**Supporting File For Lab No. 8**

**LAB 8.1 The switch Statement**

Compile the code:

// This program illustrates the use of the switch statement.

// PLACE YOUR NAME HERE

#include <iostream>

using namespace std;

int main()

{

char grade;

cout << "What grade did you earn in Programming I ?" << endl;

cin >> grade;

switch( grade ) // This is where the switch statement begins

{

case 'A': cout << "an A - excellent work !" << endl;

break;

case 'B': cout << "you got a B - good job" << endl;

break;

case 'C': cout << "earning a C is satisfactory" << endl;

break;

case 'D': cout << "while D is passing, there is a problem" << endl;

break;

case 'F': cout << "you failed - better luck next time" << endl

break;

default: cout << "You did not enter an A, B, C, D, or F" << endl;

}

return 0;

}

Exercise 1: Remove the break statements from each of the cases. What is the effect on the execution of the program?

Exercise 2: Add an additional switch statement that allows for a Passing option for a grade of D or better. Use the sample run given below to model your output.

Sample Run:

**What grade did you earn in Programming I ?**

**A**

**YOU PASSED!**

**an A - excellent work!**

Exercise 3: Rewrite the program switch.cpp using if and else if statements rather than a switch statement. Did you use a trailing else in your new version? If so, what did it correspond to in the original program with the switch statement?

**LAB 8.2 Student Generated Code Assignments**

Write a program that prompts the user for their quarterly water bill for the last four quarters. The program should find and output their average monthly water bill. If the average bill exceeds $75, the output should include a message indicating that too much water is being used. If the average bill is at least $25 but no more than $75, the output should indicate that a typical amount of water is being used. Finally, if the average bill is less than $25, the output should contain a message praising the user for conserving water. Use the sample run below as a model for your output.

Sample Run 1:

**Please input your water bill for quarter 1:**

**300**

**Please input your water bill for quarter 2:**

**200**

**Please input your water bill for quarter 3:**

**225**

**Please input your water bill for quarter 4:**

**275**

**Your average monthly bill is $83.33. You are using excessive amounts of water.**

Sample Run 2:

**Please input your water bill for quarter 1:**

**100**

**Please input your water bill for quarter 2:**

**150**

**Please input your water bill for quarter 3:**

**75**

**Please input your water bill for quarter 4:**

**125**

**Your average monthly bill is $37.50. You are using a typical amount of water**

**LAB 8.3**

The local t-shirt shop sells shirts that retail for $12. Quantity discounts are given as follow:

**Number of Shirts Discount**

5–10 10%

11–20 15%

21–30 20%

31 or more 25%

Write a program that prompts the user for the number of shirts required and then computes the total price. Make sure the program accepts only nonnegative input.

Use the following sample runs to guide you:

Sample Run 1:

**How many shirts would you like ?**

**4**

**The cost per shirt is $12 and the total cost is $48**

Sample Run 2:

**How many shirts would you like ?**

**0**

**The cost per shirt is $12 and the total cost is $0**

Sample Run 3:

**How many shirts would you like ?**

**8**

**The cost per shirt is $10.80 and the total cost is $86.40**

Sample Run 4:

**How many shirts would you like ?**

**-2**

**Invalid Input: Please enter a nonnegative integer**