

CIS 236 – Programming in C

Program:	Week 08
Points:	20
Chapters:	7

Description

Write a program to compute internet charges according to a rate schedule.

The rate schedule is as follows:

- \$0.08 per GB for usage between 0 and 50 GB, inclusive
- \$0.07 per GB for usage between 51 GB and 80 GB, inclusive
- \$0.05 per GB for usage between 81 GB and 120 GB, inclusive
- \$0.04 per GB for usage greater than 120 GB

Learning Objectives

In this assignment, you will:

- Use a selection control structure
- Use functions with input parameters, output parameters, and return values
- Display neatly formatted output to the screen

Requirements

Your code **must** use these three functions, using these names (in addition to main):

1. getData
2. computeCharges
3. printAccountInfo

Requirements for the getData Function

- Purpose: This function prompts the user for an account number (integer) and a GB value (integer). It passes these values back to main via two output parameters.
- Output Parameters: 1. account number (as an integer)
2. GB value (as an integer)
- Algorithm: Prompt and read each value. Be sure you are storing the user's input in the output parameter.

Return value: None

Requirements for the computeCharges Function

Purpose: This function computes the charges for the transaction. It uses one input parameter (GB value as an integer) and a return value (amount of the charge, which may include decimals).

Input Parameter: 1. GB value (as an integer)

Algorithm: Use a selection structure to determine the charge per GB, using the above rate schedule. Calculate the charges using multiplication.

Return value: Transaction charges (may include decimals)

Requirements for the printAccountInfo Function

Purpose: This function displays the information for the transaction to the screen.

Input Parameters: 1. account number
2. GB value
3. Transaction charges

Algorithm: Print, using appropriate spacing and formatting. The transaction charges must display with two decimal places.

Return value: None

Requirements for main:

1. Variable declarations in main should only include the variables needed within main. Do not declare all the variables needed in the program here – only the ones needed within main.
2. Call the appropriate functions with the appropriate arguments and return values, if necessary.
3. All prompts must display without a newline.
4. All numbers in the output must be right-aligned.

Sample Run 1

Enter account number: 12345

Enter GB used: 80

Transaction Information:

Account number: 12345

GB Used: 80

Charges: 4.00

Sample Run 2

Enter account number: 56789

Enter GB used: 70

Transaction Information:

Account number: 56789

GB Used: 70

Charges: 4.90

Requirements for Full Credit on This Project

SUBMIT YOUR OWN WORK – Plagiarism is not tolerated in this course. Please review the section on the Academic Honor Code in the syllabus. I will not hesitate to drop you from this class if you submit a program that is plagiarized.

COMPLETE AND ACCURATE – Your program must compile, execute, and give accurate output.

FOLLOW ALL REQUIREMENTS ACCORDING TO THE INSTRUCTIONS – Follow the instructions as written for completing this project, even if you [think you] know a “better” way to do something.

COMMENTS – Include comments in your code. There must be a comment at the top of your program that includes your name, the program number, and a description of the program. There must be comments at each important step in your program that describes that step. Every variable must include a comment describing its purpose.

BEST PRACTICES – Follow best practices in C programming as discussed in class and in the textbook, including, but not limited to, appropriate use of white space, indenting, alignment, meaningful identifier names, etc. Points will be deducted for sloppy code that is hard to read, even if it works, so pay attention to these details.

SUBMIT ONLY .c SOURCE CODE – Pay attention to the file extension of the source code file you submit. I will deduct points for not following this requirement.

SUBMIT ALL FILES BEFORE THE DUE DATE – Submit your .c source code file to the dropbox for this assignment on Canvas before the due date. Do not submit executable files. Do not submit project files from an IDE. I will not accept links to online storage.