

Object Oriented Programming Using Java 1.8 (Spider)



Evaluation Strategy

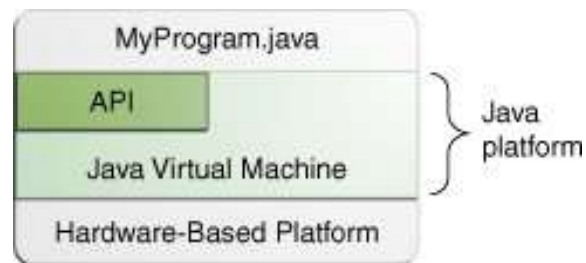
- **Duration** : 90 Hours (46 Theory + 44 Lab)
- **Evaluation** : Total 100 marks
- **Theory Exam** : 40% (CCEE)
- **Lab Exam** : 40% (End-Module Exam)
- **Internals** : 20%
- Reference Books :
 1. Java, The Complete Reference - Herbert Schildt
 2. Core Java Volume I and II - Cay S. Horstmann
 3. Java 8 Programming Black Book - D.T. Editorial Services
 4. Object Oriented Analysis and Design with Applications - Grady Booch
- Reference links :
 1. <https://docs.oracle.com/javase/tutorial/>
 2. <https://dev.java/>
 3. <https://docs.oracle.com/javase/8/docs/api/>

Agenda-1

- Language, Technology and Platform main method
 - History of Java programming language meaning of "System.out.println"
 - Java version history print, println and printf
 - Java Software Development Kit Java Comments
 - Simple "Hello World!!" application Primitive & Non Primitive types
 - Exploring bytecode using javap wrapper class
 - Java comments Initialization and Assignment
 - Java entry point Narrowing & Widening
 - Primitive & non primitive types, Boxing & Un-boxing
 - Wrapper classes NumberFormatException
 - Command line arguments Command line arguments
- Java language Features,
Demo of Classes (Scanner, Date, Calendar, LocalDate,
LocalTime, LocalDateTime and SimpleDateFormat)
Class and its elements

Components of Java Platform

- The Java platform has two components:
 1. The *Java Virtual Machine*
 2. The *Java Application Programming Interface* (API)

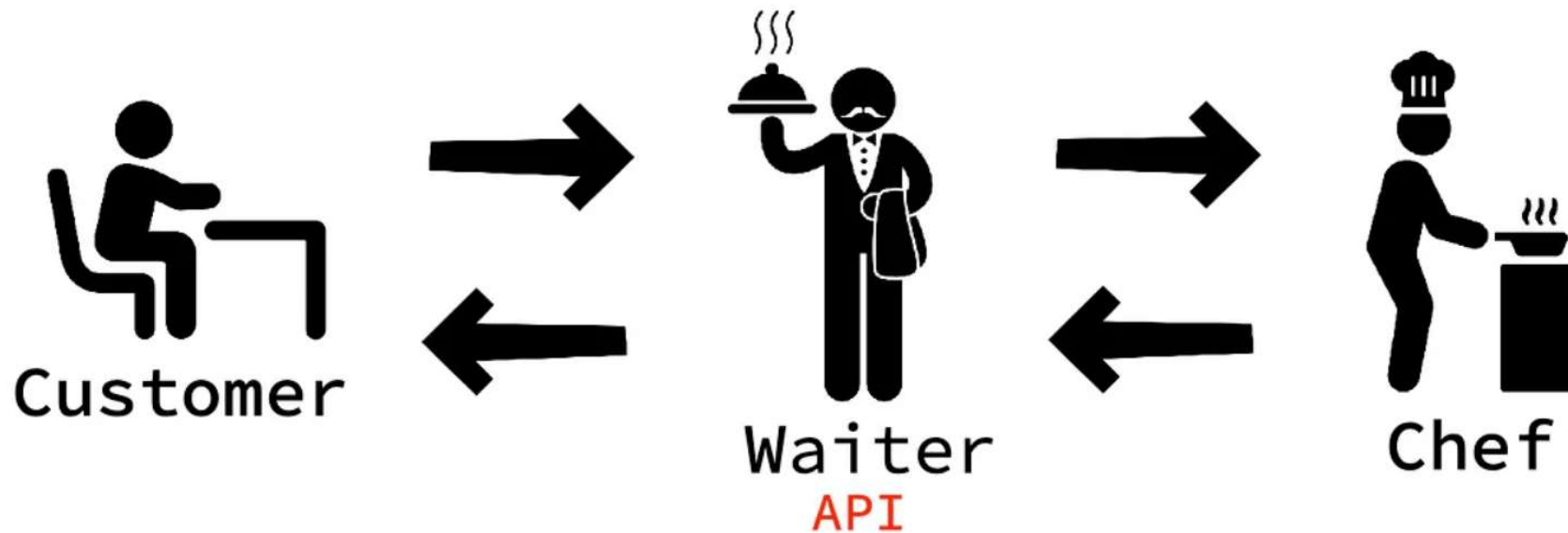


- Reference: <https://docs.oracle.com/javase/tutorial/getStarted/intro/definition.html>

Application Programming Interface

API receives a request

Similar to how a waiter takes an order from a customer to relay to the chef



API collects and processes a response, then returns with that response

As a waiter would return the completed meal from the chef to the customer

Packages in Java

Packages can contains:

1. Sub package
2. Interface
 - Nested Type
 - Constant Fields
 - Abstract Methods
 - Default Methods
 - Static Interface Methods
3. Class
 - Nested Types(Interface /Class /Enum)
 - Fields
 - Constructor
 - Method
4. Enum
5. Exception
6. Error
7. Annotation Type

Modifiers in Java

- PUBLIC
- PRIVATE
- PROTECTED
- STATIC
- FINAL
- SYNCHRONIZED
- VOLATILE
- TRANSIENT
- NATIVE
- INTERFACE
- ABSTRACT
- STRICT

Reference: <https://docs.oracle.com/javase/8/docs/api/java/lang/reflect/Modifier.html>

Main Method & Modifiers

•Access Modifiers: Modifiers which are used to control visibility of members of the class is called access modifier.

- private
- Package level private(also called as default)
- protected
- Public

•In java, main method is considered as entry point method. With the help of main thread, JVM invoke main method.

•Syntax:

- public static void main(String args[])
- public static void main(String[] args)
- public static void main(String... args)

•We can define main method inside class as well as interface.

Reference: <https://docs.oracle.com/javase/tutorial/getStarted/application/index.html>

Java Comments

To maintain documentation of source code we should use comments:

Types of comments:

1. Implementation Comments

- Block comments / multiline comments

- Single Line Comments

2. Documentation comment / doc comments

Reference: <https://www.oracle.com/java/technologies/javase/codeconventions-comments.html>

Java Comments

To maintain documentation of source code we should use comments:

Types of comments:

1. Implementation Comments

- Block comments / multiline comments

- Single Line Comments

2. Documentation comment / doc comments

Reference: <https://www.oracle.com/java/technologies/javase/codeconventions-comments.html>

Class and Its Elements

- Class,
- field,
- method,
- reference,
- Instance,
- instance initializer block,
- Method Overloading,
- constructor,
- constructor chaining,
- NullPointerException