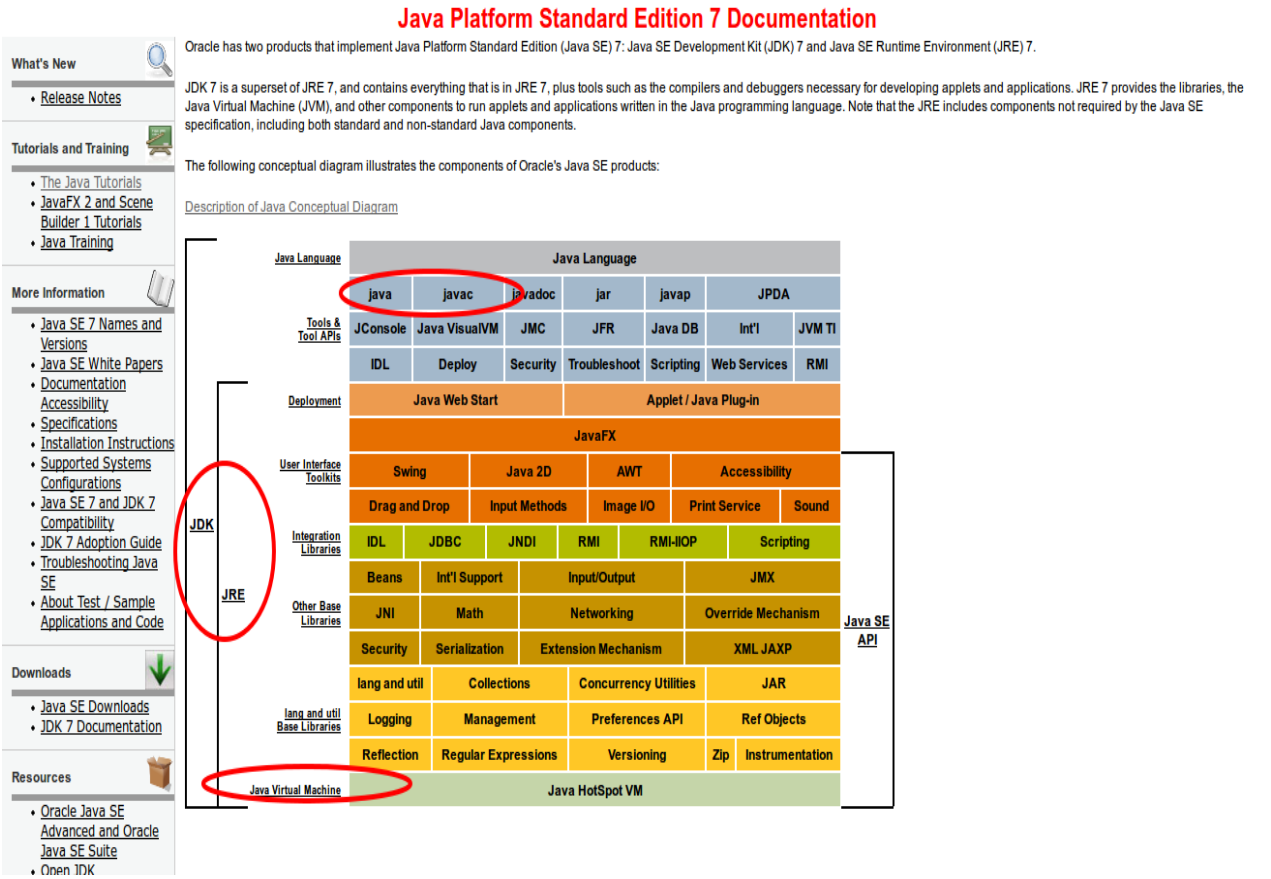
Read by your self:

http://www.tiobe.com/index.php/content/paperinfo/tpci/index.html



source: http://docs.oracle.com/javase/7/docs/

What is a program?

A computer program is a list of instructions that tell a computer what to do. Everything a computer does is done by using a computer program.

