



Higher Diploma in Information Technology

Introduction to Programming (C++)

Year 1 Semester 1 – 2024

Tutorial 11 – Object Oriented Programming Concepts in C++

Question 01

Write a program to provide a simple inventory system for a burger outlet.

- a) Include the following private data members (attributes) in your **Meal class**.

Attribute	Data type
MealNo	integer
Description	char []
NoofMealsAvailable	integer
Price	double

- b) Implement a constructor which will accept the **MealNo, Description, NoofMealsAvailable and price as parameters**.
- c) Implement a member function (method) called **makeorder()**, which will accept the **MealNo and Quantity as parameters**. It should check the availability of the meals and print a proper message as follows:

```
If the NoofMealsAvailable is less than the Quantity then print
    "Sorry not enough available. Please wait! "
Else
    Reduce the no of meals ordered from the NoofMealsAvailable
    Print " Order Placed! "
    Print total price (price * Quantity)
Also check,
    If NoofMealsAvailable is zero then
        Print "Out of Stock. Cannot Order! "
```

- d) Implement a method called **print()** to print the details of a meal.

e) Write a main program to do the followings.

- Create 3 Objects to store the following details:

Attribute	meal_1	meal_2	meal_3
MealNo	10	12	13
Description	Chicken Burger	Fish Burger	Vegi Burger
NoofMealsAvailable	5	10	0
Price	250.00	200.00	180.00

- Place the following orders by using **makeorder ()** method.

Attribute	meal_1	meal_2	meal_3
Quantity	3	5	2

- Print the details of all the meals using **print ()** method after making the orders.

```
-----Meal No 01-----
Order Placed!
The Total Price is : 750
The Meal No :10
Description :Chicken Burger
The Noof Meals Available :2
The Price of the Meal : 250

-----Meal No 02-----
Order Placed!
The Total Price is : 1000
The Meal No :12
Description :Fish Burger
The Noof Meals Available :5
The Price of the Meal : 200

-----Meal No 03-----
Sorry not enough available. Please wait!
The Meal No :13
Description :Vegi Burger
The Noof Meals Available :0
The Price of the Meal : 180
```

Question 02

Write a program to provide details of employees.

- a) Include the following private data members (attributes) in your **Employee** class.

Attribute	Data type
EmpID	integer
Empname	char array
YearJoined	integer
Status	integer (0 - Temporary, 1 - Permanent)
BasicSalary	float

- b) Implement the constructor which will accept EmpID, Name, YearJoined, Status and BasicSalary as arguments.
- c) Implement a method called **changeStatus()** to change the temporary employees to permanent. Method should not allow to change a permanent employee to temporary. Status should be passed as a parameter and the method should return true or false.
- d) Company gives one-month basic salary as a bonus for the employees who have more than three years working experience in the company. Write a method called **calculateBonus()** to calculate and return the bonus amount.

Working experience is calculated as follows:

$$\text{working experience} = 2022 - \text{year joined}$$

- e) Write a method called **printDetails()** to print all the details of the employee as shown below. Status should be printed as "Permanent" or "Temporary"

Name:

EmpID:

Year Joined :.....

Status:

Basic Salary:

Bonus Amount:

Total :

f) Write a main program to do the followings.

- Create 2 employee objects called Emp_1 and Emp_2 to store the following details:

Attribute	Emp_1	Emp_2
EmpID	3555	4323
Empname	Kumara A.S	Perera T.K
YearJoined	2000	2012
Status	Permanent	Temporary
BasicSalary	34000.00	25000.00

- Change the status of Perera T.K. to permanent.
- Calculate the bonus of the two employees and print the details.

```
-----Employee 01 Data-----
Name:Kumara A.S
EmpID:3555
Year Joined:2000
Status:Permenent
Bonus Amount:34000
Total :68000

-----Employee 02 Data-----
Name:Perera T.K
EmpID:4323
Year Joined:2018
Status:Permenent
Bonus Amount:25000
Total :50000
```