Assignment Date : 12/3/2024
Due Date : 26/3/2024 at 23:59

- Student must do the homework without any collaboration or help.
- Automatic plagiarism detection software will be used for scanning and checking the submitted files.
- If significant similarities are found between submitted files, it will be considered as plagiarism, and those homework grades will be zero.
- File should be submitted to Ninova only, email submission is not accepted.
- Program should be compiled without syntax errors.
- It should work efficiently and generate correct results as expected.
- Solution should be according to the class specifications given below. Any other methods will not be graded.

PRODUCT CLASS

Write the C++ codes of the UML class diagram given on the right.
Default constructor's code block will be empty.
Parametered constructor function takes two parameters,
and initializes member datas with the parameters.

Product
+ name : string + price : float
+ Product () + Product (string n, float p)

CUSTOMER CLASS

- Write the C++ codes of the UML class diagram given on the right.
- Define the N symbol as a global constant whose value is 5.
- Parametered constructor function :
  Constructor takes customer name and credit card limit as parameters.
  The credit card limit parameter should have 1000 as defult value.
  Constructor initializes member datas with the parameters.
  Also initializes the count_of_ordered_products variable with 0.
- The calculate_total_debt function :
  Calculates and returns sum of prices in the list_of_ordered_products array.
- The print function : Displays all member data on screen.

Customer
+ customer_name : string + credit_card_limit : float + list_of_ordered_products [N] : **Product** + count_of_ordered_products : int
+ Customer (string cname, float cclimit) + operator+ (**Product** P) : void + calculate_total_debt() : float + print() : void

Overloaded Operator+ Member Function

Write the overloaded operator+ member function. Prototype : ***void operator+ (Product P)***
Function takes a Product object as parameter, and adds the given product to the list_of_ordered_products array.
Whenever a new product is added to the array, the count_of_ordered_products variable should be incremented by 1.
Function should check the following two constraints when adding a new product to customer.
If any of the constraints is not met, then function should display a warning message on screen,
and the add operation will not be done for that product.
Constraint1: The total debt of customer should not exceed his/her credit card limit.
Constraint2: The count_of_ordered_products variable value should not exceed the N constant value.

MAIN PROGRAM

Write a main C++ program to do followings.
▪ Standard Template Library (built-in STL classes, etc.) should NOT be used.
▪ Use exactly the same data values given below, do not use any other different data.
▪ User will NOT enter any data inputs from keyboard, program should assign all data through class constructors.

- Define three Customer variables (objects) with constructor parameters below.

Customer name	Credit card limit
JOHN FISHER	2000
RONALD CRAIG	Default
THOMAS AUSTIN	750

- By calling the overloaded + operator, add the Product objects below to the specified customers.

Add to the first customer:

Product name	Product price
Panasonic Phone	800
Toshiba Battery	300
Kenwood DVD	400

Add to the second customer:

Product name	Product price
Canon Battery	500
Nikon Accessory	600
Yamaha Subwoofer	200

Add to the third customer:

Product name	Product price
Whirlpool Charger	90
Logitech Remote	20
LG Dryer	100
Linksys Router	60
Nintendo Portable	150
Mitsubishi Stand	50

- By calling the print member function of Customer class, display all information in the Customer variables on screen.

EXAMPLE SCREEN OUTPUTS

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PROGRAM STARTED

Add product : Panasonic Phone  800
Product is added to customer successfully.

Add product : Toshiba Battery  300
Product is added to customer successfully.

Add product : Kenwood DVD  400
Product is added to customer successfully.

Customer name             : JOHN FISHER
Credit card Limit         : 2000
Count of ordered products : 3
List of Ordered Products  :
1.  Name : Panasonic Phone      Price : 800
2.  Name : Toshiba Battery      Price : 300
3.  Name : Kenwood DVD          Price : 400
TOTAL DEBT = 1500

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Add product : Canon Battery  500
Product is added to customer successfully.

Add product : Nikon Accessory  600
Total debt exceeded the credit card limit.
Product add operation is not done.

Add product : Yamaha Subwoofer  200
Product is added to customer successfully.

Customer name             : RONALD CRAIG
Credit card Limit         : 1000
Count of ordered products : 2
List of Ordered Products  :
1.  Name : Canon Battery        Price : 500
2.  Name : Yamaha Subwoofer     Price : 200
TOTAL DEBT = 700

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Add product : Whirlpool Charger  90
Product is added to customer successfully.

Add product : Logitech Remote  20
Product is added to customer successfully.

Add product : LG Dryer  100
Product is added to customer successfully.

Add product : Linksys Router  60
Product is added to customer successfully.

Add product : Nintendo Portable  150
Product is added to customer successfully.

Add product : Mitsubishi Stand  50
Count of ordered products exceeded the maximum number.
Product add operation is not done.

Customer name             : THOMAS AUSTIN
Credit card Limit         : 750
Count of ordered products : 5
List of Ordered Products  :
1.  Name : Whirlpool Charger    Price : 90
2.  Name : Logitech Remote      Price : 20
3.  Name : LG Dryer             Price : 100
4.  Name : Linksys Router       Price : 60
5.  Name : Nintendo Portable    Price : 150
TOTAL DEBT = 420

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PROGRAM FINISHED
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