Question 1

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

int main()

{

string arr;

cout<<"Enter the string: ";

cin>>arr;

int count=0;

int length = arr.size();

for (const char \*i=arr.c\_str() ; i < arr.c\_str() + arr.size() ; ++i)

{

switch(\*i)

{

case 'A':

case 'a':

case 'E':

case 'e':

case 'O':

case 'o':

case 'I':

case 'i':

case 'u':

case 'U':

count++;

}

}

cout<<"No.of vowels are : "<<count<<endl;

return 0;

}

Question 2

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

void reverse(const char \*a,int i)

{

for (const char \*j = a+i; j>=a ; j--)

cout<<\*j;

cout<<endl;

}

int main()

{

string arr;

cout<<"Enter the number: ";

cin>>arr;

cout<<"The reverse of the number is :";

reverse(arr.c\_str(),arr.size());

return 0;

}

Question 3

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

inline int add(int a,int b)

{

return a+b;

}

inline int sub(int a,int b)

{

return a-b;

}

inline int mul(int a,int b)

{

return a\*b;

}

inline int div(int a,int b)

{

return a/b;

}

inline int mod(int a,int b)

{

return a%b;

}

int main()

{

string arr;

int result;

cout<<"Enter the expression: ";

cin>>arr;

result = arr[0] - '0';

for (const char \*i = arr.c\_str()+1; i<=arr.c\_str()+arr.size(); ++i)

{

if (\*(i+1) == '\0') break;

int j = \*(i+1) - '0';

switch(\*i)

{

case '+':

result = add(result,j);

break;

case '-':

result = sub(result,j);

break;

case '/':

result = div(result,j);

break;

case '%':

result = mod(result,j);

break;

case '\*':

result = mul(result,j);

break;

}

}

cout<<"The result is :"<<result<<endl;

return 0;

}

Question 4

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

int count = 0;

class Test

{

public:

Test()

{

count++;

cout<<"One object created, Total no.of objects : "<<count<<endl;

}

~Test()

{

count--;

cout<<"One object destroyed, Total no.of objects : "<<count<<endl;

}

};

int main()

{

Test obj1;

Test obj2;

{

Test obj3;

}

return 0;

}

Question 5

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

class Student {

int rn;

string name;

public:

void set\_data(int a, string b)

{

rn = a;

name = b;

}

void print()

{

cout<<"Roll number of the student is : "<<this->rn<<endl;

cout<<"Name of the student is : "<<this->name<<endl;

}

};

int main()

{

Student obj1;

obj1.set\_data(44,"Shahrukh");

obj1.print();

return 0;

}

Question 6

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

class C\_polygon

{

protected:

int height,breadth;

public:

C\_polygon(int a,int b){

height = a;

breadth = b;

}

virtual float area(){

cout<<"The area of polygon is : "<<endl;

return 0;

}

};

class C\_rectangle: public C\_polygon

{

public:

C\_rectangle(int a,int b):C\_polygon(a,b){}

virtual float area(){

cout<<"The area of the rectangle is: ";

return height\*breadth;

}

};

class C\_triangle: public C\_polygon

{

public:

C\_triangle(int a,int b):C\_polygon(a,b){}

virtual float area(){

cout<<"The area of the triangle is: ";

return float(height\*breadth)/2;

}

};

int main()

{

C\_polygon \*pointer;

C\_rectangle objrec(5,3);

C\_triangle objtri(5,3);

cout<<objrec.area()<<endl;

cout<<objtri.area()<<endl;

pointer = &objrec;

cout<<pointer->area()<<endl;

pointer = &objtri;

cout<<pointer->area()<<endl;

return 0;

}

Question 7

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

int count=0;

class Bank

{

public:

void operator ++(int ){

count++;

cout<<"One person entered the bank.Total number of persons in the bank is: "<<count<<endl;

}

void operator --(int ){

if (count == 0)

cout<<"There is no one in the bank !"<<endl;

else {

count--;

cout<<"One person left the bank.Total number of persons in the bank is: "<<count<<endl;

}

}

};

int main()

{

Bank obj;

obj++;

obj++;

obj++;

obj++;

obj++;

obj--;

obj--;

obj--;

obj--;

obj--;

obj--;

obj--;

obj--;

return 0;

}

Question 8

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

class Company

{

int turnover;

public:

Company (){

turnover = 0;

