

Introduction to Programming – IT1010

Final Exam – Model Paper

Question 1

The following table provides the details of the different types of rooms available in Blue Ocean Hotel.

Room Type	Description	Rate per night
D	Deluxe	31000.00
S	Superior Deluxe	35000.00
C	Club Suites	50000.00
E	Executive Suites	75000.00
P	Presidential Suite	100000.00

Write a C program that prompt the user to input the room type, number of rooms, number of nights and paying method (cash - M or credit card -C) and display total amount payable to the hotel.

The customers are given 10% discount if they choose to make the payment by credit card.

Your program should display an error message “Invalid Room Type” and terminate, if the user input a wrong room type, which is not listed in the table given above.

After displaying the total amount that need to be paid by the customer, the program should prompt a message “Do you want to continue”. If the user inputs “y” or “Y” the program should ask the user to enter the details of the next item. If the user input “n” or “N” the program should terminate.

Format your output to 2 decimal places.

Question 2

Smart meter reading is an electronic device that records consumption of electric energy in intervals of an hour or less and communicates that information at least daily back to the utility system for monitoring and billing.

Write a C program to store the daily electricity usage of a month (assume that one month has 28 days and exactly 4 weeks) and generate a summary report.

- a) Use a two dimensional array to store the electricity usages. One row in the array should store the usage of a week.

Following are the electricity usage of a house in Victoria in the month of November. Store these data in the array.

1.2, 2.1, 0.8, 0.0, 1.0, 1.3, 4.0, 1.5, 3.2, 1.0, 1.3, 4.0, 1.5, 3.2, 2.3, 0.4, 1.2, 2.1, 0.8, 0.0, 2.6, 2.1, 1.7, 7.0, 1.2, 2.1, 0.8, 0.0

- b) Generate the summary report as below based on the values stored in the array.

Day of the Month with maximum usage:

Maximum Usage in units:

Day of the Month with minimum usage:

Minimum Usage in units:

Average usage for the Month:

Total usage for the Month:

Question 3

Write a C program to store the details of phone bills.

- a) In your program, enter the phone number, local call charges, international call charges and roaming charges in to charges.dat.

Sample input

Phone no	local call charges	international call charges	roaming charges
0772123789	230.00	0.00	0.00
0777890345	1025.00	546.00	3278.00
0714289378	2345.00	135.00	0.00
0723481230	548.00	10.00	0.00
0776239487	2564.00	439.00	349.00

- b) Write a program to read the details from the charges.dat and print the total call charges for each phone number. Print the phone number and total due amount for each phone number.

Question 4

Write a C program to calculate the employee salaries of a company. Employees are entitled to get an increment according to their grades. Increment percentages for each grade is given in the following table.

grade	Increment
1	10%
2	15%
3	20%

Write a function called **calculateIncrement()** to calculate and return the increment given for the employees. Function prototype is given below.

```
float calculateIncrement(int grade, float basicSalary);
```

Write a function called **calcTotSalary()** to calculate the total salary.
(total salary = salary + increment).

```
float calcTotSalary(float salary, float increment);
```

In your main function enter the basic salary of an employee and the grade from the keyboard. Display the increment and total salary as follows using the functions created above.

```
Enter Salary : .....  
Enter grade: .....  
Increment: .....  
Total Salary :.....
```