OOP LAB SIX

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Solution One:

Files distribution - labSix-q1-header.h

```
#pragma once
// Preprocessing Directives
#include <iostream>
#include <string>
using namespace std;
// Defining a class named teacher and declaring its attributes
class teacher{
private:
	string teacherName;
	string email;
	string address;
public:
// Parameterized Constructor
	teacher(string teacherName, string email, string address) {
		this->teacherName = teacherName;
		this->email = email;
		this->address = address;
	}
// A method to print teacher's details
	inline void printDetails(void) const {
		cout << "Teacher Name: " << teacherName << endl;
		cout << "Email: " << email << endl;
```

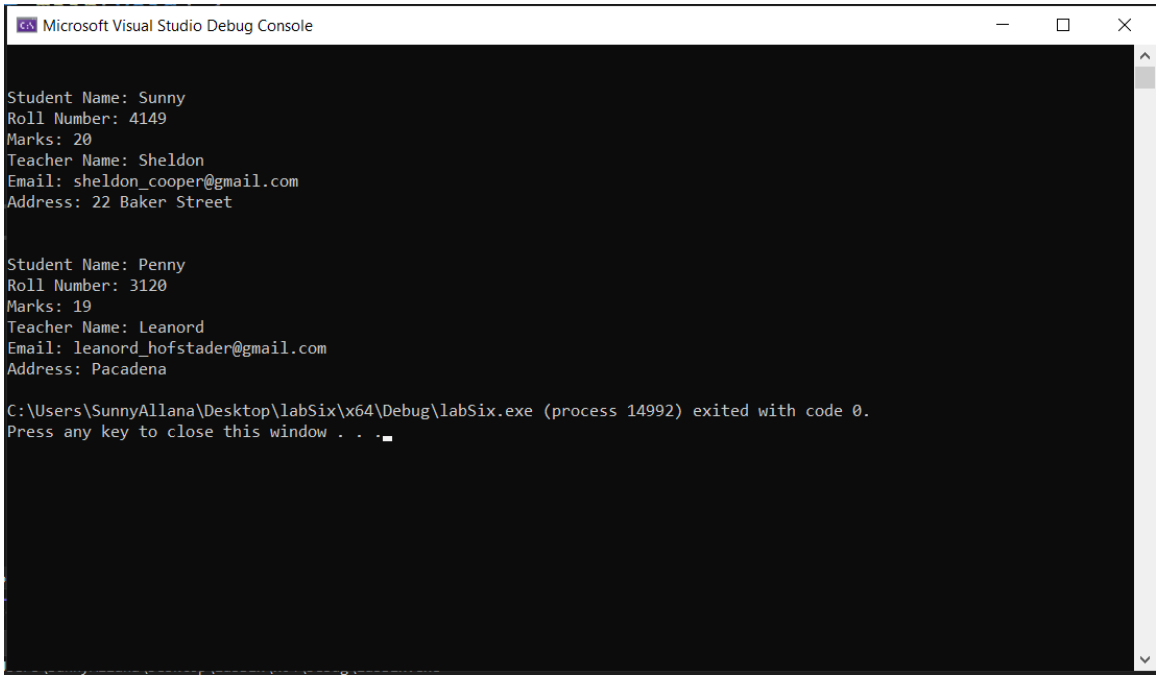
```
        cout << "Address: " << address << endl;
    }
};
// Defining a class named student and declaring its attributes
class student {
private:
    string studentName;
    int rollNumber;
    float marks;
    teacher* t;
public:
    // A paramterized constructor
    student(string studentName, int rollNumber, float marks, teacher* t) {
        this->studentName = studentName;
        this->rollNumber = rollNumber;
        this->marks = marks;
        this->t = t;
    }
    // A method to display both student and teacher details
    inline void displayStudentTeacherDetails() const {
        cout << "\n\nStudent Name: " << studentName << endl;
        cout << "Roll Number: " << rollNumber << endl;
        cout << "Marks: " << marks << endl;
        t->printDetails();
    }
};
```

Files distribution - labSix-q1-source.cpp

```
#include "labSix-q1-header.h"
// Defining main and declaring necessary variables
```

```
int main(void) {
// Making instances of both objects and composing them together
        teacher tOne("Sheldon", "sheldon_cooper@gmail.com", "22 Baker Street");
        student sOne("Sunny", 4149, 20, &tOne);
        sOne.displayStudentTeacherDetails();
        teacher tTwo("Leanord", "leanord_hofstader@gmail.com", "Pacadena");
        student sTwo("Penny", 3120, 19, &tTwo);
        sTwo.displayStudentTeacherDetails();
// Returning control to OS
        return 0;
}
```

