

**Student Lab Activity**

CIS170C-Week 2 Lab Instructions

Lab 2 of 7: Decisions and Repetition

Lab Overview—Scenario/Summary

You will code, build, and execute two programs requiring decisions. The first program will determine the smaller of two numbers input on the screen. The second program will calculate the number of calories burned on a treadmill using repetition.

Learning outcomes:

1. To be able to design program logic using either a flowchart or pseudocode
2. To be able to define and use data types
3. To be able to prompt the user for input
4. To be able to use the assignment statement for calculations
5. To be able to display output to the console in a formatted manner
6. To be able to debug a program of syntax and logic errors
7. To be able to make decisions
8. To be able to use repetition.

Deliverables

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| **Section** | **Deliverable** | **Points** |
| **Part A** | Step 7: Program Listing and Output | **15** |
| **Part B** | Step 7: Program Listing and Output | **15** |
| **All Parts** | **Total** | **30** |

Lab Steps

**Preparation:**

If you are using the Citrix remote lab, follow the login instructions located in the lab (under General Resources within Course Resources) in Course Home.

Locate the Visual Studio 2015 icon, and launch the application.

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| **Part A: Determine Smallest Number** |
| **Step 1:** Requirements |
| Write a program that inputs two numbers and determines which of the two numbers is the smallest. If the numbers are equal, display a message that they are equal.  Sample output from program:  **You will be asked to enter two numbers.**  **The smallest value will be displayed or a message if they are the same.**  **Please enter a numeric value: 4**  **Please enter a numeric value: 7**  **The smallest value is 4**  **Press any key to continue.**  **AND THEN:**  **Please enter a numeric value: 7**  **Please enter a numeric value: 4**  **The smallest value is 4**  **Press any key to continue.** |
| **Step 2:** Pseudocode |
| Using the pseudocode below, write the code that will meet the requirements.  Display description of the program.  Prompt the user for the first number.  Prompt the user for the second number.  If first number equals second number  Display the two numbers are equal  Else  If first number is greater than second number  Assign second number to smallest  Else  Assign first number to smallest  End-If  Display smallest number  End-If |
| **Step 3:** Create a New Project | |
| Create a new project and name it LAB2A. Write your code using the processing logic in Part A, Step 2. | |
| **Step 4:** Save Program | |
| Save your program by clicking File on the menu bar and then clicking Save Program.cpp, or by clicking the Save button on the toolbar, or Ctrl + S. | |
| **Step 5:** Build Solution | |
| To compile the program, click Debug and then Build solution (F7). You should receive no error messages. If you see some error messages, check the code above to make sure you didn’t key in something wrong. Once you make your corrections to the code, go ahead and click Build >> Build Solution again. | |
| **Step 6:** Execute the Program | |
| Once you have no syntax errors, to execute or run your program, click Debug on the menu bar, and then click Start Debugging. | |
| **Step 7:** Capture the Output | |
| 1. Capture a screen print of your output. (Do a PRINT SCREEN, and paste into an MS Word document.) 2. Copy your code and paste it into the same MS Word document that contains the screen print of your output. 3. Save the Word Document as Lab02A\_LastName\_FirstInitial. | |
| **END OF PART A** |

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| **Part B: Calories Burned** |
| **Step 1:** Requirements |
| Write a program that uses a loop to display the number of calories burned after running on a treadmill for 10, 15, 20, 25, and 30 minutes. Running on a treadmill burns 3.9 calories per minute.  Sample Output from Program:  **39.0 calories were burned after 10 minutes.**  **58.5 calories were burned after 15 minutes.**  **78.0 calories were burned after 20 minutes.**  **97.5 calories were burned after 25 minutes.**  **117.0 calories were burned after 30 minutes.**  **Press any key to continue.** |
| **Step 2:** Pseudocode |
| Using the pseudocode below, write the code that will meet the requirements.  **Display program information**  **Declare variables**  **For i=10 to 30 step 5**  **Print i\*calories**  **End for** |
| **Step 3:** Create a New Project | |
| Create a new project and name it LAB2B. Make sure you close your previous program by clicking File >> Close Solution. Write your code using the Processing Logic in Part B Step 2. | |
| **Step 4:** Save Program | |
| Save your program by clicking File on the menu bar and then clicking Save Program.cpp, or by clicking the Save button on the toolbar, or Ctrl + S. | |
| **Step 5:** Build Solution | |
| To compile the program, click Debug then Build solution (F7). You should receive no error messages. If you see some error messages, check the code above to make sure you didn’t key in something wrong. Once you make your corrections to the code, go ahead and click Build >> Build Solution again. | |
| **Step 6:** Execute the Program | |
| Once you have no syntax errors, to execute or run your program, click Debug on the menu bar, and then click Start Debugging. | |
| **Step 7:** Capture the Output | |
| 1. Capture a screen print of your output. (Do a PRINT SCREEN, and paste into an MS Word document.) 2. Copy your code and paste it into the same MS Word document that contains the screen print of your output. 3. Save the Word Document as Lab02B\_LastName\_FirstInitial. | |
| **END OF PART B** |
| **END OF LAB** |