Object Oriented Programming using Java
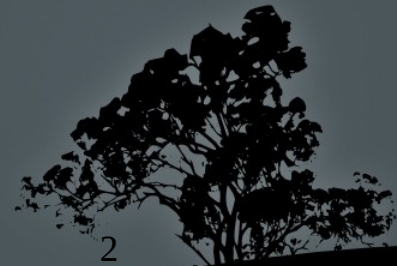
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Plan?

- Hands-on Java programming

- Learning Eclipse

- And mainly different aspects of Object Oriented Programming

Java features

- Platform Independent

  - Write once, run anywhere

- Supports Object Oriented Programming

- Secure

  - Sandbox environment

- Multi-threading

Exercise 1 - Hello World!

Write a program to print "Hello World!" in java.

Steps to run Java program

- Converting Source code to Byte Code
- Running ByteCode in JVM

Why OOP?*

- Modularization

- Abstraction (Understandability)

- Encapsulation (Information Hiding)

- Composability (Structured design)

- Heirarchy (Incremental development)

- Continuity (Designed to change)

*picked from

http://www.felixgers.de/teaching/oop/oop_intro.html

Eclipse IDE

- Continous compilation

- Ensuring that all files in project are linked to each other

- Debugging

- AutoComplete

- Lots of shortcut keys

Exercise 2 – Hello world in eclipse

Write Hello World program in Eclipse

- Checking out the compiled classes directory

- Check how eclipse throws warnings during compilation issue

^Shortcuts

- Sysout

- Control Space to autocomplete/Suggestions

- Alt-Shift-X J to Run the application

Exercise 3

- Program to add 2 numbers passed as argument to the application

  - Converting String to Int

  - Passing arguments in Eclipse

  - Exceptions

Exceptions

- ArrayIndexOutOfBoundsException

- IllegalArgumentException

- NullPointerException

- NumberFormatException

- ClassCastException

Exercise 4

Write your own MyMath class which has add method and then use the same to add the two arguments passed to the class.

- Use of static methods

- Shortcut to fix issues – Ctrl-1

- Import statement

Master Problem

Create a system where users can share list of books they own and also they can borrow book if they want to read?

Classes and Objects

Different entities in problem statement

- System

- User

- Book

Exercise -5

Create a Shared Library with users, such that user has a name and a password

- HashMaps (java.util)

- Global and local variables

- Scanner

- Creating objects using new

  - Constructor

  - Public and private variables

    (Data encapsulation)

Exercise -6

Extend the system so that a user can add list of books that he owns, each book has its name and its author's name

Exercise -7

Extend the system so that users can go
through other user's list.

Exercise -8

Extend the system so that a user can request to borrow a book and the owner of the book can approve or reject the request.

Books to refer

- Head First Java

- Head First Design Patterns

Thank you

Contact me - "me@viggy.in",9535321976

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