**LAB=7**

**1.**#include<iostream>

#include<conio.h>

#include<cstring>

using namespace std;

char book[5][10]={{"maths"},{"english"},{"physics"},{"chemistry"},{"hindi"}},book2[10],author2[10],author[5][5]={{"A"},{"B"},{"C"},{"D"},{"E"}};

int ncopy[5]={3,3,3,3,3},cost[5]={10,20,30,40,50},temp,noofcopy;

class books{

public:

void get\_data()

{

cout<<"Enter book name and author's name\n";

cin>>book2>>author2;

search(book2,author2);

}

void search(char book2[],char author2[])

{

temp=0;

for(int i=0;i<5;i++)

{

if(!(strcmp(book2,book[i])&&strcmp(author2,author[i])))

{temp=i;

break;

}

}

}

void display()

{

if(temp!=0)

{

cout<<"\nRequested book is in Stock.";

cout<<"\nEnter number of copy required\n";

cin>>noofcopy;

if(noofcopy>ncopy[temp])

{

cout<<"\nNot enough copy available!\n";

return;

}

else

{

cout<<"\nTotal cost of "<<noofcopy<<" copy is : "<<noofcopy\*cost[temp];

}

}

else

cout<<"\nRequested book is not available\n";

}

};

int main()

{

books ob1;

ob1.get\_data();

ob1.display();

getch();

return 0;

}

**2.** #include<iostream>

#include<conio.h>

#include<iomanip>

using namespace std;

long double fact(int x)

{

long double facto=1;

for(int i=1;i<=x;i++)

facto=facto\*i;

return facto;

}

int main()

{

int i,n;

long double sum=1;

cout<<"Enter 'n' (number of terms)\n";

cin>>n;

for(int i=1;i<=n;i++)

sum=sum+(i/fact(i));

cout<<endl<<setprecision(5)<<sum;

getch();

return 0;

}

**3.** #include<iostream>

#include<conio.h>

using namespace std;

class abc{

int a,b;

public:

abc(int x=0,int y=0)

{

a=x;b=y;

display1();

swap(&a,&b);

display2();

}

void swap(int \*x,int \*y)

{

int temp;

temp=\*x;

\*x=\*y;

\*y=temp;

}

void display1()

{

cout<<"before swapping : a="<<a<<" b="<<b<<endl;

}

void display2()

{

cout<<"after swapping : a="<<a<<" b="<<b<<endl;

}

};

int main()

{

abc ob(2,3);

getch();

return 0;

}

**4.** #include<iostream>

#include<conio.h>

#define MAX 2

using namespace std;

int i;

class marks{

public:

int rollno[MAX],sub1[MAX],sub2[MAX],sub3[MAX];

void getdata()

{

cout<<"\nEnter roll number ";

cin>>rollno[i];

cout<<"\nEnter marks of subject 1 ";

cin>>sub1[i];

cout<<"\nEnter marks of subject 2 ";

cin>>sub2[i];

cout<<"\nEnter marks of subject 3 ";

cin>>sub3[i];

i++;

}

int maxscore(int a[])

{

int ch;

ch=a[0];

for(int j=0;j<MAX;j++)

{

if(a[j]>ch)

ch=a[j];

}

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

if(a[i]==ch)

return i;

}

void b()

{

int z;

z=maxscore(sub1);

cout<<"\nHighest marks in subject1 is scored by roll no :"<<rollno[z];

z=maxscore(sub2);

cout<<"\nHighest marks in subject2 is scored by roll no :"<<rollno[z];

z=maxscore(sub3);

cout<<"\nHighest marks in subject3 is scored by roll no :"<<rollno[z];

}

int sum(int x)

{

return sub1[x]+sub2[x]+sub3[x];

}

};

int main()

{

marks s1;

int sum[MAX];

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

s1.getdata();

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

sum[i]=s1.sum(i);

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

cout<<"\nTotal marks secured by roll no "<<s1.rollno[i]<<" is :"<<sum[i];

s1.b();

cout<<"\nRoll no who got highest total is :"<<s1.rollno[s1.maxscore(sum)];

getch();

return 0;

}

**5.** #include<iostream>

#include<conio.h>

#include<stdio.h>

#include<string.h>

#define MAX 200

using namespace std;

int main()

{

char a[MAX],ch;

int line=0,space=0,lenght,i=0;

cout<<"Enter the string : put '~' to terminate string\n";

while(1)

{

ch=getch();

putch(ch);

if(ch=='~')

break;

if(ch==13)

{

line++;

cout<<endl;

space++;

}

if(ch==' ')

space++;

a[i]=ch;

i++;

}

lenght=strlen(a);

cout<<"\nNo of lines : "<<line;

cout<<"\nNo of words : "<<space+1;

cout<<"\nNo of characters : "<<lenght-(space+line);

getch();

return 1;

}

**LAB-8**

**1.** #include<iostream>

#include<conio.h>

using namespace std;

class Distance{

int feet,inch;

public:

Distance()

{

feet=inch=0;

}

void get\_data()

{

cout<<"Enter the height-feet and inches";

cin>>feet>>inch;

feet=feet+inch/12;

inch=inch%12;

}

void display()

{

cout<<feet<<" 'feet "<<inch<<" \"inches";

}

operator -()

{

if(inch-2>=0)

if(feet-2>=0)

{

feet=feet-2;

inch=inch-2;

}

if(inch-2<0)

{

inch=12;

feet--;

}

}

operator +()

{

feet+=2;

inch+=2;

if(inch+2>12)

inch=inch%12;

}

operator +=(Distance ob1)