OUTPUT



Solution Two:

Files distribution - labSix-q2-header.h

```
#pragma once
```

```cpp
// Preprocessing directives
#include <iostream>
#include <string>
using namespace std;
// Defining a class named book and declaring its attributes
class book {
private:
	string title;
	string author;
	double price;
	int quantity;
public:
	// Parameterized constructor
	book(string title, string author, double price, int quantity) {
		this->title = title;
		this->author = author;
		this->price = price;
		this->quantity = quantity;
	}
	string getTitle() const {
		return title;
	}
	string getAuthor() const {
		return author;
	}
	double getPrice() const {
		return price;
	}
	int getQuantity() const {
```

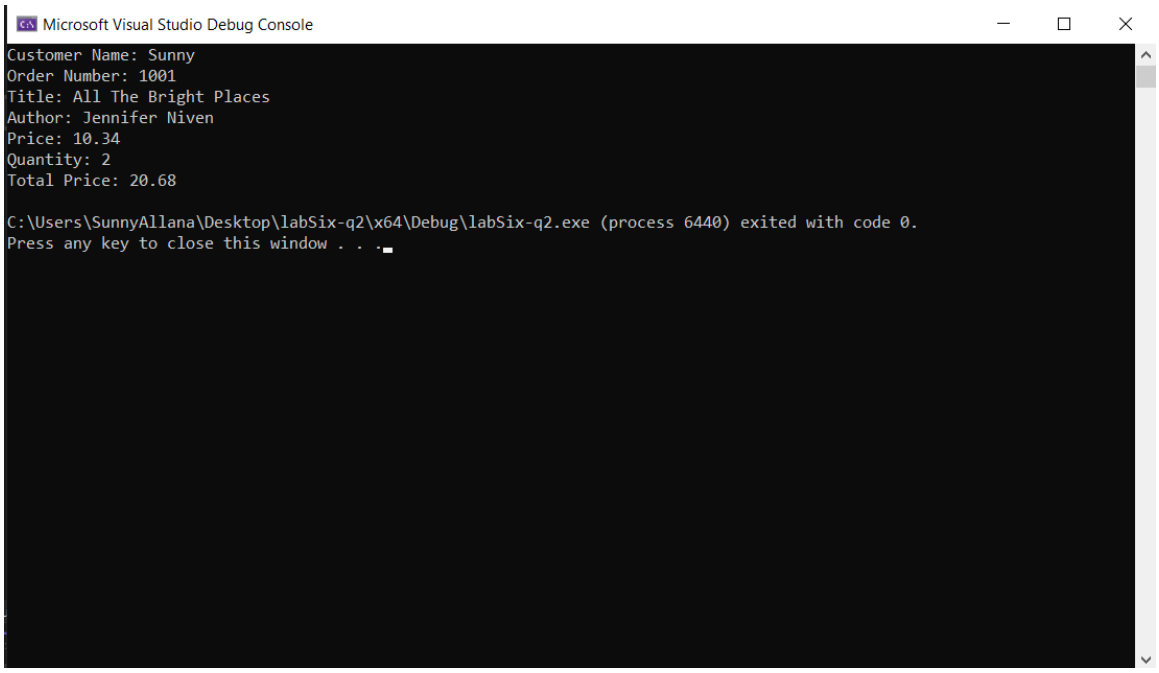
```
        return quantity;
    }
};
// Defining a class named purchase and declaring its attributes
class purchase {
private:
    string customerName;
    int orderNumber;
    book Book;
    int quantityOrdered;
public:
    purchase(string customerName, int orderNumber, int quantityOrdered) : Book("All The Bright Places",
"Jennifer Niven", 10.34, 2) {
        this->customerName = customerName;
        this->orderNumber = orderNumber;
        this->quantityOrdered = quantityOrdered;
    }
    void printPurchase() const {
        cout << "Customer Name: " << customerName << endl;
        cout << "Order Number: " << orderNumber << endl;
        cout << "Title: " << Book.getTitle() << endl;
        cout << "Author: " << Book.getAuthor() << endl;
        cout << "Price: " << Book.getPrice() << endl;
        cout << "Quantity: " << Book.getQuantity() << endl;
        cout << "Total Price: " << Book.getQuantity() * Book.getPrice() << endl;
    }
};
```

Files distribution - labSix-q2-source.cpp

```
#include "labSix-q2-header.h"
int main(void) {
```

```
    purchase pOne("Sunny", 1001, 2);
    pOne.printPurchase();
}
```

OUTPUT



Solution Three:

