evenOdd.cpp > ...

```cpp
//c++ program to check a number is even or odd
#include<iostream>
using namespace std;
int main(){
    int n;
    cout<<"enter the number : ";
    cin>>n;
    if (n%2==0)
    {
        cout<<n<<" is even number ";
    }else{
        cout<<n<<" is odd number ";
    }

    return 0;
}

```

prime.cpp

prime.cpp > ...

```cpp
// c++ program to check wheather a number is prime or composite
#include<iostream>
using namespace std;

int main(){
    int n;
    cout<<"enter the number: ";
    cin>>n;
    int count=0;
    for (int i = 1; i <=n; i++)
    {
        if (n%i==0)
        {
            count++;
        }

    }
    if (count==2)
    {
        cout<<n<<" is prime number";
    }else{
        cout<<n<<" is composite number";
    }
    return 0;
}
```

table.cpp

table.cpp > ...

```cpp
//c++ program to print table of "n" upto "i"
#include<iostream>
using namespace std;

int main(){
    int n,i;
    cout<<"enter the number : ";
    cin>>n;
    cout<<"table of "<<n<<" upto : ";
    cin>>i;
    for ( int j = 1; j<=i; j++)
    {
        int t;
        t=n*j;
        cout<<n<<"x"<<j<<"="<<t<<"\n";
    }
    return 0;
}
```

greatestOfTwo.cpp

greatestOfTwo.cpp > ...

```cpp
//c++ program to print greater of two numbers
#include<iostream>
using namespace std;
int main(){
    int a,b;
    cout<<"enter the two number : ";
    cin>>a>>b;
    if (a<b)
    {
       cout<<b<<" is greatest of two ";
    }else{
        cout<<a<<" is greatest of two ";
    }
    return 0 ;

}

```

greatestOfThree.cpp

greatestOfThree.cpp > ...

```cpp
//c++ program to print greatest of three numbers
#include<iostream>
using namespace std;
int main(){
    int a,b,c;
    cout<<"enter the three number : ";
    cin>>a>>b>>c;
    if (a>b)
    {
        if (a>c)
        {
           cout<<a<<" is greatest of three ";
        }else{
            cout<<c<<" is greatest of three ";
        }
    }else{
        if (b>c)
        {
            cout<<b<<" is greatest of three ";

        }else{
            cout<<c<<" is greatest of three ";
        }
    }
     return 0;
}

```

sumOfNaturalNumbers.cpp

sumOfNaturalNumbers.cpp > ...

```cpp
//c++ program to print the sum of "n" natural number
#include <iostream>
using namespace std;
int main(){
    int n;
    cout<<"enter the natural number :";
    cin>>n;
    int sum=0;
    for (int i = 1; i <=n; i++)
    {
        sum+=i;
    }
    cout<<"sum of first "<<n<<" natural number is : "<<sum;
    return 0;
}

```

factorial.cpp

factorial.cpp > main()

```cpp
// c++ program print factorial of 'n
#include<iostream>
using namespace std;
int main(){
    int num;
    cout<<"enter the number : ";
    cin>>num;
    int fact=1;
    for (int  i = 1; i <= num; i++)
    {
        fact*=i;
    }
    cout<<  "Factorial of "<<num<<" is : "<<fact;
    return 0;
}
```

reverseOfNumber.cpp

reverseOfNumber.cpp > ...

```cpp
//c++ program to print reverse of given number
#include<iostream>
using namespace std;
int main(){
    int num;
    cout<<"enter the number : ";
    cin>>num;
    int reverse=0;
    for (int i = 1;num!=0; i++)
    {
        int t=num%10;
        reverse=(reverse*10)+t;
        num=num/10;
    }
    cout<<"reverse of "<<num<<" is : "<<reverse;
    return 0;
}
```

palindrome.cpp

palindrome.cpp > main()

```cpp
//c++ program to check wheather a number is palidrome or not
#include<iostream>
using namespace std;
int main(){
    int num;
    cout<<"enter the number : ";
    cin>>num;
    int og=num;
    int reverse=0;
    while (num!=0)
    {
        int t=num%10;
        reverse=(reverse*10)+t;
        num=num/10;
    }
    if (reverse==og)
    {
       cout<<og<<" is palindrome number ";
    }else{
        cout<<og<<" is not palindrome number";
    }
    return 0;
}
```

