Lab 1

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Question1

Code:

```
#include<iostream>
#include<string>
using namespace std;

class student{
   int rollno;
   char section;
   long long int phone_number;
   string name;
   public:
      void getRollNo(int x){
         cin >> rollno;
      }
      void getName(string x){
         cin >> name;
      }
      void getPhoneNo(long long int x){
         cin >> phone_number;
      }
      void getSection(char x){
         cin >> section;
      }
      void displayStudent(){
         cout << "-----------------------------------------" << endl;
         cout << "***Details of Student***\n" << endl;
         cout << "Roll No.: " << rollno << endl;
         cout << "Name : " << name << endl;
         cout << "Phone Number : " << phone_number << endl;
         cout << "Section : " << section << endl;
         cout << "-----------------------------------------" << endl;
      }
};

int main(){
   student s1;
   int x;char y; string n; long long int z;
   printf("Enter roll no : ");
   s1.getRollNo(x);
   printf("Enter your Name : ");
   s1.getName(n);
   printf("Enter your Phone Number : ");
   s1.getPhoneNo(z);
   printf("Enter your Section : ");
   s1.getSection(y);
   s1.displayStudent();
   return 0;
}
```

Input & Output:

```
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1> cd "c:\Users\DELL\OneDrive
\Desktop\OOPM LAB\Lab 1\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }
Enter roll no : 17
Enter your Name : Sam
Enter your Phone Number : 98654123578
Enter your Section : A
-----------------------------------------
***Details of Student***

Roll No.: 17
Name : Sam
Phone Number : 98654123578
Section : A
-----------------------------------------
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1>
```

Question2:

Code:

```
#include<iostream>
using namespace std;

class sample{
   public:
   int a;
   int b;
};
int main(){
   sample s1;
   sample *ptr;
   ptr = &s1;
   ptr->a = 10;
   ptr->b = 20;
   cout << ptr->a << endl;
   cout << ptr->b << endl;
   return 0;
}
```

Output:

```
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1> cd "c:\Users\DELL\OneDrive
\Desktop\OOPM LAB\Lab 1\" ; if ($?) { g++ 2.cpp -o 2 } ; if ($?) { .\2 }
10
20
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1>
```

Question3:

Code:

```
#include<iostream>
using namespace std;

class Matrix
{
   public:
   int matrix[5], sum = 0;
   int insertValue(){
      cout << "Enter elements of Matrix : ";
      for(int i = 0; i < 5; i++){
         cin >> matrix[i];
      }
      return 0;
   }
   int searchElement(int x){
      cout << "Enter Element : ";
      cin >> x;
      for(int i = 0; i < 5; i++){
         if(x == matrix[i]){
            cout << "Index of element :  " << i << endl;
            return 0;
         }
      }
      cout << "Not Found" << endl;
      return 0;
   }
   int addAllElements(){
      for(int i = 0; i < 5; i++){
         sum += matrix[i];
      }
      cout << "Total sum of Elements in Matrix : " << sum;
      return 0;
   }
};
int main(){
   Matrix m1;
   int x;
   m1.insertValue();
   m1.searchElement(x);
   m1.addAllElements();
   return 0;
}
```

Input & Output:

*TWO OUTPUTS; ONE IS ELEMENT FOUND IN MATRIX AND ANOTHER ONE IS ELEMENT NOT FOUND IN MATRIX

```
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1> cd "c:\Users\DELL\OneDrive
\Desktop\OOPM LAB\Lab 1\" ; if ($?) { g++ 3.cpp -o 3 } ; if ($?) { .\3 }
Enter elements of Matrix : 1 2 3 4 5
Enter Element : 5
Index of element :  4
Total sum of Elements in Matrix : 15
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1> cd "c:\Users\DELL\OneDrive
\Desktop\OOPM LAB\Lab 1\" ; if ($?) { g++ 3.cpp -o 3 } ; if ($?) { .\3 }
Enter elements of Matrix : 1 2 3 4 5
Enter Element : 6
Not Found
Total sum of Elements in Matrix : 15
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1>
```

Question4:

