**C/C++ LONG DISTANCE CALL LAB REPORT**

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

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Class: CIS054 C/C++ Programming

Platform (Mac or PC): gcc and eclipse on MAC  
Date: 6/27/2017

**DESCRIPTION:**

**Chapter 3 Programming Project (#5 page 171 for the 8th Edition –or– #1 page 174 for the 9th Edition)**  
Write a program that computes the cost of a long-distance call. The cost of the call is determined according to the following rate schedule:

1. Any call started between 8:00 am and 6:00 pm, Monday through Friday, is billed at a rate of $0.40 per minute.
2. Any call starting before 8:00 am or after 6:00 pm, Monday through Friday, is charged at a rate of $0.25 per minute.
3. Any call started on a Saturday or Sunday is charged at a rate of $0.15 per minute.

The input will consist of the day of the week, the time the call started, and the length of the call in minutes. The output will be the cost of the call. The time is to be input in 24-hour notation, so the time 1:30 pm is input as **13:30**

The day of the week will be read as one of the following pairs of character values, which are stored in two variables of type ***char.***

**Mo Tu We Th Fr Sa Su**

Be sure to allow the user to use either uppercase or lowercase letters or a combination of the two. The number of minutes will be input as a value of type ***int.*** (You can assume that the user rounds the input to a whole number of minutes.) Your program should display the cost of the call with two decimal places. Include a loop that lets the user repeat this calculation until the user says she or he is done.

**2) Determine the Inputs, Processing and Outputs before creating the program**

|  |  |  |
| --- | --- | --- |
| **INPUTS** | **PROCESSING** | **OUTPUTS** |
| DayOfWeek TimeStarted LengthOfCall | if DayOfWeek == Mo through Fr  if time >= 800 and time <= 1800  rate = 0.40  else if time < 800 or time > 1800  rate = 0.25  else if day == Sa or Su  rate = 0.15  CostOfCall = rate \* LengthOfCall | CostOfCal |

**3) Fill in the EXPECTED & ACTUAL RESULTS**

|  |  |  |
| --- | --- | --- |
| **TEST DATA VALUES**  Be sure to provide test values for all three possible conditions | **EXPECTED RESULT**  Computed values before the program is run | **ACTUAL RESULT**  Fill in the output displayed  by the program |
| 1. call start at 8:00 on Monday for 10 minutes 2. call starts at 7:00 on Tuesday for 10 minutes 3. call starts at 9:00 on Sunday for 10 minutes | 1. $4 2. $2.5 3. $1.5 | 1. $4 2. $2.5 3. $1.5 |

**DISCUSSION:**

**4) Complete the DISCUSSION section. It does not need to be long, but it needs to be complete.**4a) What did you do to develop the program? ("Followed the Directions" is not a complete description)

I set the three rates. Then ask the user input for call start time, day of the call and duration of call. Based on that I determine the billing rate based on the following algorithm

if DayOfWeek == Mo through Fr

if time >= 800 and time <= 1800

rate = 0.40

else if time < 800 or time > 1800

rate = 0.25

else if day == Sa or Su

rate = 0.15

CostOfCall = rate \* LengthOfCall

4b) What problems did you have and how did you overcome the problems?

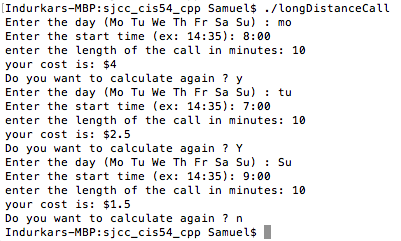
By mistake I defined the billingRate as “int” instead of “double” so it was giving $0

But after I corrected the billingRate to “double” it displayed correct answer

**PROGRAM OUTPUT:**

**5) Show three screen shots of the program execution.**

1. A call started between 8:00 am or after 6:00 pm, Monday through Friday, billed at a rate of $0.40 per minute.
2. A call starting before 8:00 am or after 6:00 pm, Monday through Friday, charged at a rate of $0.25 per minute.
3. A call started on a Saturday or Sunday charged at a rate of $0.15 per minute.



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:**

**6) Copy and paste the code for the program. Your program should include a comment block at the top that shows the name of the program, date, version and your name.**

/\*

\* longDistanceCall.cpp

\* version 1

\* Created on: Jun 27, 2017

\* Author: Samuel

\*/

#include <iostream>

#include <cstring>

using namespace std;

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

{

const double WEEKEND\_RATE = 0.15;

const double EVENING\_RATE = 0.25;

const double DAY\_RATE = 0.40;

char day[2];

int hour;

char seperator;

int minute;

int lengthOfCall;

double billingRate;

int startTime; // 24-hour time

char Again = 'y';

double finalCostOfCall;

while ( Again == 'y')

{

// Ask user for the day

cout << "Enter the day (Mo Tu We Th Fr Sa Su) : ";

cin >> day;

day[0] = toupper(day[0]);

day[1] = toupper(day[1]);

// ask the user to enter time

cout << "Enter the start time (ex: 14:35): ";

cin >> hour >> seperator >> minute;

startTime = hour\*100 + minute;

// input length of call

cout << "enter the length of the call in minutes: ";

cin >> lengthOfCall;

// process - determine billlingrate, then costofcall

if (day[0]=='S' && day[1]=='A') // test for SA (Saturday)

billingRate = WEEKEND\_RATE;

else if (day[0]=='S' && day[1]=='U')

billingRate = WEEKEND\_RATE;

else //if not weekend then weekday

{

if (startTime>=800 && startTime <= 1800)

billingRate = DAY\_RATE;

else

billingRate = EVENING\_RATE;

}

finalCostOfCall = lengthOfCall \* billingRate;

cout <<"your cost is: $" << finalCostOfCall <<endl;

cout << "Do you want to calculate again ? ";

cin >> Again;

Again = tolower(Again);

}

return 0 ;

}