armstrong.cpp

armstrong.cpp > ...

```cpp
//c++ program to check whether a number is armstrong or not
#include <iostream>
#include <cmath>

using namespace std;

int main() {
    int num, original, sum = 0, count = 0, digit, temp;

    cout << "Enter a number: ";
    cin >> num;

    original = num;
    temp = num;

    // Count the number of digits
    while (temp != 0) {
        temp /= 10;
        count++;
    }

    temp = num;
    while (temp != 0) {
        digit = temp % 10;
        sum += round(pow(digit, count));
        temp /= 10;
    }

    if (sum == original) {
        cout << num << " is an Armstrong number.";
    } else {
        cout << num << " is not an Armstrong number.";
    }

    return 0;
}
```

fibonacciByRecurrsion.cpp

fibonacciByRecurrsion.cpp > ...

```cpp
//c++ program to print upto nth term of fibonnaci series using recursion
#include<iostream>
using namespace std;
int fib(int n){
    if (n==1)
    {
        return 1;
    }
    if (n==0)
    {
        return 0;
    }
    int fibNm1=fib(n-1);
    int fibNm2=fib(n-2);
    int fibN=fibNm1+fibNm2;

    return fibN;
}
int main(){
    int num;
    cout<<"enter the number of term : ";
    cin>>num;
    cout<<"fibonacci series from 0 to "<<num<<" term : ";
    for (int  i = 0; i <num; i++)
    {
        cout<<fib(i)<<" , ";
    }


    return 0;
}
```

fibonacciByLoops.cpp

fibonacciByLoops.cpp > ...

```cpp
//c++ program to print upto nth term of fibonnaci series using loops
#include<iostream>
using namespace std;
int main() {
    int n, t1 = 0, t2 = 1, nextTerm = 0;

    cout << "Enter the value of n: ";
    cin >> n;

    if (n == 1) {
        cout << "The " << n << "st term of Fibonacci series is: " << t1;
    } else if (n == 2) {
        cout << "The " << n << "nd term of Fibonacci series is: " << t2;
    } else {
        for (int i = 3; i <= n; i++) {
            nextTerm = t1 + t2;
            t1 = t2;
            t2 = nextTerm;
        }
        cout << "The " << n << "th term of Fibonacci series is: " << nextTerm;
    }

    return 0;
}
```

pattern1.cpp

pattern1.cpp > ...

```cpp
//c++ program to print the pattern
#include<iostream>
using namespace std;
int main(){
    int row;
    cout<<"enter the number of rows : ";
    cin>>row;
    for (int i = 0; i < row; i++)
    {
        for (int j = 0; j<=i; j++)
        {
            cout<<"* ";
        }
        cout<<endl;
    }
    return 0;
}
```

pattern2.cpp

pattern2.cpp > ...

```cpp
//c++ program to print the pattern
#include<iostream>
using namespace std ;
int main(){
    int row;
    cout<<"Enter the number of rows : ";
    cin>>row;
    for (int i = row; i > 0; i--)
    {
        for (int j = 0; j<i; j++)
        {
            cout<<"* ";
        }
        cout<<endl;
    }
    return 0 ;
}
```

pyramidPattern.cpp

pyramidPattern.cpp > ...

```cpp
//c++ program to print the pyramid pattern
#include<iostream>
using namespace std;
int main(){
    int row;
    cout<<"enter the no. of row :";
    cin>>row;
    for (int i = 1; i <= row; i++)
    {
        for (int space = 1;space<=row-i; space++)
        {
            cout<<" ";
        }
        for (int j = 1; j<=i; j++)
        {
            cout<<"* ";
        }
        cout<<"\n";
    }

    return 0;
}
```

flyoddTriangle.cpp

flyoddTriangle.cpp > ...

```cpp
//c++ program to print the flyodd triangle
#include<iostream>
using namespace std;
int main(){
    int n;
    cout<<" enter the number rows : ";
    cin>> n;
    int num=1;
    for (int i = 0; i <= n; i++)
    {
        for (int j = 1; j<=i; j++)
        {
            cout<<num<<" ";
            num++;
        }
        cout<<endl;
    }
    return 0;
}
```

