SCIT-EIS-UOW
CSCI251 Advanced Programming
Autumn 2022
Lab for Week 2 & 3

General note

We will work with an IDE (such as Code::Blocks or similar), or to use Bitvise or similar to connect to `capa.its.uow.edu.au`. Submission points will be set up on Moodle. Please submit the work (source codes) you have completed. Submissions will close about midnight Fridays (week 3, 5, 6, 7, 9, 11).

For each task you might save the code file(s) like

- `t1.cpp`: only one file.
- `t1-1.cpp`: if multiple subtasks
- `t1.zip`: if there are multiple files

At the end, please submit a (big) zip file that includs all task for the lab, ane name it like: `name_studentId_lab1.zip`.

1 Task 1

1. Debug: `Debug-A.cpp`. This file is used to take two inputs and calculate their sum and multiplication.
2. Debug the code in the compressed file `Debug-B.zip`. The detail has been explained in the `main` function.

2 Task 2

Write a program to read two integers m and n from the user.

- Output m multiplied by the values 1 to n.
- This means, for example, that if $m = 2$ and $n = 3$, you should be outputting 2, 4, 6.
- You also need to make sure inputs are valid (such as $n > 1$), so a check for the input is required.

3 Task 3

Write a program to determine the cost of building a house with a retaining wall. You should implement it with multiple source files. One example can include one main, header, and implementation file (you can refer to `Debug-B.zip` from Task 1 as an example). So the main file only contains the main function. The header file has the declaration only. The implementation file has the detailed process, including

1. A function which accepts the type of material used to build the wall: 'w' for wooden, 'c' for concrete or 'b' for brick. Any other entry should be rejected.

2. A function which accepts the width, height and depth of the wall.

3. A function that takes the wall width (w), the height (h), the depth (d) and materials to calculate the price. The building cost is $m(w \times d \times h) + 200$ where m is \$75, \$150 and \$175 respectively for wooden, concrete and brick.

4. A function to display the final cost.

4 Task 4

Complete the missing part of the following function, while this function is used to calculate the circle's circumference and area.

```
int main()
{
*** missing part ***

cout<<''input the radius''<<endl;
cin>>r;

*** missing part ***

cout<<"the area of this circle is:"<<endl;
cout<<s<<endl;
cout<<"the circumference of this circle is:"<<endl;
cout<<v<<endl;
return 0;
}
```

5 Task 5

Write a C++ program to do the following:

1. Declare one array with five integers.

2. Accept inputs from user to assign value to this array.

3. Swap the last and the second last element from this array using the following function (the declaration must be as follows):

   ```
   void swap(int *ptr1, int *ptr2);
   ```

4. Display the final array.