Tinker Academy

AP Computer Science Prep (Java DS & Algo)

Lecture 2 - Java Fundamentals 1 (Java Runtime Environment)

Winter 2015

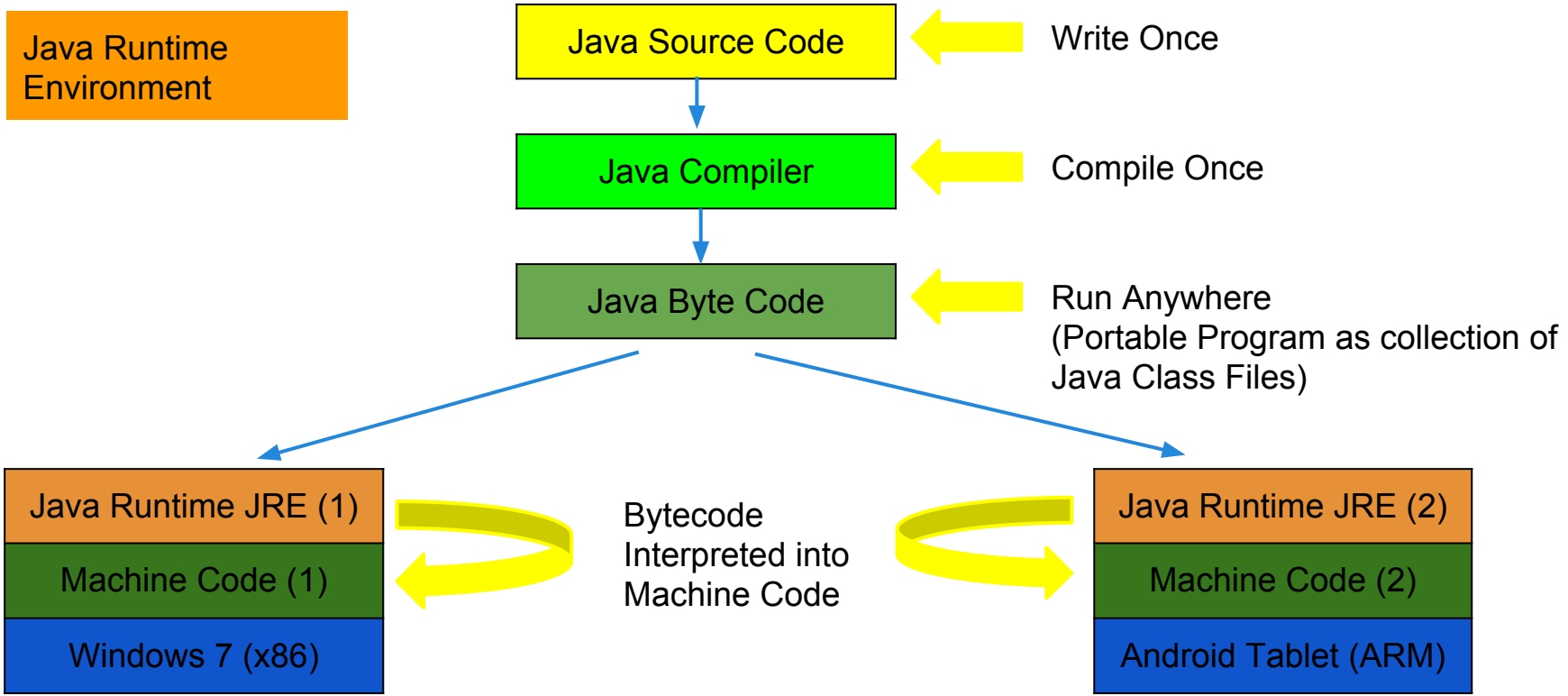
Java Runtime Environment (JRE)

Lecture 2 - Java Fundamentals 1

Java Runtime Environment (JRE)

- A Java Runtime Environment (JRE) created for every type of machine
- Java Source Code gets compiled into the Java program (bytecode)
- When the Java program is run, the JRE reads in and translates the bytecode into machine code

Lecture 2 - Java Fundamentals 1



Java Virtual Machine (JVM)

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Java's Magic - The Java Virtual Machine

- At the heart of the Java Runtime Environment (JRE) is a very sophisticated piece of software called the Java Virtual Machine
- The Java Virtual Machine acts like a virtual computer and understands Java bytecode
- Each machine type has its own Java Virtual Machine which interacts with native libraries

Lecture 2 - Java Fundamentals 1

Java's Magic - The Java Virtual Machine (JVM)

- The JVM reads bytecode stored in Java Class files.
- The JVM loads the Java bytecode as Java Classes Using the Class Loader
- The JVM interprets the Java bytecode as instructions
- The JVM automatically manages memory