evenForARange.cpp

evenForARange.cpp > main()

```cpp
//c++ program to print the even number within a given range
#include<iostream>
using namespace std;
int main(){
    int upper,lower;
    cout<<"enter the lower range : ";
    cin >>lower;
    cout<<" enter the upper range : ";
    cin >>upper;
    for (int i = lower; i <= upper; i++)
    {
        if (i%2==0)
        {
            cout<<i<<",";
        }

    }

    return 0;
}
```

printPrimeNumber.cpp

printPrimeNumber.cpp > ...

```cpp
//c++ program to print prime number upto 50
#include<iostream>
using namespace std;
void Prime(int num){
    int fact=0;
    for (int i = 1; i <=num; i++)
    {
        if (num%i==0)
        {
            fact++;
        }
    }
    if (fact==2)
    {
        cout<<num;
    }
}
int main(){
    int count=0;
    int num=2;
    while (count<50)
    {
        Prime(num);
        num++;
        count++;
    }
    return 0;
}
```

fourDigitArmstrong.cpp

fourDigitArmstrong.cpp > main()

```cpp
//c++ program to print all 4 digit armstrong number
#include<iostream>
#include<cmath>
using namespace std;
bool isArmstrong(int num){
    int temp=num;
    int count=0;
    int r;
    //count no of digits
    while (temp!=0)
    {
        r=temp%10;
        count++;
        temp/=10;
    }
    temp=num;
    int lastDigit=0;
    int sum=0;
    while (temp!=0)
    {
        lastDigit=temp%10;
        sum+=pow(lastDigit,count);
        temp/=10;
    }
    return sum==num;
}
int main(){
    for (int num = 1000; num <= 9999; num++) {
        if (isArmstrong(num)) {
            cout << num << " ";
        }
    }

    return 0;
}
```

palidromeForARange.cpp

palidromeForARange.cpp > main()

```cpp
//c++ program to print palidrome from 500-1000
#include<iostream>
using namespace std;
bool isPalidrome(int num){
    int temp=num;
    int r=0;
    int reverse=0;
    while (temp!=0)
    {
        r=temp%10;
        reverse=(reverse*10)+r;
        temp/=10;
    }
    return reverse==num;
}
int main(){
    for (int i = 500; i <=1000; i++)
    {
        if (isPalidrome(i))
        {
            cout<<i<<" ";
        }
    }
    return 0;
}
```

decimalToBinary.cpp

decimalToBinary.cpp > decToBin(int)

```cpp
//c++ program to convert decimal to binary
#include<iostream>
#include<math.h>
using namespace std;

int decToBin(int n){
    int binary=0;
    int p=1;
    int r=0;
    while (n>0)
    {
        r=n%2;
        binary+=r*p;
        p=p*10;
        n=n/2;

    }
    return binary;
}

int main(){
    int n;
    cout<<"enter the decimal number : ";
    cin>> n;
    cout<<"binary number for "<<n<<" is : "<<decToBin(n);
    return 0;
}
```

decimalToOctal.cpp

decimalToOctal.cpp > ...

```cpp
//c++ program to convert decimal to octal
#include<iostream>
#include<math.h>
using namespace std;

int decTooct(int n){
    int octal=0;
    int p=1;
    int r=0;
    while (n>0)
    {
        r=n%8;
        octal+=r*p;
        p=p*10;
        n=n/8;

    }
    return octal;
}

int main(){
    int n;
    cout<<"enter the decimal number : ";
    cin>> n;
    cout<<"octal number for "<<n<<" is : "<<decTooct(n);
    return 0;
}
```

oddForARange.cpp

oddForARange.cpp > main()

```cpp
//c++ program to print the odd number within a given range
#include<iostream>
using namespace std;
int main(){
    int upper,lower;
    cout<<"enter the lower range: ";
    cin >>lower;
    cout<<" enter the upper range: ";
    cin >>upper;
    for (int i = lower; i <= upper; i++)
    {
        if (i%2!=0)
        {
            cout<<i<<",";
        }
    }
    return 0;
}
```

octalToDecimal.cpp

octalToDecimal.cpp > ...

```cpp
//c++ program to convert octal to decimal
#include<iostream>
using namespace std;
int octToDec(int n){
    int decimal=0;
    int remain=0;
    int pow=1;
    while (n>0)
    {
        remain=n%10;
        decimal=remain*pow;
        pow=pow*8;
        n=n/10;
    }
    return decimal;
}
int main(){
    int n;
    cout<<"enter the number :";
    cin>>n;
    cout <<"octal number for "<<n<<" is : "<<octToDec(n);
    return 0;
}
```