{

feet+=ob1.feet;

inch+=ob1.inch;

if(inch>12)

inch=inch%12;

}

operator -=(Distance ob1)

{

feet-=ob1.feet;

inch-=ob1.inch;

if(inch<0)

{

if(--feet!=0)

{

feet--;

-(inch);

}

}

}

operator >(Distance ob)

{

if(feet>ob.feet&&inch>ob.inch)

{

return 1;

}

else return 0;

}

operator <(Distance ob)

{

if(feet<ob.feet&&inch<ob.inch)

{

return 1;

}

else return 0;

}

};

int main()

{

Distance ob1,ob2;

cout<<"For object 1\n";

ob1.get\_data();

cout<<"\nFor object 2\n";

ob2.get\_data();

-ob1;

+ob2;

cout<<"\n - operation on object 1 : ";

ob1.display();

cout<<"\n + operation on object 1 : ";

ob2.display();

ob1+=ob2;

cout<<"\n+= operation on object 1 and object 2 : ";

ob1.display();

ob1-=ob2;

cout<<"\n-= operation on object 1 and object 2 : ";

ob1.display();

cout<<"\n> operation on object 1 and object 2 : ";

if(ob1>ob2)

cout<<"Object 1 is greater\n";

else

cout<<"object 2 is greater\n";

cout<<"\n< operation on object 1 and object 2 : ";

if(ob2<ob1)

cout<<"Object 2 is smaller\n";

else

cout<<"Object 1 is smaller\n";

getch();

return 0;

}

**2.** #include<iostream>

#include<conio.h>

using namespace std;

int gcd(int a, int b)

{

if (b == 0)

return a;

else

return gcd(b,a%b);

}

int lcmfunc(int a,int b)

{

return (a\*b)/gcd(a,b);

}

class rational{

int p,q,lcm,result;

public:

void getdata()

{

cout<<"Enter the value of p and q (p/q)";

cin>>p>>q;

if(q==0)

{

cout<<"Invalid Entry!!, try again!";

getdata();

}

}

operator +(rational ob)

{

lcm=lcmfunc(q,ob.q);

p=(p\*(lcm/q))+(ob.p\*(lcm/ob.q));

q=lcm;

}

operator -(rational ob)

{

lcm=lcmfunc(q,ob.q);

p=(p\*(lcm/q))-(ob.p\*(lcm/ob.q));

q=lcm;

}

operator \*(rational ob)

{

p=p\*ob.p;

q=q\*ob.q;

}

operator /(rational ob)

{

p=p\*ob.q;

q=q\*ob.p;

}

void display()

{

cout<<p<<"/"<<q<<"\n";

}

};

int main()

{

int ch;

rational ob1,ob2;

cout<<"For object 1\n";

ob1.getdata();

cout<<"\nFor object 2\n";

ob2.getdata();

cout<<"\n enter choice\n1) +\n2) -\n3) \*\n4) /\n5) exit";

cin>>ch;

switch(ch)

{

case 1:

ob1+ob2;

ob1.display();

break;

case 2:

ob1-ob2;

ob1.display();

break;

case 3:

ob1\*ob2;

ob1.display();

break;

case 4:

ob1/ob2;

ob1.display();

break;

case 5:

return 0;

default:

cout<<"\nInvalid choice!!";

}

getch();

}

**3.** #include<iostream>

#include<conio.h>

#include<cstring>

using namespace std;

char c[40];

class stringC{

int len;

char a[20];

public:

stringC(char x[])

{

strcpy(a,x);

}

friend void operator +(stringC ob1,stringC ob2);

void display()

{

cout<<"\n"<<c;

}

};

void operator +(stringC ob1,stringC ob2)

{

strcpy(c,ob1.a);

strcat(c,ob2.a);

}

int main()

{

stringC ob1("HELLO "),ob2("WORLD!!");

ob1+ob2;

ob1.display();

getch();

return 0;

}

**4.** #include<iostream>

#include<conio.h>

#include<cmath>

using namespace std;

class rectangle;

class polar{

float radius,angle;

public:

polar()

{

radius=angle=0;

}

void getdata()

{

cout<<"Enter the radius\n";

cin>>radius;

cout<<"\nEnter the angle in degree\n";

cin>>angle;

}

void display()

{

cout<<"\nRadius = "<<radius;

cout<<"\nAngle = "<<angle;

}

friend void convert(polar ob1,rectangle ob2,int ch);

};

class rectangle{

float x,y;

public:

rectangle()

{

x=y=0;

}

void getdata()

{

cout<<"\nEnter x\n";

cin>>x;

cout<<"\nEnter y\n";

cin>>y;

}

void display()

{

cout<<"\nx = "<<x;

cout<<"\ny = "<<y;

}

friend void convert(polar ob1,rectangle ob2,int ch);

};

void convert(polar ob1,rectangle ob2,int ch)

{

if(ch==1)

{

ob2.x=ob1.radius\*cos(ob1.angle);

ob2.y=ob1.radius\*sin(ob1.angle);

}

if(ch==2)

{

ob1.radius=sqrt(pow(ob2.x,2)+pow(ob2.y,2));

ob1.angle=atan(ob2.y/ob2.x);

}

}

int main()

{

int ch;

polar ob1;

rectangle ob2;

ob1.getdata();

ob2.getdata();

cout<<"\nEnter your choice \n1)polar to rectangle\n2) rectangle to polar\n";

cin>>ch;

convert(ob1,ob2,ch);

if(ch==1)

ob2.display();

if(ch==2)

ob1.display();

getch();

return 0;

}