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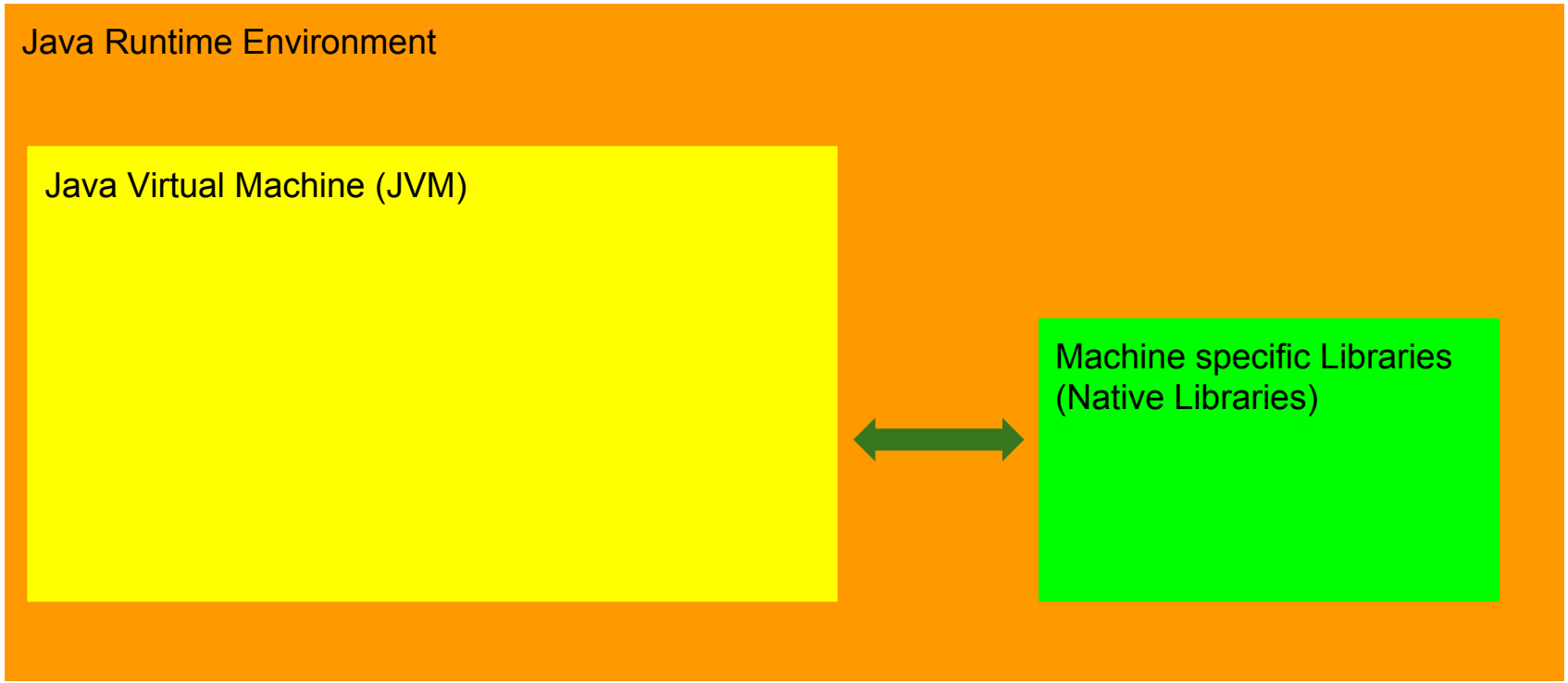