binaryToDecimal.cpp

binaryToDecimal.cpp > ...

```cpp
//c++ program to convert octal to decimal
#include<iostream>
using namespace std;
int binToDec(int n){
    int decimal=0;
    int pow=1;
    int remain=0;
    while (n>0)
    {
        remain=n%10;
        decimal+=remain*pow;
        pow*=2;
        n/=10;
    }
    return decimal;
}
int main(){
    int n;
    cout<<"enter the number : ";
    cin>>n;
    cout<<"decimal number for "<<n<<" is : "<<binToDec(n);
    return 0;
}
```

geometricSum.cpp

geometricSum.cpp > main()

```cpp
//c++ program to print the geometric sum upto nth term
#include<iostream>
#include<math.h>
using namespace std;
double geometricSum(double a,double r,double n){
    int sum=0;
    for (int i = 0; i < n; i++)
    {
        sum=sum+(a*pow(r,i));
    }
    return sum;
}
int main(){
    int a,r,n;
    cout<<"enter the first term of geometric series :";
    cin>>a;
    cout<<"enter the common ratio :";
    cin>>r;
    cout<<"enter the no. of term :";
    cin>>n;
    cout<<"geometric sum upto "<<n<<" terms : "<<geometricSum(a,r,n);
    return 0;
}
```

sumOfDigit.cpp

sumOfDigit.cpp > ...

```cpp
//c++ program to print sum of digit of given number
#include<iostream>
using namespace std;
int main(){
    int n;
    cout<<"Enter the number: ";
    cin>>n;
    int t,sum =0;
    for (int i = 1; n!=0; i++)
    {
        t=n%10;
        sum=sum+t;
        n=n/10;
    }
    cout<<"sum of digit of "<<n<<" is : "<<sum;
    return 0;
}
```

factorialByRecursion.cpp

factorialByRecursion.cpp > ...

```cpp
//c++ program to print the factorial by recurrsion
#include<iostream>
using namespace std;
int factorial(int n){
    if (n==1)
    {
        return 1;
    }
    if (n==0)
    {
        return 1;
    }
    int factNm1 = factorial(n-1);
    int factN = factNm1 * n;
    return factN;
}
int main(){
    int n;
    cout<<"enter the number :";
    cin>>n;
    cout<<"factorial of "<<n<<" is : "<<factorial(n);
    return 0;
}
```

averageOfArray.cpp

averageOfArray.cpp > ...

```cpp
//c++ program to print of average of 1d array
#include<iostream>
using namespace std;
int main(){
    int arr[]={1,2,3,4,5};
    float size=5.0;
    int sum=0;
    for (int i = 0; i < size; i++)
    {
        sum+=arr[i];
    }
    float avg=sum/size;
    cout<<"average : "<<avg;
    return 0;
}
```

minAndMaxForArray.cpp

minAndMaxForArray.cpp > main()

```cpp
//c++ program to calculate min and max of array
#include<iostream>
#include<climits>
#include<algorithm>
using namespace std;
int main(){
    int arr[6]={45,95,65,74,25,68};
    int largest=INT_MIN;
    int smallest=INT_MAX;
    for (int i = 0; i < 6 ; i++)
    {
        largest=max(largest,arr[i]);
        smallest=min(smallest,arr[i]);
    }
    cout<<"minimum element of array : "<<smallest<<endl;
    cout<<"maximum element of array : "<<largest;
    return 0;
}
```

transposeOf2dArray.cpp

```cpp
//c++ program to print the transpose of 2d array
#include<iostream>
using namespace std;
int main(){
    int arr[3][3]={{1,2,3},{4,5,6},{7,8,9}};
    int row=3;
    int col=3;
    cout<<"array :"<<endl;
    for (int i = 0; i < row; i++)
    {
        for (int j = 0; j < col; j++)
        {
            cout<<arr[i][j]<<" ";
        }
        cout<<endl;
    }
    cout<<endl;
    cout<<"transpose of array : "<<endl;
    for (int i = 0; i < col; i++)
    {
        for (int j = 0; j < row; j++)
        {
            cout<<arr[j][i]<<" ";
        }
        cout<<endl;
    }
    return 0;
}
```