}

Company (int a){

turnover = a;

}

Company operator +(Company a){

Company temp;

temp.turnover = this->turnover + a.turnover;

return temp;

}

Company operator -(Company a){

Company temp;

temp.turnover = this->turnover - a.turnover;

return temp;

}

int show()

{

return turnover;

}

};

int main()

{

Company c1(1000),c2(500),temp;

temp = c1 + c2;

cout<<"The sum of the turnovers is : "<<temp.show()<<endl;

temp = c1 - c2;

cout<<"The difference of the turnovers is : "<<temp.show()<<endl;

return 0;

}

Question 9

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

int i,j;

class Matrix

{

int a[3][3];

public:

void get\_data(){

cout<<"Enter the elements of matrix row wise: "<<endl;

for (i=0;i<3;i++)

for(j=0;j<3;j++)

{

cin>>a[i][j];

}

}

Matrix operator + (Matrix mat){

Matrix temp;

for (i=0;i<3;i++)

for (j=0;j<3;j++)

{

temp.a[i][j] = this->a[i][j] + mat.a[i][j];

}

return temp;

}

Matrix operator - (Matrix mat){

Matrix temp;

for (i=0;i<3;i++)

for (j=0;j<3;j++)

{

temp.a[i][j] = this->a[i][j] - mat.a[i][j];

}

return temp;

}

void show(){

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

cout<<a[i][j]<<" ";

}

cout<<endl;

}

}

};

int main()

{

Matrix a,b,c,d;

a.get\_data();

b.get\_data();

c = a + b;

d = a - b;

cout<<"Matrix A is : "<<endl;

a.show() ;

cout<<"Matrix B is : "<<endl;

b.show();

cout<<"Sum of the matrix is : "<<endl;

c.show();

cout<<"Difference of matrix is : "<<endl;

d.show();

return 0;

}

Question 10

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

class Average

{

float a,b,c,d,e;

friend void friendfunc1(Average\*);

friend void friendfunc2(Average\*);

public:

float avg()

{

return (a+b+c+d+e)/5;

}

};

void friendfunc1(Average \*a1)

{

float t1,t2;

cout<<"Enter two numbers: ";

cin>>t1>>t2;

a1->a = t1;

a1->b = t2;

}

void friendfunc2(Average \*a2)

{

float t1,t2,t3;

cout<<"Enter three numbers: ";

cin>>t1>>t2>>t3;

a2->c = t1;

a2->d = t2;

a2->e = t3;

}

int main()

{

Average obj;

friendfunc1(&obj);

friendfunc2(&obj);

cout<<"The average of the 5 numbers is : "<<obj.avg()<<endl;

return 0;

}

Question 11

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

class Student {

string name;

int m[3];

float average;

public:

friend void mark\_avg(Student \*);

void get\_data(){

cout<<"Enter the name of the student : ";

cin>>name;

cout<<"Enter the marks in three subjects: ";

for (int i=0;i<3;i++)

cin>>m[i];

}

void display(){

cout<<"Name of the student is : "<<name<<endl;

cout<<"The average marks obtained in 3 subjects is : "<<average<<endl;

}

};

void mark\_avg(Student \* s)

{

s->average = (s->m[0]+s->m[1]+s->m[2])/3;

}

int main()

{

Student obj;

obj.get\_data();

mark\_avg(&obj);

obj.display();

return 0;

}

Question 12

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

template<class T>

T minimum(T a1,T a2)

{

if (a1 > a2)

return a2;

return a1;

}

int main()

{

int ia=10,ib=15;

float fa=11.52,fb=15.96;

char ca='x',cb='n';

cout<<"The minimum of ia and ib is : "<<minimum(ia,ib)<<endl;

cout<<"The minimum of fa and fb is : "<<minimum(fa,fb)<<endl;

cout<<"The minimum of ca and cb is : "<<minimum(ca,cb)<<endl;

return 0;

}

Question 13

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

using namespace std;

template <class T>

class Pair

{

T a,b;

public:

Pair(T x,T y)

{

a = x;

b = y;

}

T get\_max()

{

if (a>b)

return a;

return b;

}

};

int main()

{

Pair <int> obj1(5,6);

Pair <float> obj2(5.5,8.9);

cout<<"The maximum of two is : "<<obj1.get\_max()<<endl;

cout<<"The maximum of two is : "<<obj2.get\_max()<<endl;

return 0;

