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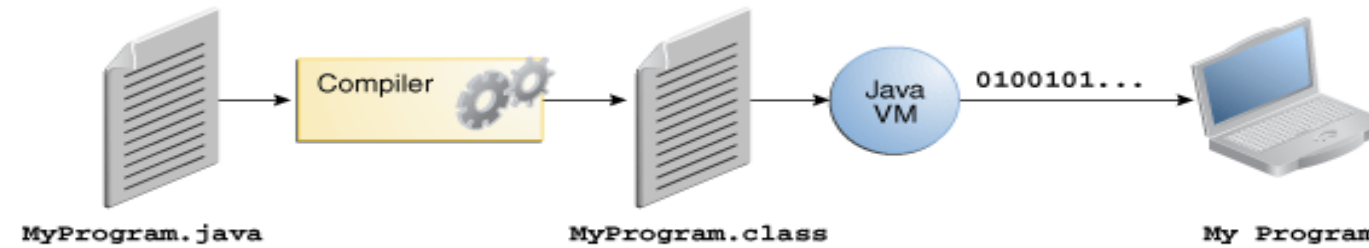
IT Staff Augmentation

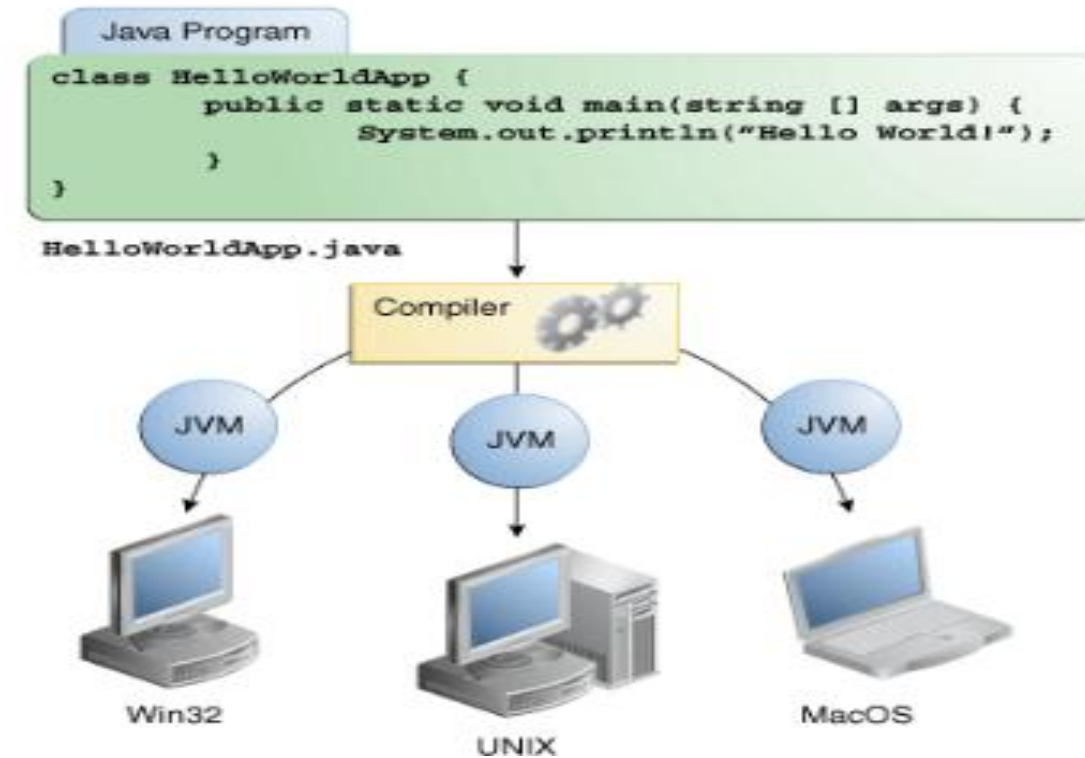**Job Placement Assistance**

Tech Support

What is JAVA?

- Java is a programming language and computing platform first released by Sun Microsystems in 1995.

- There are lots of applications and websites that won't work unless you have Java installed, and more are created every day.

- Java is fast, secure, and reliable.

- Java is free to download. Get the latest version at http://java.com.

JRE, JVM and JDK

Platform Independence

MyProgram.java → Compiler → MyProgram.class → Java VM → 0100101... → My Program

Java is platform independent because JVM is platform dependent.