add2dMatrices.cpp

add2dMatrices.cpp > main()

```cpp
//c++ program to add 2 matrices
#include<iostream>
using namespace std;
int main(){
    int matrix1[3][3]={{1,2,3},{4,5,6},{7,8,9}};
    int matrix2[3][3]={{9,8,7},{6,5,4},{3,2,1}};
    int sumMatrix[3][3];
    int row=3;//no.of rows of each array
    int col=3;//no. of column of each array
    for (int i = 0; i < row; i++)
    {
        for (int j = 0; j < col; j++)
        {
            sumMatrix[i][j]=matrix1[i][j]+matrix2[i][j];
        }
    }
    cout<<"sum of 2 matrices : "<<endl;
    for (int i = 0; i <row; i++)
    {
        for (int j = 0; j < col; j++)
       {
            cout<<sumMatrix[i][j]<<" ";
       }
       cout<<endl;
    }
    return 0;
}
```

sortingAscendingOrder.cpp

sortingAscendingOrder.cpp > main()

```cpp
//c++ program to sorting and array in ascending order
#include<iostream>
using namespace std;
int main(){
    int array[5]={85,95,25,2,4};
    int size=5;
    cout<<"unsorted array : "<<endl;
    for (int i = 0; i < size; i++)
    {
        cout<<array[i]<<" ";
    }
    cout<<endl;
    for (int i = 0; i < size-1; i++)
    {
        for (int j = i+1; j < size; j++)
        {
            if (array[j]<array[i])
            {
                int temp=array[j];
                array[j]=array[i];
                array[i]=temp;
            }
        }
    }
    cout<<"sorted array : "<<endl;
    for (int i = 0; i < size; i++)
    {
        cout<<array[i]<<" ";
    }
    return 0;
}
```

palidromeString.cpp

palidromeString.cpp > main()

```cpp
//c++ program to check whether a string is palidrome or not
#include<iostream>
#include<string>
using namespace std;
bool isPalidromeString(string str){
    int start=0;
    int end =str.length()-1;
    while (start<end)
    {
        if (str[start]!=str[end])
        {
            return false;
        }
        start++;
        end--;
    }
    return true;
}
int main(){
    string str;
    cout<<"enter the string :";
    getline(cin,str);
    if (isPalidromeString(str))
    {
        cout<<str<<" is palidrome string ";
    }else{
        cout<<str<<" is not a palidrome string ";
    }
    return 0;
}
```

pascalTriangle.cpp

pascalTriangle.cpp > nCr(int, int)

```cpp
//c++ program to print the pascal triangle
#include <iostream>
using namespace std;
// Function to calculate factorial
long long fact(int n) {
    if (n == 0 || n == 1) {
        return 1;
    }
    return n * fact(n - 1);
}
// Function to calculate nCr
long long nCr(int n, int r) {
    return fact(n) / (fact(r) * fact(n - r));
}
int main() {
    int row;
    cout << "Enter number of rows: ";
    cin >> row;
    for (int i = 0; i < row; i++) {
        for (int space = 0; space <=row - i; space++) {
            cout << " ";
        }
        for (int num = 0; num <= i; num++) {
            cout << nCr(i, num) << " ";
        }
        cout << endl;
    }
    return 0;
}
```

countVowel.cpp

countVowel.cpp > main()

```cpp
//c++ program to count vowel in string
#include<iostream>
#include<string>
using namespace std;
int main(){
    string str;
    cout<<"enter the string :";
    getline(cin,str);
    int count=0;
    for (char i = 0; i < str.length(); i++)
    {
        if (str[i]=='a'||str[i]=='e'||str[i]=='o'||str[i]=='i'||str[i]=='u')
        {
            count++;
        }
    }
    cout<<"no. of vowel in the given string : "<<count;
    return 0;
}
```

reverseOfString.cpp

reverseOfString.cpp > main()

```cpp
//c++ program to reverse a string
#include<iostream>
#include<string>
using namespace std;
int main(){
    string str;
    cout<<"enter the string :";
    getline(cin,str);
    int start=0;
    int end=str.length()-1;
    while (start<end)
    {
        char temp=str[end];
        str[end]=str[start];
        str[start]=temp;
        start++;
        end--;
    }
    cout<<"reversed string is : "<<str;
    return 0;
}
```