Files distribution - labSix-q3-header.h

```
#pragma once
// Preprocessing Directives
#include <iostream>
#include <string>
using namespace std;
// Defining a class named customer and declaring its attributes
class customer {
```

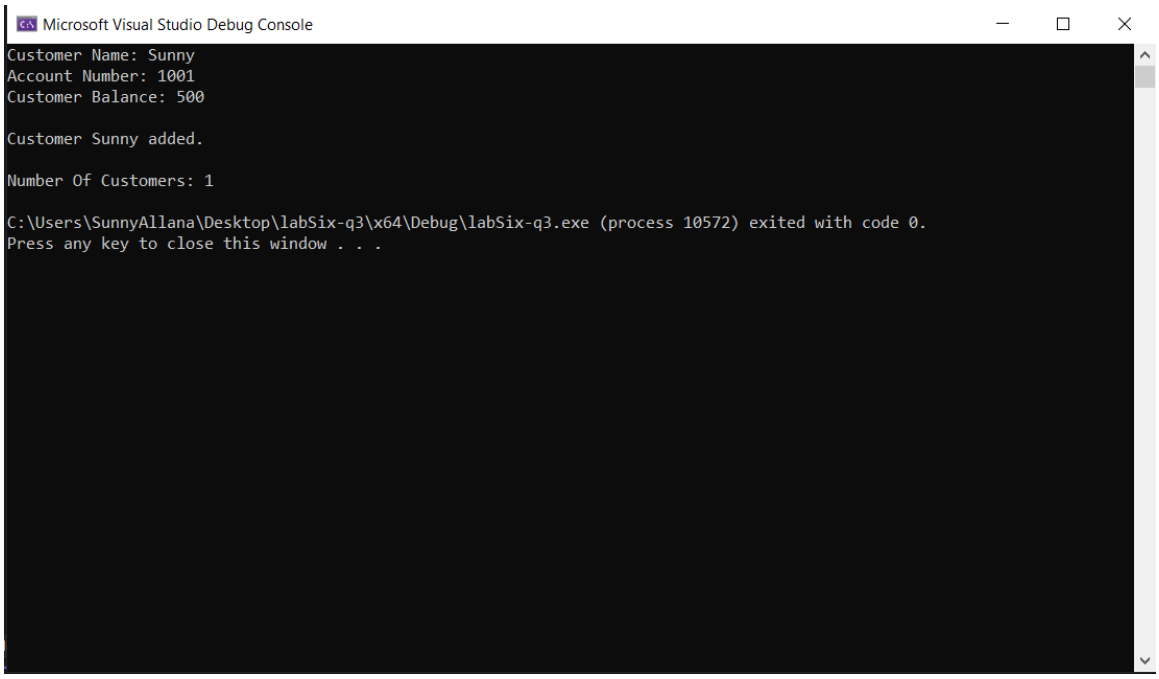
```
private:
        string name;
        int accountNumber;
        double balance;
public:
        // Parameterized Constructor
        customer(string name, int accountNumber, double balance) {
                this->name = name;
                this->accountNumber = accountNumber;
                this->balance = balance;
        }
        // Getter functions
        string getName() const {
                return name;
        }
        int getAccountNumber() const {
                return accountNumber;
        }
        double getBalance() const {
                return balance;
        }
};
// Defining a class named bank and declaring its attributes
class bank {
private:
        static int numberOfCustomers;
public:
        static void addCustomer(string customerName) {
                numberOfCustomers++;
```

```
		cout << "\nCustomer " << customerName << " added." << endl;
	}
	int getNumberOfCustomers() const {
		return numberOfCustomers;
	}
};
// Initializing static membe with 0
int bank::numberOfCustomers = 0;
```

Files distribution - labSix-q3-source.cpp

```
#include "labSix-q3-header.h"
int main(void) {
	customer cOne("Sunny", 1001, 500);
	bank bOne;
	cout << "Customer Name: " << cOne.getName() << endl;
	cout << "Account Number: " << cOne.getAccountNumber() << endl;
	cout << "Customer Balance: " << cOne.getBalance() << endl;
	bank::addCustomer("Sunny");
	cout << "\nNumber Of Customers: " << bOne.getNumberOfCustomers() << endl;
}
```

OUTPUT


Microsoft Visual Studio Debug Console
Customer Name: Sunny
Account Number: 1001
Customer Balance: 500
Customer Sunny added.
Number Of Customers: 1
C:\Users\SunnyAllana\Desktop\labSix-q3\x64\Debug\labSix-q3.exe (process 10572) exited with code 0.
Press any key to close this window . . .