Laboratory 04B

CS-102

Spring 2022

Lab04 part 1

- Complete the program below using a switch statement that displays "one" if the user entered 1.
- It displays "two" if the user entered 2.
- It displays "three" if the user entered 3.
- If a number other than 1, 2, or 3 is entered, it should display an error message.
- Use proper Gaddis Formatting.

```
#include <iostream>
using namespace std;
int main()
{
	int userNum;
	cout << "Enter one of the numbers 1, 2, or 3: ";
	cin >> userNum;
	//
	// Write switch statements here.
	//
	return 0;
}
```

Lab04 part 1

- Name your program: *YourName*-Lab04-1.cpp
- If you are doing this Lab synchronously, then show your result to the Instructor for credit.
- If you are doing this Lab asynchronously, then submit your program to Canvas.

```
#include <iostream>
using namespace std;
int main()
{
	int selection;
	cout << "Which formula do you want to see?\n\n";
	cout << "1. Area of a circle\n";
	cout << "2. Area of a rectangle\n";
	cout << "3. Area of a cylinder\n";
	cout << "4. None of them!\n";
	cin >> selection;
	if (selection == 1)
		cout << "Pi times radius squared\n";
	else if (selection == 2)
		cout << "Length times width\n";
	else if (selection == 3)
		cout << "Pi times radius squared times height\n";
	else if (selection == 4)
		cout << "Well! OK then, good bye!\n";
	else
		cout << "Not good with numbers, eh?\n";
	return 0;
}
```

Lab04 part 2
Rewrite the program shown at left using switch/case statements instead of if/else if statements.
Use proper Gaddis formatting.

Lab04 part 2

- Name your program: *YourName*-Lab04-2.cpp
- If you are doing this Lab synchronously, then show your result to the Instructor for credit.
- If you are doing this Lab asynchronously, then submit your program to Canvas.

Program 4-25

```
1  // This program is carefully constructed to use the "fall through"
2  // feature of the switch statement.
3  #include <iostream>
4  using namespace std;
5
6  int main()
7  {
8     int modelNum;  // Model number
9
10    // Get a model number from the user.
11    cout << "Our TVs come in three models:\n";
12    cout << "The 100, 200, and 300. Which do you want? ";
13    cin >> modelNum;
14
15    // Display the model's features.
16    cout << "That model has the following features:\n";
17    switch (modelNum)
18    {
19       case 300: cout << "\tPicture-in-a-picture.\n";
20       case 200: cout << "\tStereo sound.\n";
21       case 100: cout << "\tRemote control.\n";
22                 break;
23       default:  cout << "You can only choose the 100,";
24                 cout << "200, or 300.\n";
25    }
26    return 0;
27 }
```

Lab 4B Part 3

Using as few lines of code as possible, rewrite this program using if – else statements rather than switch – case statements. It should yield the same result.

Lab04 part 3

- Name your program: *YourName*-Lab04-3.cpp
- If you are doing this Lab synchronously, then show your result to the Instructor for credit.
- If you are doing this Lab asynchronously, then submit your program to Canvas.

Lab 04B – Part 4

- The University of Guiness charges $3000 per semester for in-state tuition and $4500 per semester for out-of-state tuition. In addition, room and board is $2500 per semester for in-state students and $3500 per semester for out-of-state students. Write a program that prompts the user for their residential status (i.e., in-state or out-of-state) and whether they require room and board (Y or N). The program should then compute and output their bill for that semester.
- **Use the Conditional Operator in all of your Processing statements in this program:**

  Result = Logical Expression0 ? Expression1 : Expression2;
- Use the sample output below:
  Sample Run 1:
- **Please input "I" if you are in-state or "O" if you are out-of-state:**
- **Please input "Y" if you require room and board and "N" if you do not:**
- N
- **Your total bill for this semester is $3000**
- *Sample Run 2:*
- **Please input "I" if you are in-state or "O" if you are out-of-state:**
- O
- **Please input "Y" if you require room and board and "N" if you do not:**
- Y
- **Your total bill for this semester is $8000**

Lab04 part 4

- Name your program: *YourName*-Lab04-4.cpp
- If you are doing this Lab synchronously, then show your result to the Instructor for credit.
- If you are doing this Lab asynchronously, then submit your program to Canvas.

```
// This program uses the modulus operator to determine
// if a number is odd or even. If the number is evenly divisible
// by 2, it is an even number. A remainder indicates it is odd.
#include <iostream>
using namespace std;

int main()
{
  int number;

  cout << "Enter an integer and I will tell you if it is odd or even. \n";
  cin >> number;
  if (number % 2 == 0)
      cout << number << " is even.\n";
  else
      cout << number << " is odd.\n";
  return 0;
}
```

Lab 04B – Part 5:

Rewrite this program using a single Conditional Operator within a cout statement, instead of a four line if/else statement.

Lab04 part 5

- Name your program: *YourName*-Lab04-5.cpp
- If you are doing this Lab synchronously, then show your result to the Instructor for credit.
- If you are doing this Lab asynchronously, then submit your program to Canvas.