sortingDecendingOrder.cpp

```cpp
//c++ program to sorting and array in decending order
#include<iostream>
using namespace std;
int main(){
    int array[5]={85,95,25,2,4};
    int size=5;
    cout<<"unsorted array : "<<endl;
    for (int i = 0; i < size; i++)
    {
        cout<<array[i]<<" ";
    }
    cout<<endl;
    for (int i = 0; i < size-1; i++)
    {
        for (int j = i+1; j < size; j++)
        {
            if (array[j]>array[i])
            {
                int temp=array[j];
                array[j]=array[i];
                array[i]=temp;
            }
        }
    }
    cout<<"sorted array : "<<endl;
    for (int i = 0; i < size; i++)
    {
        cout<<array[i]<<" ";
    }
    return 0;
}
```

classCar.cpp

classCar.cpp > main()

```cpp
//extra question 1
#include<iostream>
using namespace std;
class Car
{
private:
    string make,model;
    int year;
public:
    void setData(string m,string M,int y){
        make=m;
        model=M;
        year=y;
    }
    void getData(){
        cout<<"detail of Car : "<<endl;
        cout<<"make : "<<make<<endl;
        cout<<"model : "<<model<<endl;
        cout<<"year : "<<year;
    }
};
 int main(){
    string make,model ;
    int year;
    Car c1;
    cout<<"enter the detail : "<<endl;
    cout<<"want to make : ";
    cin>>make;
    cout<<"model : ";
    cin>>model;
    cout<<"year : ";
    cin>>year;
    c1.setData(make,model,year);
    c1.getData();
    return 0 ;
 }
```

Arrays.cpp

Arrays.cpp > main()

```cpp
//EXTRA QUESTION NUMBER 1:
#include<iostream>
#include<climits>
#include<algorithm>
using namespace std ;
void inputArrays(int arr[],int size){
    for (int i = 0; i < size; i++)
    {
        cin>>arr[i];
    }
}
void outputArrays(int arr[],int size){
    for (int i = 0; i < size; i++)
    {
        cout<<arr[i]<<" ";
    }
}
int max(int arr[],int size){
    int largest=INT_MIN;
    for (int i = 0; i < size; i++)
    {
        largest=max(largest,arr[i]);
    }
    return largest;
}
int min(int arr[],int size){
    int smallest=INT_MAX;
    for (int i = 0; i < size; i++)
    {
        smallest=min(smallest,arr[i]);
    }
    return smallest;
}
int search(int arr[],int size,int target){
    for (int i = 0; i < size; i++)
    {
       if (arr[i]==target)
       {
        return i;
       }

    }
    return -1;
}
int sum(int arr[],int size){
```

```
46      int sum=0;
47      for (int i = 0; i < size; i++)
48      {
49          sum=sum+arr[i];
50      }
51      return sum;
52  }
53  int average(int arr[],int size){
54      int average=sum(arr,size)/size;
55      return average;
56  }
57  int main(){
58      int size;
59      int target=0;
60      cout<<"enter the size of arrays : ";
61      cin>>size;
62      int arr[size];
63      cout<<"enter the elements of arrays :";
64      inputArrays(arr,size);
65      cout<<"arrays :";
66      outputArrays(arr,size);
67      cout<<endl;
68      cout<<"sum of the elements of given arrays is : "<<sum(arr,size)<<endl;
69      cout<<"minimum of given arrays is : "<<min(arr,size)<<endl;
70      cout<<"maximum of given array is : "<<max(arr,size)<<endl;
71      cout<<"average of elements of given array is : "<<average(arr,size)<<endl;
72      cout<<"for linear search enter the target element : ";
73      cin>>target;
74      cout<<"target is at index : "<<search(arr,size,target);
75      return 0;
76  }
```

classStudent.cpp

classStudent.cpp > Student > displayData()

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

class Student
{
private:
   int admno;
   char name[20];
   float eng,math,science,total;
public:
    void inputData(float eg,float mth,float sc){
        eng=eg;
        math=mth;
        science=sc;
    }
    float cResult(){
        total = eng+math+science;
        return total ;
    }
    void displayData(){
        cout<<"marks:"<<endl;
        cout<<"english : "<<eng<<endl;
        cout<<"maths : "<<math<<endl;
        cout<<"science : "<<science<<endl;
        cout<<"total : "<<cResult()<<endl;
    }
};
int main(){
    Student s1;
    int eng,math,science;
    cout<<"for student 1"<<endl;
    cout<<"enter mark of "<<endl;
    cout<<"English : ";
    cin>>eng;
    cout<<endl;
    cout<<"Maths : ";
    cin>>math;
    cout<<endl;
    cout<<"Science : ";
    cin>>science;
    cout<<endl;
    s1.inputData(eng,math,science);
    s1.displayData();
    return 0;
}
```

classPassenger.cpp

classPassenger.cpp > Passenger

