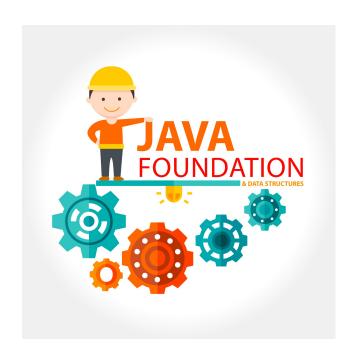# Nucleus

Java Foundation & Data Structures

Lecture 13 : OOPS 1

Friday, 23 June 17

Doubts from Last Class ?

Any doubts on assignment ?

Quick Sort ?

Object Oriented Programming

Java Classes

- Classes and Objects

- Data

- Functions

Classes & Objects

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

Data Members

- Static vs. Non Static
- Public, protected (Leave for now), private and default
- Initialization
- Final Members (Leave for now)

Default methods with every class

Constructor and Default Methods

- Constructor(Java and C++)
- Copy Constructor(C++)
- Copy Assignment Operator(C++)
- Destructor(C++)

User defined constructors

Data Members

- Static vs. Non Static
- Public, protected (Leave for now), private and default
- Initialization
- Final Members

Operator Overloading

this

Static Method

Components of OOP

- Encapsulation
- Inheritance
- Polymorphism

Encapsulation

- Bind the data and functions together
- Hiding the implementation details
- Lets us change the implementation without breaking code of our users

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

Polymorphism

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

BT : Finding the Fastest horses

You have 25 horses and you can race only 5 of them simultaneously. Assuming you do not have access to stop-watch, how many times would you need to race the horses to find the 3 fastest horses.

Thank you

Nidhi Agarwal
nidhi@codingninjas.in