CS121 Lab1
Fa2023
streller

Course Web Page:

Open Mozilla Firefox by double-clicking on the Mozilla Icon.
Single-click anywhere in the white address box near the top of the page. The active address should now appear highlighted in blue. The highlighted address will disappear as you begin to type below.
Type: http://www.**imbjs.com** and press Enter
Follow the links to CS121, lab1
Click on the Lab1 link. Save the cs121_Lab1 zip file
Close Mozilla Firefox by clicking on the X in the upper right-hand corner of the window.
Extract the zip file then open the unzipped folder and open the pdf. Once it is open print it.

File Management:

Open File Explorer:
On the desktop, click "this PC" icon to open the File Explorer.
Switch to folder view if File Explorer is not already in that view
Create a new directory/folder in your C: drive
Right-click in a blank area of the right window
From the pop up context menu (right click) select new folder
Name the directory/folder: CS121 and press Enter
NOTE: all work should be done from the C:\ drive
The C: drive does NOT have persistent saving. To save use either a flash drive or Onedrive
Close File Explorer

Run MS Visual Studio 2022 C++

Consult the Visual Studio 2022 Tutorial distributed in class to set up a project.

The project is to be named CS121Lab1.

Once the project is created
From the menu select: Project ► Add New Item...
From the Add New Item - Lab1 popup select Visual C++ Code from the Categories pane and C++ File from the Templates pane
Enter cs121driver1.cpp in the Name field
Click on add.
The cs121driver1.cpp file should open up
Right-click anywhere in the white text space
and enter the following code:

```
/*****************************************************************************************
** File name         : place file name here
**
** This program write a description of what this program does
**
**
**
** Programmer        : Your name here
**
** Date created      : today's date here
**
** Date last revised :
**
*****************************************************************************************/


#include <iostream>

using namespace std;

int main()
{
    cout << "Waz up ? \n ";

    return 0;

}//end main
```

Save and Run the program:
From the menu select: File and then Save or Crtl+S
to check your syntax from the menu select: Build
click on Compile and then Build Lab1 - this is officially called linking
To run the program do a Crtl+F5 or from the menus select Debug and then ! Start without debugging to execute lab1.exe
NOTE: If you get a message asking if you wish to build files. Say yes. - this just means you did not click on the above commands in the correct order

Note : To re-open this project at a later date, go to the directory where the project is stored and click on the “file” which is has the extension .sln
This will automatically open the file in the visual C++ 2022 IDE.

Does the program run correctly ? Fix any errors.
Once the above program runs, modify driver1.cpp by adding the following code after “Waz up”, but before the return statement

```
cout << "We are computing bits and bytes of the primitive data types \n ";
cout  << endl <<endl;

cout << “Number of bytes in a short integer = “ << sizeof(short)
     << “; number of bits = “ << sizeof(short) * 8 << “\n\n”;

cout << “Number of bytes in an unsigned short integer = “
     << sizeof(unsigned short)
     << “; number of bits = “ << sizeof(unsigned short) * 8 << “\n\n”;

cout << “Number of bytes in an integer = “ << sizeof(int)
     << “; number of bits = “ << sizeof(int) * 8 << “\n\n”;

cout << “Number of bytes in an unsigned integer = “
     << sizeof(unsigned)
     << “; number of bits = “ << sizeof(unsigned) * 8 << “\n\n”;

cout << “Number of bytes in a long integer = “ << sizeof(long)
     << “; number of bits = “ << sizeof(long) * 8 << “\n\n”;

cout << “Number of bytes in an unsigned long integer = “
     << sizeof(unsigned long)
     << “; number of bits = “ << sizeof(unsigned long) * 8 << “\n\n”;

cout << “Number of bytes in a character = “ << sizeof(char)
     << “; number of bits = “ << sizeof(char) * 8 << “\n\n”;

cout << “Number of bytes in a float = “ << sizeof(float)
     << “; number of bits = “ << sizeof(float) * 8<< “\n\n”;

cout << “Number of bytes in a double = “ << sizeof(double)
     << “; number of bits = “ << sizeof(double) * 8 << “\n\n”;
```

Save, Compile, Link and Run the program. Fix any errors.
Fill in Table1, using the results of the program you just ran, on the sheet to be turned in

Create a new program/source file called cs121driver2.cpp. It is to reside in the Lab1 directory created earlier. This new source file must have the above comment header the following greeting and code.

```
#include <iostream>
#include <climits>      //( new code you add )
#include <cfloat>       //( new code to add )
using namespace std;
```

```
cout << "Hi there \n We are computing the minimum and maximum “
      << “values for the primitive data types";
cout  << endl << endl;

cout << “The minimun short value is “ << SHRT_MIN
      << “ and the maximum short value is “ << SHRT_MAX << “\n\n”;

cout << “The minimun unsigned short value is “ << 0
     << “ and the maximum unsigned short value is “ << USHRT_MAX
      << “\n\n”;

cout << “The minimun integer value is “ << INT_MIN
      << “ and the maximum integer value is “ << INT_MAX << “\n\n”;

cout << “The minimun unsigned integer value is “ << 0
      << “ and the maximum unsigned integer value is “ << UINT_MAX
      << “\n\n”;

cout << “The minimun long integer value is “ << LONG_MIN
      << “ and the maximum long integer value is “ << LONG_MAX << “\n\n”;

cout << “The minimun unsigned long integer value is “ << 0
      << “ and the maximum unsigned long integer value is “
      << ULONG_MAX << “\n\n”;

cout << “The minimum float value is “ << FLT_MIN
      << “ and the maximum float value is “ << FLT_MAX << “\n\n”;

cout << “The minimum double value is “ << DBL_MIN
      << “ and the maximum double value is “ << DBL_MAX << “\n\n”;
```

Save, Compile, Link and Run the program. Fix any errors.
To “run” cs121driver2.cpp, **you must exclude cs121driver1.cpp** from the project.
Fill in Table2, using the results of the program you just ran, on the sheet to be turned in

Save your work and Close MS Visual C++
Logging-Out *important
Close all applications if not already done
Press Ctrl+Alt+Delete
Choose Log-Out

Grading:

Turn in the following page with each table completed along with your source code (cs121driver1.cpp and cs121driver2.cpp) STAPLED – *no staples -15 points*

due 19 September 2023 in class.

NAME : _____

cs121
Lab1
fall 2023

TABLE 1

Data type	Number of bytes	Number of bits
short		
unsigned short		
int		
unsigned int		
unsigned		
long		
unsigned long		
char		
float		
double		
long double		

TABLE 2

Data type	Minimum Value	Maximum Value
short		
unsigned short		
int		
unsigned		
long		
unsigned long		
float		
double		
long double		