```cpp
//lab assignment question 3
#include<iostream>
#include<string>
using namespace std;
class Passenger{
private:
    int flightNo;
    string destination;
    float Fuel,distance;
public:
    float calFuel(float dist){
        float fuel;
        if (dist<=1000.0)
        {
            fuel=500.0;
        }else if ((dist>1000.0)&&(dist<=2000.0))
        {
            fuel=1100.0;
        }else{
            fuel=2200.0;
        }
        return fuel;
    }
    void setData(int fgtNo,string dest,float dist){
        flightNo=fgtNo;
        destination=dest;
        distance=dist;
        Fuel=calFuel(dist);
    }
    void displayData(){
        cout<<"Details :"<<endl;
        cout<<"Flight no. : "<<flightNo<<endl;
        cout<<"Destination : "<<destination<<endl;
        cout<<"Distance(in km) : "<<distance<<endl;
        cout<<"Fuel required(in litres) : "<<Fuel<<endl;
    }
};
```

```
38  int main(){
39      Passenger p1;
40      int flgtNo;
41      string dest;
42      float dist,fuel;
43      cout<<"Enter the detail :"<<endl;
44      cout<<"flight no:";
45      cin>>flgtNo;
46      cout<<"destination : ";
47      cin>>dest;
48      cout<<"distance : ";
49      cin>>dist;
50      p1.setData(flgtNo,dest,dist);
51      p1.displayData();
52      return 0;
53  }
```

multiplyMatrices.cpp

multiplyMatrices.cpp > main()

```cpp
//c++ program to multiply to matrices
#include<iostream>
using namespace std;
int main(){
    int row1=3;
    int row2=3;
    int col1=3;
    int col2=3;
    int matrix1[row1][col1]={{1,2,3},{4,5,6},{7,8,9}};
    int matrix2[row2][col2]={{9,8,7},{6,5,4},{3,2,1}};
    int productMatrix[row1][col2];
    if (col1==row2)
    {
        for (int i = 0; i < row1; i++)
        {
            for (int j = 0; j < col2; j++)
            {
                int sum=0;
                for (int k = 0; k < row2; k++)
                {
                    sum+=matrix1[i][k]*matrix2[k][j];
                }
                productMatrix[i][j]=sum;
            }
        }
    }else{
        cout<<"Invalid multiplication!!";
        return 1;
    }
    cout<<"Product matrice : "<<endl;
        for (int i = 0; i < row1; i++)
        {
            for (int j = 0; j < col2; j++)
            {
                cout<<productMatrix[i][j]<<" ";
            }
            cout<<endl;
        }
    return 0;
}
```

menuDrivenProgram.cpp

menuDrivenProgram.cpp > ...

```cpp
//lab assignment question 4
#include<iostream>
using namespace std;
void inputMatrix(int matrix[][20],int &row,int &col ){
    cout<<"Enter the no. of row(1-20) : ";
    cin>>row;
    cout<<"Enter the no. of column(1-20) : ";
    cin>>col;
    cout<<"Enter the element : ";
    for (int i = 0; i < row; i++)
    {
        for (int j = 0; j < col; j++)
        {
            cin>>matrix[i][j];
        }
        cout<<endl;
    }
}
void outputMatrix(int matrix[][20],int row,int col){
    for (int i = 0; i < row; i++)
    {
        for (int j = 0; j < col; j++)
        {
            cout<<matrix[i][j]<<" ";
        }
        cout<<endl;
    }
}
void addMatrices(int matrix1[][20],int matrix2[][20],int sum[][20],int row,int col){
    for (int i = 0; i < row; i++)
    {
        for (int j = 0; j < col; j++)
        {
            sum[i][j]=matrix1[i][j]+matrix2[i][j];
        }
    }
    cout<<"Sum of Matrices : "<<endl;
    outputMatrix(sum,row,col);
}
void transpose(int matrix[][20],int row,int col){
    cout<<"transpose of matrix : "<<endl;
    for (int i = 0; i < row; i++)
    {
        for (int j = 0; j < col; j++)
        {
```

