Java 1

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Java

• Java is a high-level language:
  – Simple
  – Architecture neutral
  – Object oriented
  – Portable
  – Distributed
  – High performance
  – Multithreaded
  – Robust
  – Dynamic
  – Secure
An overview of the software development process
Java VM

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

• a software-only platform that runs on top of other hardware-based platforms
  – The Java Virtual Machine
  – The Java Application Programming Interface (API)
The comparisons between C/C++ and Java
Setting up Java Environment

• Go to http://java.sun.com/javase/downloads/index.jsp
• Download JDK 6 Update 16 with Java EE and Install it !!
  – Create a source file
    • filename.java
  – Compile the source file into a .class file
    • Javac filename.java
  – Run the program
    • Java filename
Your 1\textsuperscript{st} Java Program: HelloWorld

/** * The HelloWorldApp class implements an application that * simply prints "Hello World!" to standard output. */

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

• Save as \texttt{HelloWorldApp.java}
• Use Windows cmd
  – Compile : \texttt{javac HelloWorldApp.java}
  – Run: \texttt{java HelloWorldApp}
Object-Oriented Programming
Concepts
• Object
• Class
• Inheritance
• Interface
• Package
What is an Object

Advantages of using software objects?
What is a Class?

- A *class* is the blueprint from which individual objects are created.
What is Inheritance?

class MountainBike extends Bicycle{
    // new fields and methods defining a mountain bike would go here
}
What is Interface?

• Methods form the object's *interface* with the outside world.
What is a Package?

• A package is a namespace that organizes a set of related classes and interfaces.

• Application Programming Interface (API)
Questions

1. Real-world objects contain ___ and ___.
2. A software object's state is stored in ___.
3. A software object's behavior is exposed through ___.
4. Hiding internal data from the outside world, and accessing it only through publicly exposed methods is known as data ___.
5. A blueprint for a software object is called a ___.
6. Common behavior can be defined in a ___ and inherited into a ___ using the ___ keyword.
7. A collection of methods with no implementation is called an ___.
8. A namespace that organizes classes and interfaces by functionality is called a ___.
9. The term API stands for ___?
Home Exercises

• Download and Install JDK
• Try your First HelloWorld Java Program
• Try Bicycle Java Program
  – Write Bicycle Class
  – Write BicycleDemo Class
  – Try inheritance by using “Subclass extends Superclass”
  – Try to create an interface of Bicycle class, and implements it.