Code:

```
#include<iostream>
using namespace std;

class Sum
{
   public:
   int No1, No2;
   void printSum(){
      cout << "The sum of two nubers is : " << No1 + No2;
   }
   void printAvg(){
      cout << "\nThe average of two numbers is : " << (No1 + No2)/2.0;
   }
};

int main(){
   Sum s1;
   s1.No1 = 53;
   s1.No2 = 120;
   s1.printSum();
   s1.printAvg();
   return 0;
}
```

Input & Output:

```
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1> cd "c:\Users\DELL\OneDrive
\Desktop\OOPM LAB\Lab 1\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCode
RunnerFile } ; if ($?) { .\tempCodeRunnerFile }
The sum of two nubers is : 173
The average of two numbers is : 86.5
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1>
```

Question5:

Code:

```
#include<iostream>
using namespace std;

class sample{
   int count = 0;
   public:
      void countfunction(){
         count++;
      }
      void printcount(){
         cout << "Number of times the function called : " << count;
      }
};
int main(){
   sample s1;
   s1.countfunction();
   s1.countfunction();
   s1.countfunction();
   s1.countfunction();
   s1.countfunction();
   s1.countfunction();
   s1.countfunction();
   s1.countfunction();
   s1.printcount();
   return 0;
}
```

Input & Output:

```
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1> cd "c:\Users\DELL\OneDrive
\Desktop\OOPM LAB\Lab 1\" ; if ($?) { g++ tempCodeRunnerFile.cpp -o tempCode
RunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Number of times the function called : 8
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1>
```

Question6:
Code:

```
#include <iostream>
#include<string>
using namespace std;

 class Library
{
 int id[10],price[10],pages[10],status[10],i,id1,id2,t;
 string name[10],author[10],genre[10];
 public:
Library()
{
            i=0;
}

void withdrawBook(){
   cout<<"\nEnter the book id: ";
   cin>>id1;
   for(t=0;id[t]!='\0';t++){
      if(id[t]==id1)
      status[i]=2;
   }
}
   void addBook(){
   cout<<"Enter book ID: ";
   cin>>id[i];
   cout<<"Enter the name of the book: ";
   cin>>name[i];
   cout<<"Enter the name of the author: ";
   cin>>author[i];
   cout<<"1 for Available or 2 for Unavailable: ";
   cin>>status[i];
   cout<<"Enter the genre: ";
   cin>>genre[i];
   cout<<"Enter the price: ";
   cin>>price[i];
   cout<<"Enter the number of pages: ";
   cin>>pages[i];
}

   void searchBook(){
   cout<<"\nEnter the book id: ";
   cin>>id2;
   for(t=0;id[t]!='\0';t++){
      if(id[t]==id1){
      cout<<"\nBook name: "<<name[i]<<" Aurhor name: "<<author[i];
      cout<<" Price: "<<price[i]<<"\nGenre: "<<genre[i]<<" Page count: "<<pages[i];
      if(status[i]==2)
      cout<<"\n Book unavailable";
      else
      cout<<"\n Book available";
               }
   }
}


};

int main()
{
   Library L;
   int choice, u;
   cout << "1. Withdraw a Book" << endl;
   cout << "2. Add a Book" << endl;
   cout << "3. Search a Book" << endl;
   cout << "4. Exit" << endl;
   cout << "Select a Choice from above :  " << endl;
  do
{

cin>>choice;
switch(choice)
   {
```

```
      case 1:
         L.withdrawBook();
      break;
      case 2:
         L.addBook();
      break;
      case 3:
         L.searchBook();
      break;
   }
         cout<<"\nEnter 4 to exit or Continue with your choice : ";

}while(choice!=4);

   return 0;
}
```

Input & Output:

```
PS C:\Users\DELL> cd "c:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1\" ; if ($?) { g++ 6_1.cpp -o 6_1 } ; if ($?) { .\6_1 }
1. Withdraw a Book
2. Add a Book
3. Search a Book
4. Exit
Select a Choice from above :
2
Enter book ID: 5
Enter the name of the book: python
Enter the name of the author: sam
1 for Available or 2 for Unavailable: 1
Enter the genre: coding
Enter the price: 100
Enter the number of pages: 50

Enter 4 to exit or Continue with your choice : 1

Enter the book id: 5

Enter 4 to exit or Continue with your choice : 4

Enter 4 to exit or Continue with your choice :
PS C:\Users\DELL\OneDrive\Desktop\OOPM LAB\Lab 1>
```