```
            cout<<matrix[j][i]<<" ";
        }
        cout<<endl;
    }
}
void multiplyMatrices(int matrix1[][20],int matrix2[][20],int product[][20],int row1,int col1,int row2,int col2){
    if (row2==col1)
    {
        for (int i = 0; i < row1; i++)
        {
            for (int j = 0; j < col2; j++)
            {
                int sum=0;
                for (int k = 0; k < col1; k++)
                {
                    sum+=matrix1[i][k]*matrix2[k][j];
                }
                product[i][j]=sum;
            }
        }
    }else{
        cout<<"Invalid multiplication!!"<<endl;
    }
    outputMatrix(product,row1,col2);
}
int main(){
    int matrix1[20][20],matrix2[20][20],sum[20][20],product[20][20];
    int row1,row2,col1,col2,choice;
    cout<<"For Matrix 1"<<endl;
    inputMatrix(matrix1,row1,col1);
    cout<<"For Matrix 2"<<endl;
    inputMatrix(matrix2,row2,col2);
    cout<<"Matrix Operations Menu :"<<endl;
    cout<<"1.Output Matrix 1 "<<endl;
    cout<<"2.output Matrix 2 "<<endl;
    cout<<"3.Add 2 Matrices "<<endl;
    cout<<"4.Multiply 2 Matrices"<<endl;
    cout<<"5.Transpose Matrix 1 "<<endl;
    cout<<"6.Transpose Matrix 2 "<<endl;
    cout<<"7.End the program "<<endl;
    while (choice!=7)
    {
```

```
88          cout<<"Enter your Choice(1-6): ";
89          cin>>choice;
90          switch (choice)
91          {
92          case 1: {
93              cout<<"Matrix 1 :"<<endl;
94              outputMatrix(matrix1,row1,col1);
95          }
96              break;
97          case 2: {
98              cout<<"Matrix 2 :"<<endl;
99              outputMatrix(matrix2,row2,col2);
100         }
101             break;
102         case 3: {
103             if (row1==row2 && col1==col2)
104             {
105                 addMatrices(matrix1,matrix2,sum,row1,col1);
106             }else{
107                 cout<<"Invalid Addition !!"<<endl;
108             }
109         }
110             break;
111         case 4: {
112             multiplyMatrices(matrix1,matrix2,product,row1,col1,row2,col2);
113         }
114             break;
115         case 5: {
116             cout<<"For Matrix 1 :"<<endl;
117             transpose(matrix1,row1,col1);
118         }
119             break;
120         case 6: {
121             cout<<"For Matrix 2 :"<<endl;
122             transpose(matrix2,row2,col2);
123         }
124             break;
125         default:{
126             cout<<"Invalid Choice !!";
127         }
128         }
129     }
```

classAddress.cpp

classAddress.cpp > Address

```cpp
//extra question 2
#include<iostream>
#include<string>
using namespace std;
class Address{
private:
   string street,city;
   int zipCode;
public:
    Address(){}
    Address(string str,string ct,int zip){
        street=str;
        city=ct;
        zipCode=zip;
    }
    void getData(){
        cout<<"Street : "<<street<<endl;
        cout<<"city : "<<city<<endl;
        cout<<"zip code "<<zipCode<<endl;
    }
};
class Person{
private:
    string Name;
    Address address;
public:
    Person(){}
    Person(string name){
        Name=name;
    }
    void setAddress(Address addr){
        address=addr;
    }
    void getData(){
        cout<<"Name : "<<Name<<endl;
        cout<<"Address : ";
        address.getData();
    }
};
int main(){
    string name,str,ct;
    int zip;
    cout<<"Enter the name : ";
    getline(cin,name);
    Person p1(name);
```

```
46      cout<<"Enter address details :"<<endl ;
47      cout<<"Street : ";
48      getline(cin,str);
49      cout<<"City :";
50      getline(cin,ct);
51      cout<<"Zip Code : ";
52      cin>>zip;
53      Address myAddr(str,ct,zip);
54      p1.setAddress(myAddr);
55      cout<<"details:"<<endl;
56      p1.getData();
57    return 0;
58  }
```