


Photo	Name	Student ID	Nationality	Sex	Email
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REPOSITORY LINK:

<https://github.com/MrsSunshine/PersonalAssignment2.git>

TEST REPORT

1) analysis:

The prompt is to implement a demo calc program, which will perform addition, subtraction, division and product in random order among random numbers.

The numbers and the operands have then to be saved in an external text file, called result.txt.

The main points to keep in mind are:

- The program needs to be called by the CMP
- The user enters a number between 3 and 5 which controls the number of channels of operation
- The numbers have to range between 1 and 100 and to be randomly chosen
- The operands: “+”, “-”, “*”, “/”, have to be randomly chosen
- The numbers and the solution of the algebraic sum have to be saved in an external text file called “result.txt”.
- The entire project has to be uploaded on GitHub

2) Functional design:

The function of the entire project is triple:

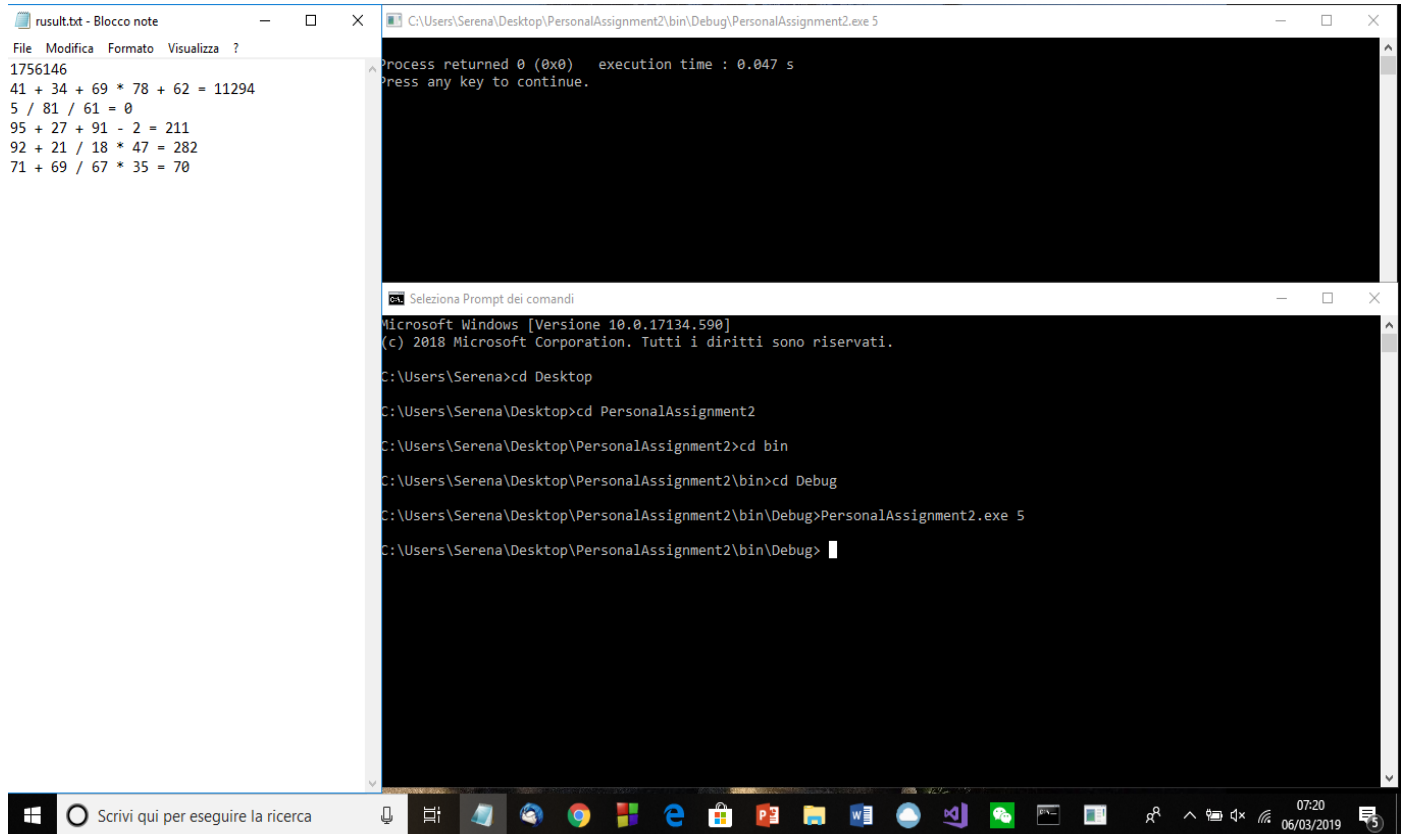
- Lear basic GitHub operations
- Being able to implement the software project
- To master the method of operating the software project on the GitHub.