Examples:

- A web browser like Mozilla Firefox, Opera, Internet Explorer, Lynx, and Apple Safari can be used to view web pages on the Internet.
- An office suite can be used to write documents or spreadsheets that contains many set of formulas helping people doing calculations set.
- Video games that programmed from complex set of instructions; moving objects, collision detection, calculating point to define your level, game over definition, etc

- Even BIOS is a set of instructions that we called it as a program, etc

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 will not work unless you have Java installed, and more are created every day. Java is fast, secure, and reliable. From laptops to datacenters, game consoles to scientific supercomputers, cell phones to the Internet, Java is everywhere!" (http://java.com/en/download/faq/whatis_java.xml)

The Java Runtime Environment (JRE) is what you get when you download Java software. The JRE consists of the Java Virtual Machine (JVM), Java platform core classes, and supporting Java platform libraries. The JRE is the runtime portion of Java software, which is all you need to run it in your Web browser. To run Java applications and applets, simply download the JRE

> The Java Development Kit (JDK) is an implementation of either one of the Java SE, Java EE or Java ME platforms released by Oracle Corporation in the form of a binary product aimed at Java developers on Solaris, Linux, Mac OS X or Windows. To develop Java applications and applets as well as run them, the JDK is needed

Why java

Java is the foundation for virtually every type of networked application and is the global standard for developing and delivering embedded and mobile applications, games, Web-based content, and enterprise software. With more than 9 million developers worldwide, Java enables you to efficiently develop, deploy and use exciting applications and services.
97% of Enterprise Desktops Run Java

Java Claims:

- 89% of Desktops (or Computers) in the U.S. Run Java
- 9 Million Java Developers Worldwide
- #1 Choice for Developers
- #1 Development Platform
- 3 Billion Mobile Phones Run Java

- 100% of Blu-ray Disc Players Ship with Java
- 5 Billion Java Cards in Use
- 125 million TV devices run Java
- 5 of the Top 5 Original Equipment Manufacturers Ship Java ME

Sun provokes developers:

- Write software on one platform and run it on virtually any other platform
- Create programs that can run within a web browser and access available web services
- Develop server-side applications for online forums, stores, polls, HTML forms processing, and more
- Combine applications or services using the Java language to create highly customized applications or services
- Write powerful and efficient applications for mobile phones, remote processors, microcontrollers, wireless modules, sensors, gateways, consumer products, and practically any other electronic device

Java Comparisson

Case	Java	PHP
OOP	Pure	Version 5 supports
Protects your intellectual properties	Compilation	Flat files, encryption is basically to decrypt it back to run
How it works	Compiler	Intepreter

Difference between Compiler and Interpreter

No	Compiler	Interpreter
1	Compiler Takes **Entire** program as input	Interpreter Takes **Single** instruction as input .
2	Intermediate Object Code is **Generated**	**No** Intermediate Object Code is **Generated**
3	Conditional Control Statements are Executes **faster**	Conditional Control Statements are Executes **slower**
4	**Memory Requirement** : **More** (Since Object Code is Generated)	**Memory Requirement** is **Less**
5	Program need not be **compiled** every time	Every time higher level program is converted into lower level program

6	**Errors** are displayed after **entire program** is checked	**Errors** are displayed for **every instruction** interpreted (if any)
7	**Example** : C, Java	**Example** : BASIC, PHP, Ruby

Explanation : Compiler Vs Interpreter

1. We give complete program as input to the compiler. Our program is in the human readable format.
2. Human readable format undergoes many passes and phases of compiler and finally it is converted into the machine readable format.
3. However interpreter takes single line of code as input at a time and execute that line. It will terminate the execution of the code as soon as it finds the error.
4. Memory requirement is less in Case of interpreter because no object code is created in case of interpreter.

References:

- **java.com**
- **oracle.com**
- **https://www3.ntu.edu.sg**

Installation & Setup

ubuntu$ sudo apt-get install openjdk-7-jdk

others? Visit https://www3.ntu.edu.sg/home/ehchua/programming/howto/JDK_HowTo.html

verify installations:

$ javac -version

$ java -version

Java Program Template

Make the following code using your own favourite editor..

```
/*
 * First Java program, which says "Hello, world!"
 *
 * Hello1.java
 */
public class Hello1 {   // Save as "Hello1.java"
   public static void main(String[] args) {
      System.out.println("Hello, world!");   // print message
   }
```

```
      }



      // Hello2.java

      // apa yg akan terjadi?

      public class hello2 {   // Save as "Hello2.java"

         public static void main(String argv) {     System.out.println(argv)   // print message}

      }
      /* Hello3.java */
      public class Hello3 {   // Save as "Hello3.java"
      public static void main(String[] argumentku) {
         for(int i=0; i < argumentku.length; i++){
         System.out.print("Hello:" + argumentku[i] + ”\n”);   // print message
         }
      }
}

// Hello4.java
public class Hello4 {   // Save as "Hello4.java"

   public static void main(String args[]) {

      System.out.println("Hello, world!");   // print message

   }

}
```

1. save it as .java file
2. do compile to produce bytecode file (.class) example: ~/javaku$ javac Hello1.java
3. run the bytecode class file ~/javaku$ java Hello1

Undestanding task (Dikumpulkan diakhir pertemuan):

- what is java virtual machine vs java compiler