**Assignment - 25 A Job Ready Bootcamp in C++, DSA and IOT MySirG**

**Classes and Objects**

1. Define a class Complex to represent a complex number. Declare instance member

variables to store real and imaginary part of a complex number, also define instance

member functions to set values of complex number and print values of complex

number

Sol – 1.

#include<iostream>

using namespace std;

class complex

{

private :

int a,b;

public :

void setval(int real, int img)

{

a=real;

b=img;

}

void print()

{

cout<<"Complex no. : "<<a<<" + i"<<b;

}

};

int main()

{

int r,i;

complex n1;

cout<<"Enter real and imag part : ";

cin>>r>>i;

n1.setval(r,i);

n1.print();

return 0;

}

2. Define a class Time to represent Time (like 3 hr 45 min 20 sec). Declare appropriate

number of instance member variables and also define instance member functions to

set values for time and display values of time.

Sol – 2.

#include<iostream>

using namespace std;

class time

{

private :

int a,b,c;

public :

void setval(int hr, int min,int sec)

{

a=hr;

b=min;

c=sec;

}

void print()

{

cout<<"Time : "<<a<<" hr "<<b<<" min "<<c<<" sec";

}

};

int main()

{

int h,m,s;

time n1;

cout<<"Enter hours minutes and seconds : ";

cin>>h>>m>>s;

n1.setval(h,m,s);

n1.print();

return 0;

}

3. Define a class Factorial and define an instance member function to find the Factorial

of a number using class.

Sol – 3.

#include<iostream>

using namespace std;

class factorial

{

private :

int a,f=1;

public :

void seta(int x)

{

a=x;

}

int geta()

{

return a;

}

int getf()

{

return f;

}

void fact()

{

for(int i=2;i<=a;i++)

{

f=f\*i;

}

}

};

int main()

{

factorial n1;

int a;

cout<<"Enter a number : ";

cin>>a;

n1.seta(a);

n1.fact();

cout<<"Factorial of "<<n1.geta()<<" is "<<n1.getf();

return 0;

}

4. Define a class LargestNumber and define an instance member function to find the

Largest of three Numbers using the class.

Sol – 4.

#include<iostream>

using namespace std;

class Largestno

{

private :

int a,b,c,l;

public :

void setval(int p,int q,int r)

{

a=p;

b=q;

c=r;

}

int getl()

{

return l;

}

int geta()

{

return a;

}

int getb()

{

return b;

}

int getc()

{

return c;

}

void largest()

{

if(a>=b)

{

if(a>=c)

{

l=a;

return;

}

else

{

l=c;

return;

}

}

if(b>=c)

l=b;

else

l=c;

}

};

int main()

{

Largestno n1;

int a,b,c;

cout<<"Enter three number : ";

cin>>a>>b>>c;

n1.setval(a,b,c);

n1.largest();

cout<<"Largest number is "<<n1.getl();

return 0;

}

5. Define a class ReverseNumber and define an instance member function to find

Reverse of a Number using class.

Sol – 5.

#include<iostream>

using namespace std;

class Reverse

{

int n,rev;

public :

void setn(int x)

{

n=x;

}

int getn()

{

return n;

}

int getrev()

{

return rev;

}

void rv()

{

int sum=0;

while(n)

{

sum=(sum+n%10)\*10;

n/=10;

}

rev=sum/10;

}

};

int main()

{

Reverse n1;

int n;

cout<<"Enter a number : ";

cin>>n;

n1.setn(n);

n1.rv();

cout<<"Reverse of "<<n1.getn()<<" is "<<n1.getrev();

return 0;

}

6. Define a class Square to find the square of a number and write a C++ program to

Count number of times a function is called.

Sol – 6.

#include<iostream>

using namespace std;

class Square

{

private :

int n,sq;

static int count;

public :

void setn(int x)

{

n=x;

}

int getn()

{

return n;

}

void squar()

{

sq=n\*n;

count++;

}

int getsq()

{

return sq;

}

int getcount()

{

return count;

}

};

int Square::count=0;

int main()

{

Square n1;

int n;

cout<<"Enter a number : ";

cin>>n;

n1.setn(n);

n1.squar();

cout<<"Square of "<<n1.getn()<<" is "<<n1.getsq();

return 0;

}

7. Define a class Greatest and define instance member function to find Largest among

3 numbers using classes.

Sol – 7.

//Done above

8. Define a class Rectangle and define an instance member function to find the area of

the rectangle.

Sol – 8.

#include<iostream>

using namespace std;

class Rectangle

{

private :

int l,b,ar;

public :

void setval(int p,int q)

{

l=p;

b=q;

}

int getl()

{

return l;

}

int getar()

{

return ar;

}

int getb()

{

return b;

}

void area()

{

ar=l\*b;

}

};

int main()

{

Rectangle n1;

int l,b;

cout<<"Enter length and breadth : ";

cin>>l>>b;

n1.setval(l,b);

n1.area();

cout<<"Area : "<<n1.getar();

return 0;

}

9. Define a class Circle and define an instance member function to find the area of the

circle.

Sol – 9.

#include<iostream>

using namespace std;

class Circle

{

private :

int r;

float ar;

public :

void setr(int a)

{

r=a;

}

int getr()

{

return r;

}

void area()

{

ar=3.14\*r\*r;

}

float getar()

{

return ar;

}

};

int main()

{

Circle n1;

int r;

cout<<"Enter radius of circle : ";

cin>>r;

n1.setr(r);

n1.area();

cout<<"Area : "<<n1.getar();

return 0;

}

10. Define a class Area and define instance member functions to find the area of the

different shapes like square, rectangle , circle etc.

Sol – 10.

#include<iostream>

using namespace std;

class Area

{

private :

int r,l,b,s,aor,aos;

float aoc;

public :

void setval(int rad,int len,int bre,int side)

{

r=rad;

l=len;

b=bre;

s=side;

}

void circle()

{

aoc=3.14\*r\*r;

}

void rectangle()

{

aor=l\*b;

}

void square()

{

aos=s\*s;

}

float getaoc()

{

return aoc;

}

int getaor()

{

return aor;

}

int getaos()

{

return aos;

}

};

int main()

{

Area n1;

int r,l,b,s;

cout<<"Enter radius of circle : ";

cin>>r;

cout<<"Enter length and breadth of rectangle : ";

cin>>l>>b;

cout<<"Enter side of square : ";

cin>>s;

n1.setval(r,l,b,s);

n1.circle();

n1.rectangle();

n1.square();

cout<<endl<<"Area of circle : "<<n1.getaoc()<<endl;

cout<<"Area of rectangle : "<<n1.getaor()<<endl;

cout<<"Area of square : "<<n1.getaos()<<endl;

return 0;

}