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

#include <iostream>

using namespace std;

class Complext

{

private:

int real, img;

public:

void setValue(int x, int y)

{

real = x;

img = y;

}

void showValue()

{

cout << "Complext number: " << real << "+" << img << "i";

}

};

int main()

{

Complext c;

c.setValue(5, 4);

c.showValue();

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.

#include <iostream>

using namespace std;

class Time

{

private:

int hrs, min, sec;

public:

void setTime(int h, int m, int s)

{

hrs = h;

min = m;

sec = s;

}

void showTime()

{

cout << "Time: " << hrs << " Hours " << min << " Minute " << sec << " Second ";

}

};

int main()

{

Time t;

t.setTime(5, 44, 34);

t.showTime();

return 0;

}

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

of a number using class.

#include <iostream>

using namespace std;

class Factorial

{

public:

int findFactorial(int f)

{

int fact = 1;

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

fact = fact \* i;

return fact;

}

};

int main()

{

Factorial f;

int x;

cout << "Enter a numebr: ";

cin >> x;

cout << "Factorial is: " << f.findFactorial(x);

return 0;

}

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

Largest of three Numbers using the class.

#include <iostream>

using namespace std;

class LargestNumber

{

public:

int largeNumberAmongThree(int x, int y, int z)

{

return x > y && x > z ? x : y > z ? y

: z;

}

};

int main()

{

LargestNumber l;

int num1, num2, num3;

cout << "Enter a three number: ";

cin >> num1 >> num2 >> num3;

int largestNumber = l.largeNumberAmongThree(num1, num2, num3);

cout << "Largest Number is: " << largestNumber << endl;

return 0;

}

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

Reverse of a Number using class.

#include <iostream>

using namespace std;

class ReverseNumber

{

public:

int\_least8\_t reverseNumber(int num)

{

int ans = 0, count = 0;

while (num)

{

if (num % 10 == 0)

count++;

ans = ans \* 10 + num % 10;

num /= 10;

}

return ans;

/\*

if we pass 200 then output get only 2

here is solutions

int ans = 0,count = 0;

while (num)

{

if(num % 10 == 0)

count++;

ans = ans \* 10 + num % 10;

num /= 10;

}

// you can return it so we just print

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

cout<<"0";

cout<<ans;

\*/

}

};

int main()

{

ReverseNumber r;

cout << "Reverse Number is: " << r.reverseNumber(20000);

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.

#include <iostream>

using namespace std;

class Square

{

public:

int findSquare(int num)

{

static int countFunctionCalling;

countFunctionCalling++; // oops we no need to initialize 0 coz static variable by default ini.. 0

cout << countFunctionCalling << " Time Calling this function--!" << endl;

return num \* num;

}

};

int main()

{

Square s;

s.findSquare(6);

s.findSquare(5);

s.findSquare(6);

s.findSquare(5);

s.findSquare(6);

s.findSquare(5);

s.findSquare(6);

s.findSquare(5);

return 0;

}

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

3 numbers using classes.

#include <iostream>

using namespace std;

class Greatest

{

public:

int largeNumberAmongThree(int x, int y, int z)

{

return x > y && x > z ? x : y > z ? y

: z;

}

};

int main()

{

Greatest g;

int num1, num2, num3;

cout << "Enter a three number: ";

cin >> num1 >> num2 >> num3;

int largestNumber = g.largeNumberAmongThree(num1, num2, num3);

cout << "Largest Number is: " << largestNumber << endl;

return 0;

}

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

the rectangle.

#include <iostream>

using namespace std;

class Rectangle

{

public:

int findRectangleArea(int b, int h)

{

return b \* h;

}

};

int main()

{

Rectangle r;

cout << "Rectangle of Area is: " << r.findRectangleArea(5, 4);

return 0;

}

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

circle.

#include <iostream>

using namespace std;

class Circle

{

public:

double findCircleArea(float r)

{

return 3.14 \* r \* r;

}

};

int main()

{

Circle c;

float radius;

cout << "Enter a radius: ";

cin >> radius;

cout << "Rectangle of Area is: " <<c.findCircleArea(radius);

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.

#include <iostream>

using namespace std;

class Area

{

public:

double areaOfCircle(float r)

{

return 3.14 \* r \* r;

}

int areaOfRectangle(int b, int h)

{

return b \* h;

}

int areaOfSquare(int a)

{

return a \* a;

}

};

int main()

{

Area a;

cout << "Area of circle for radius 5 is: " << a.areaOfCircle(5) << endl;

cout << "Area of rectangle having 5 breath and 5 height is: " << a.areaOfRectangle(5, 5) << endl;

cout << "Area of square having 5 sides is: " << a.areaOfSquare(5) << endl;

return 0;

}