completed tasks to the assistant before the end of the session.

Objectives

- Creating and using methods

How do I submit my work?

Show your completed tasks to an assistant on duty **before the end** of the session. Your submissions will be assessed using the rubric provided at the end of this document.

Note: Remember to test your programs with a variety of values.

Task 1 (Create a new project (Console App (.Net Framework)) and name it P7T1)

Write a user defined method named `GetMark` that can be used to get a valid mark from the user. Your method must continuously ask the user for a mark, until a valid mark is entered (valid marks are between 0 and 100). If a user enters an invalid mark, display an error message before asking for a valid mark to be entered. The method must return the valid value to the calling program.

Write a user defined method named `IsPass` that can be used to determine whether a mark is a pass mark (greater or equal to 50). The method must take as input a mark, and return a `boolean`, indicating whether the mark was a pass mark.

Write a program that reads in 5 marks by using the `GetMark` method to ensure that valid marks are processed. You need to calculate the sum and the average of the marks. Your program must also use the `IsPass` method to determine the number of pass marks entered. When the 5 marks have been processed you need to display the sum, average and number of passes (from these marks).

```
Enter a mark: 89
Enter a mark: 54
Enter a mark: 26
Enter a mark: 102
102 is not a valid mark, enter a number between 0 and 100.
Enter a mark: 46
Enter a mark: 57

The sum of the marks      : 272
The average of the marks : 54.4
The number of passes     : 3
```

Now update your program to do the following:

- Prompt the user for the number of students in the class, then complete the tasks described above for the required number of students
- Include the sequence number of each student in the output (e.g. student 1).

```
How many students' marks needs to be processed? 2
Enter a mark: 89
Enter a mark: 54
Enter a mark: 26
Enter a mark: 106
106 is not a valid mark, enter a number between 0 and 100.
Enter a mark: 46
Enter a mark: 57

Student 1:
Then sum of the marks      : 272
The average of the marks : 54.4
The number of passes     : 3

Enter a mark: 42
Enter a mark: 43
Enter a mark: 56
Enter a mark: 52
Enter a mark: 49

Student 2:
Then sum of the marks      : 242
The average of the marks : 48.4
The number of passes     : 2
```

Optional Task 2 (copy your code from task 1 and call it P7T2, then edit your code)

Adapt your program from task 1 to also do the following:

- Reads in the name of each student,
- Calculates and displays the highest mark for each student – you MAY NOT use of any build-in Math methods in your solution,
- Finds and displays the highest mark in the class, in your display you should also display the name of the student with this mark.

You may consider creating additional user defined methods in order to complete this task.

Prac marking rubric (prac 7)

Your prac will be assessed by the assistants on duty (in the actual practical session), based on the following rubric:

	Mark	Description of mark allocation
Task 1 / 10 Write a user defined method named <code>GetMark</code> that can be used to get a valid mark from the user. Your method must continuously ask the user for a mark, until a valid mark is entered (valid marks are between 0 and 100). If a user enters an invalid mark, display an error message before asking for a valid mark to be entered. The method must return the valid value to the calling program. Write a user defined method named <code>IsPass</code> that can be used to determine whether a mark is a pass mark (greater or equal to 50). The method must take as input a mark, and return a <code>boolean</code> , indicating whether the mark was a pass mark. Write a program that reads in 5 marks by using the <code>GetMark</code> method to ensure that valid marks are processed. You need to calculate the sum and the average of the marks. Your program must also use the <code>IsPass</code> method to determine the number of pass marks entered. When the 5 marks have been processed you need to display the sum, average and number of passes (from these marks). Then update your program to do the following: <ul style="list-style-type: none">• Prompt the user for the number of students in the class, then complete the tasks described above for the required number of students• Prompt the user for the name of each of the student (which must then also be included in the final output)	0	Not implemented, or does not compile
	1	No method created, all code in main
	3	Methods created, but not according to instructions
	6	Methods created and correct according to instructions. Output correct for 1 student
	10	Methods created and correct according to instructions. Output correct for any number of students
Optional Task 2 (no marks) Adapt your program from task 1 to also do the following: Write a program that does the following for 5 students: <ul style="list-style-type: none">• Calculates and displays the highest mark for each student – you may not use of any build-in Math methods in your solution• Finds and displays the highest mark in the class, in your display you should also display the name of the student with this mark. You may consider creating additional user defined methods in order to complete this task.		