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**Total Marks: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Obtained Marks: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date: 11-03-2019**

**OBJECT ORIENTED PROGRAMMING TECHNIQUES**

**ASSIGNMENT 2**

**Submitted To: MUHAMMAD SHEHERYAR**

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**Student Name: Muhammad Humayun Abid**

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**Reg. Number: 1812127**

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***Instructions****: Copied or shown assignments will be marked zero. Late submissions are not entertained in any case.*

*Objectives:*

This assignment has been designed so that you understand the concept of classes in **C++.** After the completion of this assignment you should have a good grasp on:

o Writing constructor and destructor.

o Operator Overloading*.*

o Friend Functions

**Question:**

a. Create two classes. The first, named Sale, holds data for a sales transaction. Its private data members include the day of the month, amount of the sale, and the salesperson’s ID number. The second class, named Salesperson, holds data for a salesperson, and its private data members include each salesperson’s ID number and last name. Each class includes a constructor to which you can pass the field values. Create a friend function named display()that is a friend of both classes and displays the date of sale, the amount, and the salesperson ID and name. Write a short main()demonstration program to test your classes and friend function.

b. Add a function to both the Sale and Salesperson classes that returns the private salesperson ID number. Write a main()function that contains an array of five Salesperson objects and store appropriate data in it. Then, continue to prompt the user for Sale data until the user enters an appropriate sentinel value. For each Sale transaction entered, determine whether the salesperson’s ID number is valid. Either display an error message, or use the friend display()function to display all the data.

**SOLUTION**

**PART (A):**

**Code:**

#include <iostream>

**using** **namespace** std**;**

class salesperson**;**//forward declaration;