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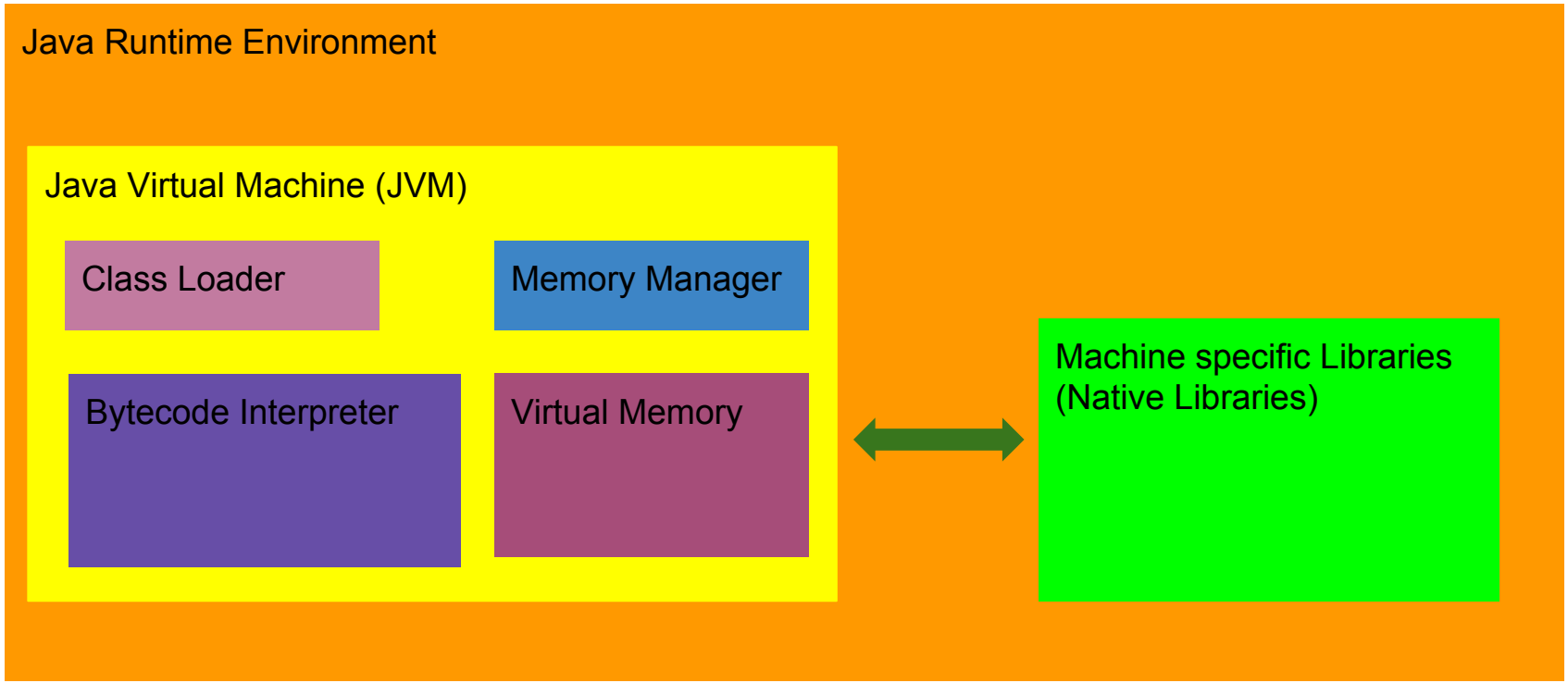

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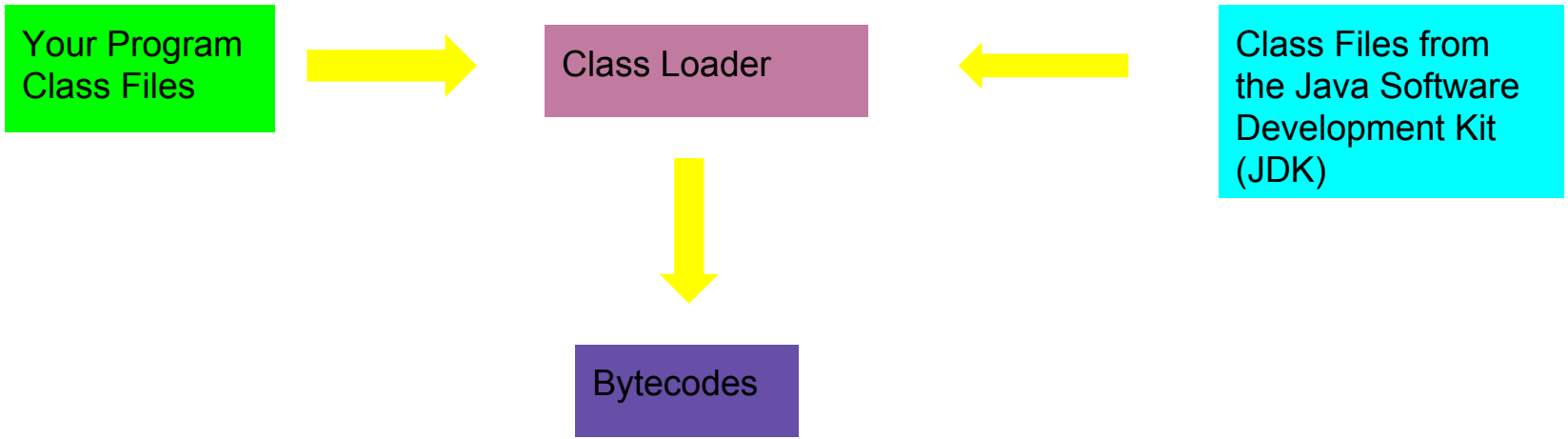

