**C/C++ ELECTRIC BILL LAB REPORT**

**1) Enter your name, student ID, platform (Mac or PC) and date**

Name and StudentID: Samuel Indurkar, 0888068

Class: CIS054 C/C++ Programming

Platform (Mac or PC): gcc and eclipse on MAC  
Language (C or C++):C++

Date: 6/23/2017

**OBJECTIVES:**

Use **if...else if...else** statements to compare numeric values  
Use Exception Handling in a C++ program to process unexpected or illegal inputs. Use error processing in a C program to process unexpected or illegal inputs. – Refer to the lecture

**PROJECT DESCRIPTION:**

Create a program that does the following:

1) Read the number of kWh used by the customer

2) compute the Electric Bill with a lower rate for the baseline kWh and a higher rate for kWh over the baseline  
3) display the Electric Bill  
**If writing your program in C++, you must use Try…Throw…Catch Exception Handling to process unexpected or illegal inputs. If writing your program in C, you must test the return from scanf to process input errors.  
– Refer to the FAQ links in the lecture section on Canvas**

|  |  |  |
| --- | --- | --- |
| **INPUTS** | **PROCESSING** | **OUTPUTS** |
| kWh | Input kWh from user, convert to double  Determine Base\_kWh (up to 500)  Determine Extra\_kWh (over 500)  Base\_Bill = Base\_kWh \* 0.27  Extra\_Bill = Extra\_kWh \* 0.55  Electric\_Bill = Base\_Bill + Extra\_Bill  Display Electric\_Bill | Electric\_Bill |

**LAB REPORT:**

**2) Fill in the TEST VALUES & RESULTS table**Fill in the **Test Data Values** and **Expected Results** as shown on the lab assignment from Canvas.  
Fill in the **Actual Results** after you have run and tested your program

|  |  |  |
| --- | --- | --- |
| **TEST DATA VALUES**  **kwh** | **EXPECTED RESULT**  Computed values before the program is run | **ACTUAL RESULT**  Fill in the output displayed  by the program |
| 400 | $108.00 | $108 |
| 500 | $135.00 | $135 |
| 600 | $190.00 | $190 |
| six hundred |  | throw catch error code 0 |

**DISCUSSION:**

**3) Complete the DISCUSSION section. It does not need to be long, but it needs to be complete.**3a) What did you do to develop the program? ("Followed the Directions" is not a complete description)

I first prompt user for input

then i evaluate whether their input is good using try throw catch method

then i calculate bill with different rates

add up the final rate

display to user

3b) What problems did you have and how did you overcome the problems?

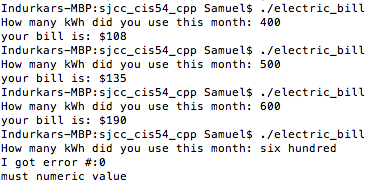
at first cin was not throwing anything to the catch. After a little more research I found out that i had to use the cin.fail to throw an error.

The bill value is not displaying a decimal point even though i used double and float. But for both cases it only displays $108 not $108.00.

**PROGRAM OUTPUT:**

**4) Show four screen shots of the program execution.**

1. When kWh = 400
2. When kWh = 500
3. When kWh = 600
4. When letters are entered for kWh instead of numbers

ALL a)-d) is on this one single screenshot. hope this is okay. 

For the Mac, hold down **command + shift + control** keys and press the **3** key.

Use **command+V** to paste the clipboard into the lab report.

For Windows, There are two ways you can capture a screen shot of only your program:

* Use Microsoft's **Snipping Tool** by clicking on the **Start** icon and selecting **"All Programs"** then **"Accessories".** Use the mouse to select the area of the screen you want to save then click Ctrl-C or select the menu items Edit-Copy to save the image to the clipboard.
* Capture the active window to the clipboard by holding down the **Alt** key and tapping the **PrintScreen** key. NOTE: some notebook computers require that you hold down a [**Fn**] key and **Alt** keys to activate the **PrintScreen** function. NOTE: Do not click PrintScreen without the Alt key. This would capture the entire screen which would make your program output difficult to see.

Use **Ctrl+V** to paste the clipboard into the lab report.

**PROGRAM LISTING:**

**5) Copy and paste the code that YOU typed to make the program work. Your program should include a comment block at the top that shows the name of the program, date, version and your name.**

/\*

\* electric\_bill.cpp

\* version 2

\* Created on: Jun 23, 2017

\* Author: Samuel

\*/

#include <iostream>

using namespace std;

int main( int argc, char \* argv[] )

{

float kWh;

float baserate = .27 ;

float extrarate = .55 ;

float basebill ;

float extrabill ;

float finalbill ;

//prompting user what to enter

cout << "How many kWh did you use this month: " ;

//testing user input

try

{

cin >> kWh ;

if (cin.fail())

{

throw 0;

}

}

catch (int errID)

{

cerr << "I got error #:" << errID << endl ;

cerr << "must numeric value" <<endl ;

return 1;

}

// now calculate bill with various rates

if (kWh <= 500)

{

basebill = kWh \* baserate;

extrabill = 0 ;

}

else

{

extrabill = (kWh - 500) \* extrarate ;

basebill = 500 \* baserate ;

}

finalbill = extrabill + basebill ;

cout << "your bill is: $" << finalbill << endl ;

return 0;

}