Sunday, 21
February 16

Crux

Lecture - 11

Object Oriented
Programming- 1

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Object Oriented Programming

Java Classes

1. Classes & Objects
2. Data
3. Functions

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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.

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Data Members

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

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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++)

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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;
        }
};
```

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Static Methods

Components of OOP

1. Encapsulation
2. Inheritance
3. Polymorphism

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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

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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?

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Inheritance

1. Super
2. How constructors are called ?

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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

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Public and Non Public Classes?

Some more problems

- Power function
- Find number of substrings of a string which are palindrome
- Given a string, find largest substring with no repetition.

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Thank You !! ☺

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