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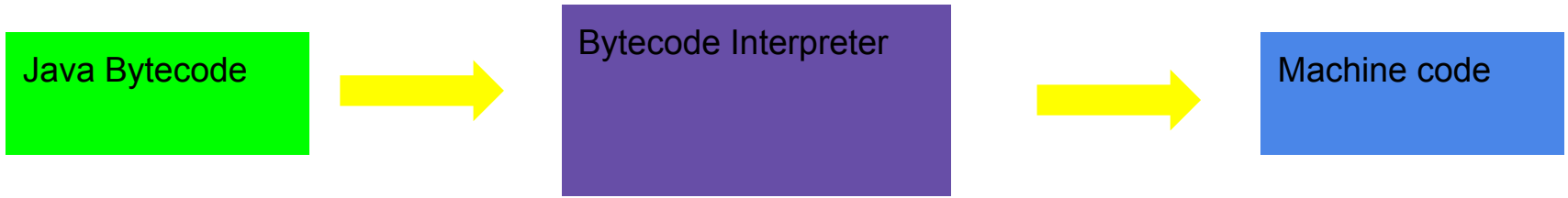

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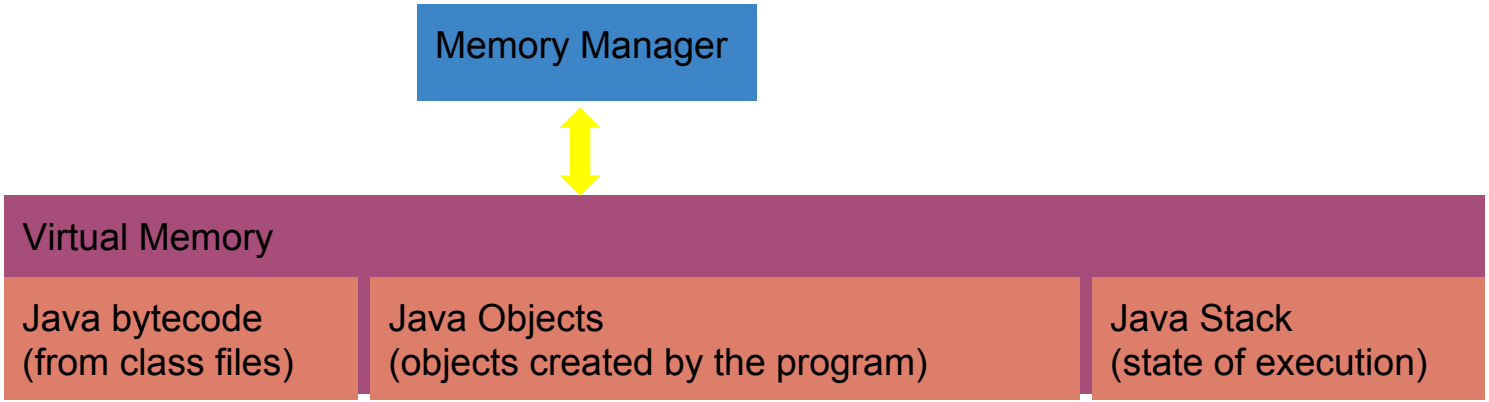

Class Activity

Lecture 1 - Java Fundamentals 1

Open UX Term & Navigate To starterpack2

- Open UX Term
  - Start->System Tools->UXTerm
- Navigate to starterpack2
  - cd
  - cd Documents/tinkeracademy/Courses/TA-JAV-3
  - cd starterpack/starterpack2

Lecture 1 - Java Fundamentals 1

Start a JVM

- Navigate to the JVM folder under starterpack2
  - cd JVM
- Run the ComputePI Java Program
  - java ComputePI
- java will start a new Java Virtual Machine to run your program
- The output will be the value of PI computed to increasing accuracy

Lecture 1 - Java Fundamentals 1

Open Another UX Term & Navigate To starterpack2

- Open UX Term
  - Start->System Tools->UXTerm
- Navigate to starterpack2
  - cd
  - cd Documents/tinkeracademy/Courses/TA-JAV-3
  - cd starterpack/starterpack2

Lecture 1 - Java Fundamentals 1

Start another JVM

- Navigate to the JVM folder under starterpack2
  - cd JVM
- Run the ComputePI Java Program
  - java ComputePI
- java will start a new Java Virtual Machine to run your program
- The output will be the value of PI computed to increasing accuracy

Lecture 1 - Java Fundamentals 1

JVM

- java creates a new JVM each time a program is run
- The JVM run independently
- Stopping a JVM does not stop the other
  - Stop one of the java programs using Control-C
  - The other java program keeps running
  - Stop the other java program using Control-C