TORRENS UNIVERSITY AUSTRALIA

Case Study

The exciting integration of Restaurants online and mobile platforms provides restaurateurs with a complete digital management platform to increase online order sales, eliminate the need for restaurant staff to manually manage orders, and automate order data flow to the kitchen.

A2C is one of the biggest restaurant chains in Australia. They decided to offer their customers a convenient and contactless mobile ordering solution in response to the growing business need and COVID restrictions.

As part of the development team in the B2B software company, you are required to design and develop the mobile ordering program. The programming team leader assigns each member of the development team nine predefined independent tasks that will be later on integrated to form the platform. Before the application release deadline, you are required to submit the following nine programming tasks:

1. Customers details: You are requested to enable the customer to insert their details to create a new account. Each customer will be asked to insert the following:
    a. the customer's name,
    b. mobile number,
    c. year of birth,
    d. current city
    e. email address to register for promotions.

    The application must calculate the customer's age (assume the current year is always 2023) and confirm to the customer with a greeting message by displaying all the details if the customer is more than 16 years of age. **(2 Mark)**

2. Restaurant Capacity: Write a program to advise the restaurant manager on how many customers the restaurant can accommodate based on the restaurant dimensions. Your program will ask the manager to insert the width and length of the restaurant in centimetres. Assuming that a person occupies 1.2 square meters of space. The program should output the number of people that can be accommodated in the restaurant (The output should be an integer).

    Note: if the calculated number of people that the restaurant can accommodate is more than 75, the program must print the message that A Maximum of 75 persons are allowed. **(2 Mark)**

3. At the end of each week the manager would like to assess the average per person sale and compare it to the previous weekend. Write a program to ask the manage for the following input: **(3 Mark)**
    a. Current weekend's day wise sale and number of persons visited.
    b. Last weekend's day wise sale and number of persons visited.

Output:

Current Weekend's per person average sale= Total sale for Current weekend / Total number of persons visited in the Current Weekend

Last Weekend's per person average sale= Total sale for Last weekend / Total number of persons visited in the Last Weekend

Note:

1- You must use a list.
2- The weekend includes Friday, Saturday, and Sunday.

4. Create a program to calculate and print the amount of change to be returned to the customer, after paying the bill, based on the manager's inputs in the system.

(2 Mark)

Sample Input:

Invoice Number:	A001
Total Invoice amount (In Dollars):	200
Amount of Tip (In Cents):	10
Total Payment received by Card:	160
Service Charge on Payment made by Card:	4%
Total Payment received in Cash (In Dollars):	100

Output:

Change to be returned to the customer (In Dollars)
against Invoice number A001 is: 53.50

Note: If the return to customer amount is negative, then it must print "Outstanding amount and need to be paid by customer:", and the amount need to be paid.

5. Write the program to provide the user with an estimate of the order delivery charges. The program should as the user for the following input:
   a. His full address
   b. The distance in KM between the address provided and the restaurant based on the bellow rates:

Your program should calculate and print them. Based on the input entered by the user the program displays the delivery charge. **(3 Mark)**

c.	More than 0 to 5 Kilometres	$3
d.	More than 5 to 10 Kilometres	$6
e.	More than 10 to 15 Kilometres	$10
f.	More than 15 Kilometres	No Delivery can be done.

6. Write a program to calculate the total charges of a placed order at the restaurant. Additional charges apply based on the order type selected from the options of:

1- dine in: Additional service charges of 8% apply
2-pick up: no additional charges
3-deivery.: additional delivery charges of 10% apply

The program should ask the user to insert the order base cost in AUD and the order type (1 or 2 or 3), and then the program should output the total amount to be paid.

(2 Mark)

7. Write a temperature conversion program. The program should offer two forms of conversions:

   1- from Centigrade to Fahrenheit
   2-From Fahrenheit to Centigrade

   - The program should ask the user to insert the temperature value and the conversion form (1 or 2).
   - The program should output the converted temperature.
   - Your program should print a warning message for invalid entries.
   - Any Other option: Invalid Entry. **(2 Mark)**

8. Write a program to help the manager calculating the net monthly income of the employee after the tax is deducted. Assume a fixed income tax of 15 %. The program should ask the manager to insert the following input:

   1- the position of the employee (chef, waiter, or delivery).
      Note: you should ensure a correct output regardless of the input case (upper case (capital letter) and lower case (small letter).
   2- the number of monthly hours the employee worked.

   The pay rate is calculated as follows: **(2 Mark)**
   Pay Rate:
   - Chef $40 Per hour,
   - Waiter $30 Per hour,
   - Delivery $25 Per hour,

9. Create a program that ask the user to enter user credential signing up a new account. The program should ask the user to insert the following:
   1- mobile number
   2- password

   The program should print the output “Valid credentials” if:

   1. the mobile number is having exactly 10 digits.
   2. the password has a minimum of 8 characters and maximum 10 characters.

   Note: The program should print “invalid credentials” otherwise. **(2 Mark)**