Java Program

```
class HelloWorldApp {
        public static void main(string [] args) {
                System.out.println("Hello World!");
        }
}
```

HelloWorldApp.java

Compiler

JVM → Win32

JVM → UNIX

JVM → MacOS

JRE, JVM and JDK

What is JVM? – Java Virtual Machine

- As we all aware when we compile a Java file, output is not an '.exe' but it's a '.**class**' file. '.class' file consists of Java byte codes which are understandable by JVM.

- Java Virtual Machine interprets the byte code into the machine code depending upon the underlying operating system and hardware combination.

- JVM is platform dependent which makes Java Programming Language platform independent.
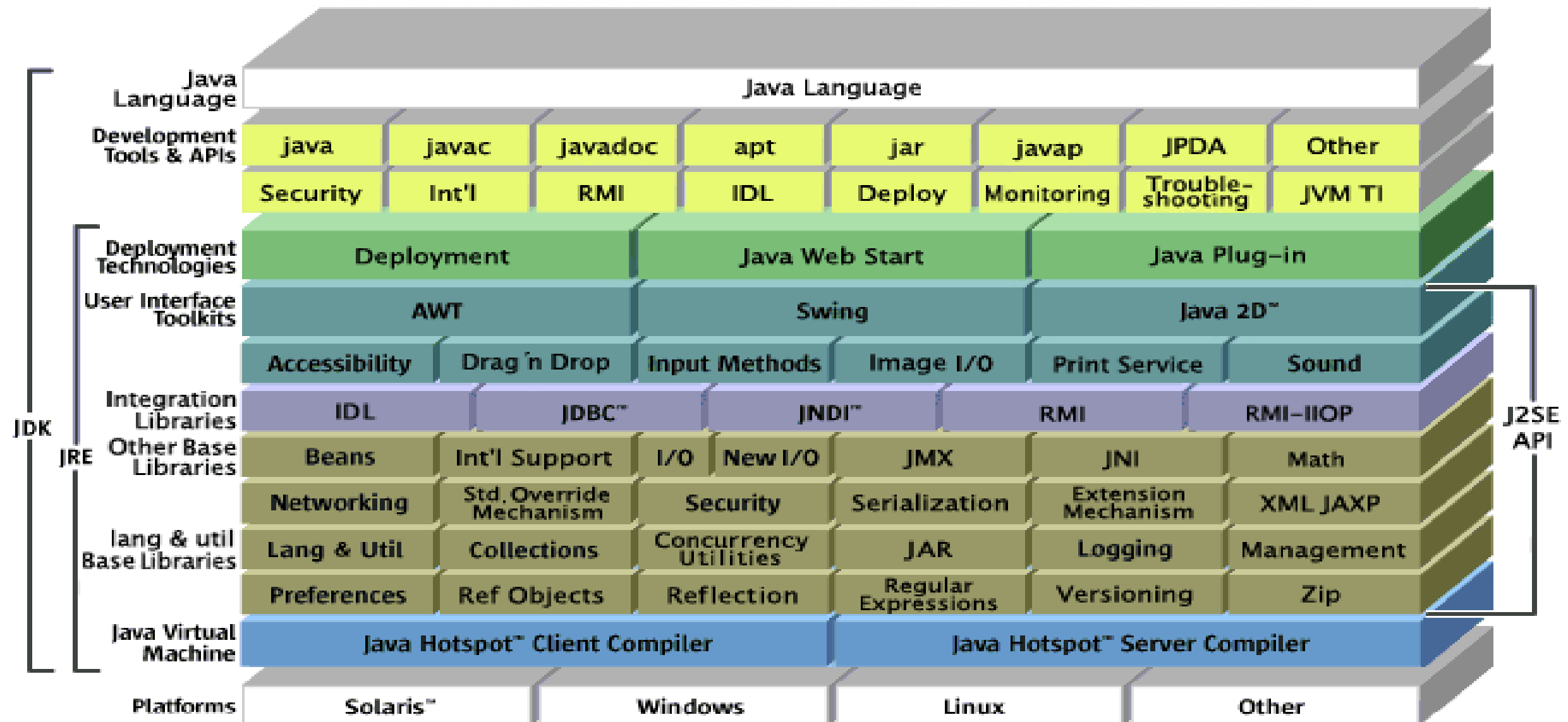
What is JRE? – Java Runtime Environment

- Java Runtime Environment contains JVM, class libraries, and other supporting files.

- JRE = JVM + Java Packages Classes (like util, math, lang, awt,swing etc)+ runtime libraries.

What is JDK? (Java Development Kit)

- Java Developer Kit contains tools needed to develop the Java programs, and JRE to run the programs. The tools include compiler (javac.exe), Java application launcher (java.exe), Appletviewer, etc...

