

**CSC 1300 LAB 8 PURPLE**

# CONCEPTS

* Header & multiple source files
* Arrays
* Functions

# DESCRIPTION

**HOGWARTS SCHOOL OF WITCHCRAFT & WIZARDRY**



You are the technician wizard of Hogwarts School of Witchcraft & Wizardry, and you want to create a program that will allow other wizards to enter the **name of spells** that they learned, **spell types** of each spell such as Transfiguration, Charm, Jinx, Hex, Curse, Counter-Spell, Healing spell, etc., and the **damage** that each spell will deal. The program will then print out the average amount of effect, the spell that has the highest amount of effect, and the lowest amount of effect.

## basic INSTRUCTIONS

1. In your **CSC1300LAB** folder, create a **Lab8Purple\_yourTTUusername** folder.
2. Open **Visual Studio Code (VS Code)**.
3. Click on **File** and then select **Open Folder**. Select the folder that you just created.
4. Create three new files described in the next section of this assignment.
5. Make sure to put a comment block at the top of your code with the filename, author (you), date, and purpose of the program. Also make sure to put in comments to identify major sections of your code.

## implement program in files

You will implement your program in these three files:

* **Driver.cpp** – this file contains the main function only
* **Functions.cpp** – this file contains all the programmer-defined functions
* **Spells.h** – this is your header file which has all the #includes, global constants, and function prototypes.

## Variables

1. Global constant for the array **SIZE**, which should be set to **10.**
2. **Variables to be defined in the main function:**
   1. An **array** of 10 **strings** to hold the **name** of each spell.
   2. An **array** of 10 **integers** that will hold the **amount** of effect.
   3. A **double** to hold the **average** of all amounts from the effect amount array.
   4. **Two** **integers** representing the index of the spell that had the **highest** and **lowest amount** of effect.

## Driver.cpp

* Create the variables described above.
* Print out welcome message & purpose of program (refer to sample output).
* Call the getInfoFromUser() function.
* Call the calculateAverage() function.
* Call the getLowest() function.
* Call the getHighest() function.
* Print the results like the sample output.

## Functions.cpp

The following functions should be implemented in this file.

### Function: getInfoFromUser()

**Return Type**: void

**Parameters**: string array to hold the name of each spell, int array to hold the effect value of each spell.

**Description**: this function will allow the user to iterate through each index element of the array so that the user can enter the names and effect value of each spell.

### Function: calculateAverage()

**Return Type**: double

**Parameters**: int array which holds the values of effect

**Description**: send the int array of the spell effect and it should return the average of the spells.

**CAUTION!** Whenever calculating the average, you will be dividing the total of all elements by the size of the array. These are both integers which will result in integer division. So, you will have to cast one of these variables to a double.

### Function: findLowest()

**Return Type**: int

**Parameters**: int array which holds the values of effect

**Description**: this function will find the lowest spell effect in the array and returns the spell with the lowest effect (refer to the sample output).

### Function: findHighest()

**Return Type**: int

**Parameters**: int array which holds the values of effect

**Description**: this function will find the highest spell effect in the array and returns the **index** of spell with the highest effect (refer to the sample output).

## Sample Output

**User input is highlighted in yellow.**

Welcome to the Hogwarts School of Witchcraft and Wizardry.

This is the Hogwarts Spell Evaluation program.

Please enter the spell(s)that you have learned.

SPELL 1:

NAME – Protego Diabolica

EFFECT – 50000

SPELL 2:

NAME – Fiendfyre

EFFECT – 75000

SPELL 3:

NAME – Tempest Jinx

EFFECT – 40000

SPELL 4:

NAME – Avada Kedavra

EFFECT – 150000

SPELL 5:

NAME – Firestorm

EFFECT – 120000

SPELL 6:

NAME – Episkey

EFFECT – 60000

SPELL 7:

NAME – Protego Diabolica (Dragon)

EFFECT – 200000

SPELL 8:

NAME – Crucio

EFFECT – 80000

SPELL 9:

NAME – Wingardium Leviosa

EFFECT – 10000

SPELL 10:

NAME – Sectumsempra

EFFECT – 66666

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The average amount of effect of spells: 85166.6

The spell with the lowest amount of effect is Wingardium Leviosa with value of 10000.

The spell with the highest amount of effect is Protego Diabolica (Dragon) with value of 200000.

## What to Turn In

**Compress/zip** the **Lab8Purple\_yourTTUusername** folder and upload it to the ilearn assignment folder named **Lab 8**. This zipped folder should contain two source files (.cpp files) and 1 header file (.h).