Assignment 2: Reading and Programming Project due 9/18

Reading Assignment

1. Read Chapter 2 of the textbook completing the self-test exercises; skip Section 2.5.

Programming Assignment

A general advice: unless noted otherwise always complete your reading assignment before starting to work on the programming assignment.

This assignment includes two projects:

1. A project PhoneCall to practice arithmetic expressions,
2. Another project, PhoneNumber, to practice string manipulation.

Both are described in detail below.

Programming Project

PhoneCall: Calculate length and cost of a phonecall due 11:00 p.m. on Wed, 9/18 worth 8 points

Write a program that determines the cost of a phone call in minutes based on the starting and ending time based on 24-hour clock and the per-minute rate.

The program should work exactly as follows. The user will be prompted to enter five parameters

1. the starting hour,
2. the starting minute,
3. the ending hour,
4. the ending minute,
5. the per-minute rate in dollars.

The starting and ending hours would be given based on the 24 hour clock. For instance, if a call started at 12:15 and ended at 13:34 and is billed at the rate of 25 cents per minute, the user would enter

1. 12 as the starting hour,
2. 15 as the starting minute,
3. 13 as the ending hour,
4. 34 as the ending minute,
5. .25 as the per-minute rate in dollars.

The program would then compute and output

1. the length of the call in minutes, and
2. the cost of the call.

Here’s what the interaction should look like for the above example.

This program computes the cost of a phone call.
Please enter the hour when call started: 12
Now enter the minute the call started: 15
Please enter the hour when call ended: 13
Now enter the minute the call ended: 34
Please enter the per-minute cost of the call: .25

The call lasted #79 minutes and costed #19.75 dollars.

Important Note  The output from your program will be tested by a computer program. The tester program is not intelligent enough to interpret the output line and deduce which part of it represents the length and the cost. It will simply extract the number after the first ‘#’ and treat it as the length of the call, and then extract the number after the second ‘#’ and treat it as the cost. Therefore it is required that your program prints the ‘#’ immediately preceding each output value, and prints the values in the correct order.

Programming Project

PhoneNumber: Extract a phone number from a string  
due 11:00 p.m. on Wed, 9/18
worth 8 points

In this project you will create a program that reads in a string that contains a phone number, extracts the phone number and prints it out in a certain format. The phone number on the string will appear right after the ‘@’ character, as in the example below:

Please call me @475-786-3335. Thank you!

The program must then output the area code, followed by the first three and the last four digits as depicted below:

Phone number found.
Area code #475
First three digits #786
Last four digits #3335

Again, don’t forget to print the ‘#’ character before your output.