class Sale

**{**

int day**;** double am\_sale**;**

int id**;**

public**:**

Sale**()**

**{**

day**=**0**;**

am\_sale**=**0**;**

id**=**0**;**

**}**

Sale **(**int d**,** double a**,** int i**)**

**{**

day**=**d**;**

am\_sale**=**a**;**

id**=**i**;**

**}**

void show**()**

**{**

cout**<<**"DAY OF THE MONTH: "**<<**day**<<**endl**;**

cout**<<**"AMOUNT OF SALE : "**<<**am\_sale**<<**endl**;**

cout**<<**"Id of Employee : "**<<**id**<<**endl**;**

**}**

friend void display**(**Sale **&** **,** salesperson **&);**

**};**

class salesperson

**{**

string last\_name**;**

int id\_no**;**

public**:**

salesperson **()**

**{**

last\_name**=**" "**;**

id\_no**=**0**;**

**}**

salesperson **(** string s**,**int i**)**

**{**

last\_name**=**s**;**

id\_no**=**i**;**

**}**

void show1**()**

**{**

cout**<<**"SALES PERSON ID : "**<<**id\_no**<<**endl**;**

cout**<<**"SALES PERSON LAST NAME: "**<<**last\_name**<<**endl**;**

**}**

friend void display**(**Sale **&** **,** salesperson **&** **);**

**};**

void display **(**Sale **&**S**,** salesperson **&**M**)**

**{**

cout**<<**"Day of Sale "**<<**S**.**day**<<**endl**;**

cout**<<**"The Amount Of Sale "**<<**S**.**am\_sale**<<**endl**;**

cout**<<**"SALESPERSON ID : "**<<**M**.**id\_no**<<**endl**;**

cout**<<** " SALESPERSON's LAST NAME :"**<<**M**.**last\_name**;**

**}**

int main**()**

**{**

Sale S1**(**20**,**40000**,**35**);**

S1**.**show**();**

salesperson M1**(**" NAUMAN "**,**1812134**);**

cout**<<**endl**<<**endl**;**

M1**.**show1**();**

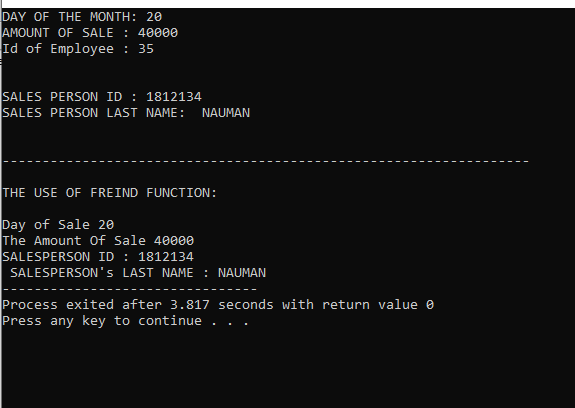
cout**<<**endl**<<**endl**<<**"------------------------------------------------------------------"**<<**endl**<<**endl**;**

cout**<<**"THE USE OF FREIND FUNCTION: "**<<**endl**<<**endl**;**

display**(**S1**,**M1**);**

**}**

**Output:-**



**PART B:**

**CODE:-**

#include <iostream>

**using** **namespace** std**;**

class salesperson**;**//forward declaration;

class Sale

**{**

int day**;** double am\_sale**;**

int id**;**

public**:**

Sale**()**

**{**

day**=**0**;**

am\_sale**=**0**;**

id**=**0**;**

**}**

Sale **(**int d**,** double a**,** int i**)**

**{**

day**=**d**;**

am\_sale**=**a**;**

id**=**i**;**

**}**

void show**()**

**{**

cout**<<**"DAY OF THE MONTH: "**<<**day**<<**endl**;**

cout**<<**"AMOUNT OF SALE : "**<<**am\_sale**<<**endl**;**

cout**<<**"Id of Employee : "**<<**id**<<**endl**;**

**}**

friend int display**(** salesperson **&);**

friend void display1**(**Sale **&** **,** salesperson **&** **);**

**};**

class salesperson

**{**

string last\_name**;**

int id\_no**;**

public**:**

salesperson **()**

**{**

last\_name**=**" "**;**

id\_no**=**0**;**

**}**

void set**()**

**{**

cout**<<**"ENTER ID: "**;**

cin**>>**id\_no**;**

cout**<<**" \n\n"**;**

**}**

salesperson **(** string s**,**int i**)**

**{**

last\_name**=**s**;**

id\_no**=**i**;**

**}**

void show1**()**

**{**

cout**<<**"SALES PERSON ID : "**<<**id\_no**<<**endl**;**

cout**<<**"SALES PERSON LAST NAME: "**<<**last\_name**<<**endl**;**

**}**

friend int display**(**salesperson **&** **);**

friend void display1**(**Sale **&** **,** salesperson **&** **);**

**};**

void display1**(**Sale **&**S **,** salesperson **&**M **)**

**{**

cout**<<**"Day of Sale "**<<**S**.**day**<<**endl**;**

cout**<<**"The Amount Of Sale "**<<**S**.**am\_sale**<<**endl**;**

cout**<<**"SALESPERSON ID : "**<<**M**.**id\_no**<<**endl**;**

**}**

int display **(**salesperson **&**M**)**

**{**

**return** M**.**id\_no**;**

**}**

int main**()**

**{**

int i**=**0**;**

char ch**;**

Sale S1**(**20**,**40000**,**35**);**

S1**.**show**();**

salesperson M**[**i**];**

**while** **(**i**<**5**)**

**{**

M**[**i**].**set**();**

cout**<<**"Press R to quit and any other character to cotinue :"**;**

cin**>>**ch**;**

**if** **(**ch**==**'R'**||** ch**==**'r'**)** **goto** Y**;**

i**++;**

**}**

cout**<<**endl**<<**endl**;**

//M1.show1();

Y**:**

cout**<<**endl**<<**endl**<<**"------------------------------------------------------------------"**<<**endl**<<**endl**;**

cout**<<**"THE USE OF FREIND FUNCTION: "**<<**endl**<<**endl**;**

cout**<<**"ID OF EMPLOYEE : "**<<**display**(**M**[**0**])<<**endl**;**

display1**(**S1**,**M**[**0**]);**

**}**

**OUTPUT SCREENSHOT:**

