

202- Object Oriented Programming With C++

SSCCS : SYBCA

Operator Overloading

- 1 Create class time to represent time in hours and minutes , write C++ program to overload + and – operator to perform addition and subtraction of time object.
2. Create class time to represent time in hours and minutes write C++ Program to over load increment operator ++ to add one minute in time object.
- 3 Create class time to represent time in hours and minutes write C++ Program to over load decrement operator -- to add one minute in time object.
- 4 Create class matrix to represent 3x3 matrix , write C++ program to over load + and * operator to perform addition and multiplication of two matrix.
- 5 Create class space to represent space co-ordinate (x,y and z) write C++ program to overload unary minus(-) operator for space class.
- 6 Create class complex to represent complex value, write C++ program to overload + (addition) and – (subtraction) operator for complex number.
- 7 Create class string to create dynamic string, write C++ program to overload all relational operator to make comparison of two string object.
- 8 Create class string to create dynamic string , write C++ program to overload + (addition) operator to combined two string.
- 9 Design class polar which describes a point in the plane using polar coordinates radius and angle. Use overloads + operator to add two object of polar. (Note: we can not add polar value of two points directly. This requires first the conversion of points into rectangular co-ordinates, then adding the corresponding rectangular co-ordinates and finally converting the result back into polar co-ordinates. You need to use the following trigonometric formulae:
$$X = r * \cos(a) \qquad Y = r * \sin(a)$$
$$a = \text{atan}(y/x) \qquad r = \text{sqrt}(x*x + y*y)$$
- 10 Create class time to represent the time in hours and minutes write C++ program to overload increment ++ (postfix) and increment ++ (prefix) operator to add one minutes in time object.
- 11 Create class distance to represent distance in feet and inches , write C++ program to overload equality operator (==) for class distance.
- 12 Over load insertion and extraction operator for class string.
- 13 Over load the addition operator for the class string so that the output of the following code is ‘C’

```
String s1(“abcd”)  
Cout << s1+2
```

More over the output of the following piece of code should be ‘abcdx’

```
String s1(“abcd”)  
S1+2 = ‘X’;  
Cout<<s1<<endl;
```
- 14 Create class matrix to represent 3x3 matrix, write C++ program to overload * operator perform scalar multiplication of matrix with integer value , which allow following type of operation
$$M2 = 2 * M1.$$
- 15 Write c++ program to overload >> and << operator for time class. Class time represent time in hours and minutes.