Pair Programming 3 Activities

* **Always use the pair programming tests to ensure your program works properly.**
* **Take a screen shot of each execution in the tests.**
* **Download the source code file for inclusion in the turn in document.**
* **Turn in pair programming activities using the pair programming turn in document.**
* **It is each individual’s responsibility to turn in the assignment and pair programming is graded individually so make sure you share the work you and your partner did together as you go.**
* **You can only earn 50% of pair programming points if you do not work with your partner.**
* **Do not share work with your partner that you did not do together.**
* **Make sure you have your partner’s name, username and contact information such as Pellissippi WebMail.**

3a. (2 points) Suppose you want to calculate salary for more than one hourly employee? How can you change the algorithm below for an indefinite number of employees using a sentinel value for hours? Recall from lecture video & slides that a *sentinel value* is a variable value that causes the loop to stop, such as entering a zero or negative number or a special character value if the user is entering character data (such as ‘y’ for ‘yes’ or ‘q’ for ‘quit’).

Write a C++ program in a file called pp3a.cpp to get hours and rate from an unknown number of users **using a sentinel value of 0 for hours**. Calculate and print each user’s salary. **Use either a while loop or a do while loop.** Optional: Try a different type of loop than your partner to see how they compare.

* + 1. Prompt user for hours
    2. Read hours
    3. Prompt the user for rate
    4. Read rate
    5. if hours less than or equal 40
       1. salary = hours \* rate
    6. else
       1. salary = 40\*rate + (hours – 40)\*rate\*1.5
    7. Print salary

3b. (2 points) Write a C++ program in a file called pp3b.cpp **using ONE for loop** to print out all powers of 2 from 20 to 2n . Get the value of n from the user. Print out a table as shown below. **DO NOT use the pow function** if you know about it. Hint: first write the code to print the first column only then add to it to print the second. Try using ‘\t’ to insert tabs in your cout << stream, to help your columns line up.

0 1

1 2

2 4

... etc.

3c. (3 points) Write a C++ program in a file called pp3c.cpp that asks the user for *n* then calculates and prints *n!* **Use a for loop**.

3d. (3 points) **Using a do while loop with a switch statement inside it**, write a C++ program in a file called pp3d.cpp to print the following menu. Get a flooring option from the user and print a creative message of your choice, such as “You ordered hardwood” until the user decides to quit. **Options should be case insensitive**, which means, for example, that if the user enter ‘H’ or ‘h’, either should be accepted as the *hardwood* choice. If the user enters an invalid option, print “Invalid option *X*” where *X* is the character the user typed.

H hardwood

L laminate

E engineered hardwood

Q quit