

# Internet computing

## Assignment 1

### Question and Answers.

#### Have you succeeded in installing the given course VM?

Yes,

Used Oracle VirtualBox v6 on the mac.

Configured the ubuntu 18 OS Virtualization image with specific HDD space & RAM parameters.

Running the VM from external HDD as internal SSD is full.

#### What are environment variables “PATH” and “CLASSPATH”?

**PATH:** Is used to define the path of the program situated to the terminal while initializing the development environment of Java Development Kit.

For eg: we would only use “javac java\_helloWrld.java” rather than

➤ cd Drive:/Programs/JavaInstallFolder/javac “java\_helloWrld.java”

**ClassPath:** Is used to define the path for Java classes which needs to be accessed by JVM or Java compiler executables. So that is linking the location of internal java classes to be properly accessed by internal executables.

#### What are the differences between JRE and JDK?

JRE is Java runtime environment, which as per my knowledge used to be installed default with Windows Operating System but maybe latest flavors of Windows 10 may have omitted them to be truly modular in design and not installing bloatware.

So JRE is minimum requirement for running any software previously compiled and executable by Java on a computer to run.

Whereas JDK is only required if you want actually write Java applications or develop java applications. JDK stands for Java Development Kit and it is where most of the development tools and kits are available at developers’ disposal to compile, trans pile the “.java” extension format. Which in turn creates “.jar, .jvk, .class, .war” files etc. which are executables to be ran by the host operating system and Java is a cross platform programming language which states its motto as write once and run everywhere.

## **What are the differences between Apache web server and Tomcat web server?**

### **Apache Web Server:**

Apache developed its web server which serves about 2/3 of the current worldwide serving HTTP web requests and it is pure http server. Its initial release was in 1995 and since then it has been steadily pushing out stable updates over past 2 decades. Latest version of Apache web server comes with few extra features like Mod\_gzip and Modsecurity for compression and intrusion detection / prevention engine for the http web server.

Apache Web server was written in C language.

Apache serves only static web pages and it is faster in serving those.

### **Tomcat Web Server:**

Tomcat Web Server also developed by Apache caters to different audiences which is used to run java code off on their pure java http web server. Apache Tomcat could be easily configured using XML configurations file.

Tomcat was written in Java language.

Tomcat could serve dynamic content utilizing Java servlets and JSP files. As Java is cross platform interpreted language it is bit slower compared to the native compiler used via Apache Web server in C language.

New releases include memory leak prevention in web applications, support for latest java servlets, JSP, improved security combined with Cross Site Request Forgery protection.

## **How to start/stop a Tomcat web server?**

First, we would need to be in certain folder directory where “Apache Tomcat web server” is installed in terminal.

We can use “./startup.sh” bash script to start the tomcat Web server.

For Stopping the Tomcat Web Server, again navigate to the apache tomcat installation path and type this command in terminal.

“./shutdown.sh”

Path Location: “opdq\server\tomcat\bin”

- **Kautilya Save**
- **Student ID#: U01683810**