3) Implementation:

Other than the main function, which implements the “switch” command to choose between the operands, my program contains

- a read-file function, which handles the file opening and writing
- a check-num function, which checks if the number inserted by the user is in between 3 and 5.

4) Testing:



The screenshot displays a Windows desktop environment. On the left, a Notepad window titled 'result.txt - Blocco note' contains the following text:

```
File Modifica Formato Visualizza ?
1756146
41 + 34 + 69 * 78 + 62 = 11294
5 / 81 / 61 = 0
95 + 27 + 91 - 2 = 211
92 + 21 / 18 * 47 = 282
71 + 69 / 67 * 35 = 70
```

On the right, a Command Prompt window titled 'C:\Users\Serena\Desktop\PersonalAssignment2\bin\Debug\PersonalAssignment2.exe 5' shows the execution of a program. The output indicates that the process returned 0 (0x0) and took 0.047 seconds to execute. Below this, a 'Seleziona Prompt dei comandi' window shows the sequence of commands used to navigate to the program's location and execute it:

```
Microsoft Windows [Versione 10.0.17134.590]
(c) 2018 Microsoft Corporation. Tutti i diritti sono riservati.

C:\Users\Serena>cd Desktop
C:\Users\Serena\Desktop>cd PersonalAssignment2
C:\Users\Serena\Desktop\PersonalAssignment2>cd bin
C:\Users\Serena\Desktop\PersonalAssignment2\bin>cd Debug
C:\Users\Serena\Desktop\PersonalAssignment2\bin\Debug>PersonalAssignment2.exe 5
C:\Users\Serena\Desktop\PersonalAssignment2\bin\Debug>
```

The Windows taskbar at the bottom shows the search bar with the text 'Scrivi qui per eseguire la ricerca', several application icons, and the system clock indicating 07:20 on 06/03/2019.

5) Core code:

```
switch(oper){
case 0:
    fprintf(f, " + %d", RandNum);
    sum += RandNum;
    break;
case 1:
    fprintf(f, " - %d", RandNum);
    sum -= RandNum;
    break;
case 2:
    fprintf(f, " * %d", RandNum);
    sum *= RandNum;
    break;
case 3:
    fprintf(f, " / %d", RandNum);
    sum /= RandNum;
    break;
default:
    exit(EXIT_FAILURE);
}
```

6) Summary:

This project was good practice.

Practice of C-language, but most of all practice to start considering several aspects of software development that surround the coding part, and which are far more important for a software engineer than programming.

7) Finishing the following Personal Software Process (PSP)

The most time-consuming process is the Analysis part in the software Development. This is also the part where my estimate of the time variates the most from the actual value.

It's important to learn not to over estimate your ability, to be prepared to face problems and to plan ahead how your program will look like.

The switch function was used to deal with the different operations.

A random number is chosen, then it's modular division by 4 is stored in the var "oper".

All possible cases are covered by the switch, which handles:

- SUM when oper == 0,
- SUBTRACTION oper == 1
- PRODUCT oper == 2
- DIVISION oper == 3
- Exits the program if there is a result which isn't considered in the above

PSP2.1 (Personal Software Process)	Estimated the time required to complete and why (min)	Actual completion time and why (min)
Planning		5 min
<ul style="list-style-type: none"> Estimate (To Estimate how much time this task will take and plan the general steps) 		5 min
Development		72 min
<ul style="list-style-type: none"> Analysis (Demand Analysis (including learning new technology)) 		20 min
<ul style="list-style-type: none"> Design Spec. (Generate design document) 		5 min
<ul style="list-style-type: none"> Design Review (Design review (and co-worker review and design document)) 		2 min
<ul style="list-style-type: none"> Coding Standard (Code specification (develop appropriate specifications for current development)) 		10 min
<ul style="list-style-type: none"> Design (detailed design) 		5 min
<ul style="list-style-type: none"> Coding 		10 min

· Code Review		10 min
· Test (Testing (self-testing, modifying code, submitting changes))		10 min
Reporting		17 min
·· Test Report		15 min
· Size Measurement		2 min
· Postmortem & Process Improvement Plan		0 min