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Crux

Lecture -8

Object Oriented Programming-1

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CODING BLOCKS

Object Oriented Programming

Java Classes

1. Classes & Objects
2. Data
3. Functions

Classes & Objects

1. Blueprint to generate instances of same nature
2. Each individual instance is an object
3. Copies of only non static data members is created.

Data Members

1. Static vs Non Static
2. Public, protected and private
3. Final Members
4. Initialization

Default methods with every class

Constructor and Default Methods

1. Constructor(Java and C++)
2. Copy Constructor(C++)
3. Copy Assignment Operator(C++)
4. Destructor(C++)

User defined constructors

Operator Overloading

```
class pair
{
        public:
        int x,y;
        bool operator < ( const pair& p ) const
        {
                if(x==p.x) return y<p.y;
                return x<p.x;
        }
};
```

Static Methods

Components of OOP

1. Encapsulation
2. Inheritance
3. Polymorphism

Encapsulation

1. Bind the data and functions together
2. Hiding the implementation details
3. Lets us change the implementation without breaking code of our users

Inheritance

1. Extending Functionality of an existing class
2. Add new methods and fields to derived class
3. If both classes have a function with same name, which class's function will get called?

Polymorphism

1. Overriding the base class functions(Virtual Functions)
2. Ability of a variable to take different forms
3. Ability of a function to behave differently on basis of different parameters
4. Ability of a function to work with parameters of subtypes

Public and Non Public Classes?

Some more problems

- A sorted array has been rotated by some number k in clockwise direction. How can we find k.
- Find number of substrings of a string which are palindrome

Thank You!

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