

SECJ 1013 –Programming Technique I

Assignment 1 (total marks: 20)

Write the **pseudocode** and draw the **flowchart** of the solution for each of the following problems:

Question 1

Write a payroll program that computes an employee's gross pay and net pay. An employee who works more than 40 hours per week should be paid at overtime rate (1.5 x regular rate) for all hours over 40. Compute net pay by deducting 10% of gross pay only if an employee earns more than RM1500.

Question 2

The National Earthquake Information Center has asked you to write a program implementing the decision table shown in Table 1 to characterize an earthquake based on a Richter scale number. Your program should read the Richter number, N and display an appropriate message.

Table 1

Richter Scale Number (N)	Characterization
$N < 5.0$	Little or no damage
$5.0 \leq N < 5.5$	Moderate damage
$5.5 \leq N < 6.5$	Serious damage
$6.5 \leq N < 7.5$	Disaster
≥ 7.5	Catastrophic damage

Question 3

Write a program that finds the equivalent series and parallel resistance for a collection of resistor values. Your program should first read in the number of resistors and then compute the equivalent series resistance for all resistors in the collection and the equivalent parallel resistance. For example, if there are 3 resistors of 100, 200, and 300 Ohms, respectively, their equivalent series resistance is $100+200+300$ and their equivalent parallel resistance is $1(1/100+1/200+1/300)$. Your program should read each resistance value (R), add R to the series sum (RS) and add $1/R$ to the parallel sum (RP). After loop exit, display RS and $1/RP$.

Question 4

Write a program to process a collection of savings account transactions (deposits or withdrawals). Your program should begin by reading in the previous account balance and then read and process each

transaction. Enter a positive value for a deposit and a negative value for a withdrawal. For each transaction, print the message "Withdrawal" or "Deposit" and the new balance. Print an error message if a withdrawal would result in a negative balance and do not change the balance.

Use a sentinel value of 0 to signal end of the transactions.

Honesty Declaration

This form must be completed and attached to your completed assignment upon submission. Only assignments accompanied by the Honesty Declaration will be graded.

I, the undersigned, declare that the attached assignment has been composed and written by me alone and that no part of it has been copied by manual or electronic means from any work by any other person(s), present or past, including tutors and tutoring services. I understand that penalties for submitting work that is not wholly my own or distributing my work to other students is considered an act of Academic Dishonesty, and is subject to penalty as described by the University.

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