11th October 2024

The motivation behind this Assignment is for the student to do some research, produce solutions for the programs, and then appreciate the concepts of Structured Programming techniques discussed in class.

Requirement:
   a). The work should be done in groups
   b). No handwritten work will be accepted
   c). The assignment should be completed by 25th October 2024

Questions

1.
   A program is required for a computer game. The user keys in the number of rounds he wishes to play. For each round the user enters his lucky number. The program takes the number and divides it with a secret number. If the remainder of the division is zero, it is considered a draw for the round and the total score is incriminated by 1. Otherwise if it is any other even number, it is considered a win for the round and the total score is incremented by 3. However if it is an odd number, it is considered a loss for the round and the total score is decremented by 3. This is done until he completes his rounds. He wins if the total score at the end is a positive number. Write a C program to accomplish this.

2.
   Write a program that accepts the student admission number, student surname and three subjects marks and displays the same along with the student average mark.
   The program should also display the student grade depending on the average marks the student obtains. The grading system is shown in the table below

Average Mark	Grade
0-39	Fail
40-50	D
50-59	C
60-69	B
70-100	A

   The program should also prompt the user if to continue. If the user enters "Y", for yes then program computes for another student and "N", for no then program exits

3.
   A computer program is required to evaluate the credit worthy of a client. The program reads the credit limit, price and quantity of the item to be purchased by the client. If the value of the goods is more than the credit limit, the program displays "Sorry you cannot purchase goods worthy such a value on credit" and allows the customer to re-enter the quantity, otherwise, displays "Thank You for purchasing from us" and the value of the purchase. This should be repeated for n customers.

   Required:
      i)   Draw a flowchart for your solution

      ii)   Write the C program that implements the algorithm in **(i)** above

4.

Study the following table used to compute the tax payable by employees in certain organization

Gross Pay	Fewer than Three Dependants	Three or more Dependants
KSh 10,000 or less	Tax rate=0	Tax rate=0
More than KSh10, 000 and less than or equal to KSh20, 000	Tax rate=15%	Tax rate = 10%
Over KSh20, 000	Tax rate=35%	Tax rate=25%

A program is required to input the gross pay and number of dependants of an employee and then computes for the tax payable and net pay. The program should output gross pay, tax payable and the net pay of an employee in a suitable format.

Hint:
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Tax payable = Gross pay * Tax rate
Net pay = Gross pay - Tax payable
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Required
    i)   Draw the flowchart of your solution

    ii)   Write the corresponding program