- You need *JDK*, if at all you want to write your own programs, and to compile the m. For running java programs, JRE is sufficient.

Java™ 2 Platform Standard Edition 5.0

Java Language — Java Language

Development Tools & APIs

java	javac	javadoc	apt	jar	javap	JPDA	Other
Security	Int'l	RMI	IDL	Deploy	Monitoring	Trouble-shooting	JVM TI

Deployment Technologies

Deployment	Java Web Start	Java Plug-in

User Interface Toolkits

AWT	Swing	Java 2D™

Accessibility	Drag 'n Drop	Input Methods	Image I/O	Print Service	Sound

Integration Libraries

IDL	JDBC™	JNDI™	RMI	RMI-IIOP

Other Base Libraries

Beans	Int'l Support	I/O	New I/O	JMX	JNI	Math
Networking	Std. Override Mechanism	Security		Serialization	Extension Mechanism	XML JAXP

lang & util Base Libraries

Lang & Util	Collections	Concurrency Utilities	JAR	Logging	Management
Preferences	Ref Objects	Reflection	Regular Expressions	Versioning	Zip

Java Virtual Machine

Java Hotspot™ Client Compiler	Java Hotspot™ Server Compiler

Platforms

Solaris™	Windows	Linux	Other

JDK · JRE · J2SE API

Things you need..

- This is not just a Theory Session. You need to get your hands dirty.

- First Step: Download JDK based on your operating system.
http://www.oracle.com/technetwork/java/javase/downloads/jdk6u35-downloads-1836443.html

- Second Step: We need to write the code somewhere... that "somewhere" is **Eclipse**.
http://eclipse.org/downloads/

Select appropriate operating system versions while downloading.

- Eclipse download may take some time depending on your internet speed.

- If you need help if any of the tasks above. Please see respective Slides and videos.

Object-Oriented Programming Concepts

What is Object?:

- A Software bundle which has state and behavior. State means "Properties" for ex. Bicycle has pedals, gears, handle etc. And Behavior means "Functionalities" like, things which Bicycle can do :- peddling, riding on road, changing gears.

- Software objects are conceptually similar to real-world objects: they too consist of state and related behavior. An object stores its state in fields (variables in some programming languages) and exposes its behavior through methods (functions in some programming languages).

What is Class?

- A class is a blueprint or prototype from which objects are created.

What is Inheritance?

- Different kinds of objects often have a certain amount in common with each other.
- Object-oriented programming allows classes to *inherit* commonly used state and behavior from other classes.
- In the Java programming language, each class is allowed to have one direct superclass, and each superclass has the potential for an unlimited number of *subclasses*:

Class

1 2
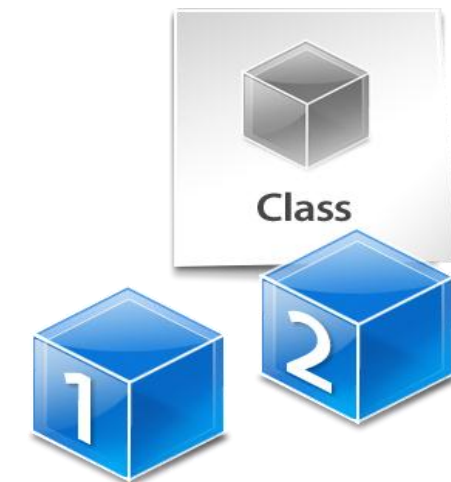
What is Package?

- Conceptually you can think of packages as being similar to different folders on your computer.

- Because software written in the Java programming language can be composed of hundreds or thousands of individual classes, it makes sense to keep things organized by placing related classes and interfaces into packages.

What oops concept below figure represent?

Guess this?

Encapsulation

- Encapsulation is one of the core design patterns of Object Oriented programming.

- The point of encapsulation is to split a large program into a number of smaller, independent parts to reduce complexity.

- In a sentence, encapsulation is hiding the implementation details of a module from its user.

- Encapsulation also helps to protect state variables from direct access. In turn, protect implementation.

- We will learn how to implement encapsulation after we go thru data access.

Java is Simple

- Lets create a new project for this batch.

- Create a package for today

- Write a sample code. "Hello Student".

- This is for Day one. Remember Java may appear hard in first few classes, but its pretty easy.

- So take it slow, ask questions and repeat after me: *Java is Simple*.

Questions:

Remember: No Question is Dumb Question.

Thank you

Your feedback is highly important to improve our course material and teaching methodologies. Please email your suggestions.

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