}

Question 14

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include<iostream>

using namespace std;

class Student

{

protected:

char name[50];

int cls,rollno,age;

public:

friend istream & operator >>(istream &din ,Student &a)

{

cout<<"\nEnter Your name :";

din>>a.name;

cout<<"\nEnter your class :";

din>>a.cls;

cout<<"\nEnter your rollno :";

din>>a.rollno;

cout<<"\nEnter your age :";

din>>a.age;

return din;

}

friend ostream &operator<<(ostream &dout ,Student &a)

{

dout<<"\nYour name :"<<a.name;

dout<<"\nyour class :"<<a.cls;

dout<<"\nyour rollno :"<<a.rollno;

dout<<"\nyour age :"<<a.age;

return dout;

}

};

int main()

{

Student a;

cin>>a;

cout<<a;

return 0;

}

Question 15

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

#include <math.h>

using namespace std;

class Oned

{

protected:

int x;

};

class Twod : protected Oned

{

protected:

int y;

};

class Threed : protected Twod

{

int z;

public:

void get\_data()

{

cout<<"Enter the value of x,y and z coordinates respectively : ";

cin>>x>>y>>z;

}

float operator \* (Threed abc)

{

float temp;

temp = (this->x - abc.x)\*(this->x - abc.x) + (this->y - abc.y)\*(this->y - abc.y) + (this->z - abc.z)\*(this->z - abc.z);

return sqrt(temp);

}

};

int main()

{

Threed obj1,obj2;

obj1.get\_data();

obj2.get\_data();

cout<<"The distance between the two entered points is : "<<obj1\*obj2<<endl;

return 0;

}

Question 16

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

import java.util.Scanner;

public class Calculator {

static int add(int a,int b){

return a+b;

}

static int sub(int a,int b){

return a-b;

}

public static void main(String[] args) {

int mem=0,res;

Scanner sc= new Scanner(System.in);

int ch=0;

while(ch<=3)

{

System.out.println("1. Add 2.Subtract 3.Display M+");

ch=sc.nextInt();

switch(ch){

case 1:

System.out.println("Enter two numbers");

res=add(sc.nextInt(),sc.nextInt());

System.out.println("Sum="+res);

System.out.println("enter 1 to save in M+ else 0");

if(sc.nextInt()==1)

mem=res;

break;

case 2:

System.out.println("Enter two numbers");

res=sub(sc.nextInt(),sc.nextInt());

System.out.println("Sum="+res);

System.out.println("enter 1 to save in M+ else 0");

if(sc.nextInt()==1)

mem=res;

break;

case 3:System.out.println("M+ ="+mem);

break;

}

}

}

}

Question 17

// OOPS LAB ASSSIGNMENT

// SUBMITTED BY

// Mohammad Shahrukh 13BCS-0044

#include <iostream>

#include <fstream>

using namespace std;

void add()

{

string name,contactnumber;

cout<<"Enter the name and contact number : "<<endl;

cin>>name>>contactnumber;

ofstream f;

f.open("contacts.txt",ios::out | ios::app);

f<<name<<endl<<contactnumber<<endl;

}

int search()

{

string name,temp;

cout<<"Enter the name to be searched : ";

cin>>name;

ifstream f;

f.open("contacts.txt");

while(getline(f,temp))

{

if (temp == name)

{

cout<<"Name is in the contact list !"<<endl;

return 1;

}

}

cout<<"Name is not found "<<endl;

return 0;

}

void delete\_contact()

{

string name,line;

cout << "Enter the name to be deleted: " <<endl;

cin >> name;

ifstream myfile;

ofstream temp;

myfile.open("contacts.txt");

temp.open("temp.txt");

while ( getline(myfile,line))

{

if ( line != name )

{

temp << line << endl;

}

else

{

cout << "The name was present and deleted successfully.";

getline(myfile,line);

getline(myfile,line);

}

}

myfile.close();

temp.close();

remove("contacts.txt");

rename("temp.txt","contacts.txt");

}

int main()

{

int c;

while (1)

{

cout << "Enter the desired option : \n1)Add contact 2)Search contact 3)Delete contact 4)Exit"<<endl;

cin>>c;

switch (c)

{

case 1:

add();

break;

case 2:

search();

break;

case 3:

delete\_contact();

break;

case 4:

return 0;

}

}

add();

search();

return 0;

}