INSTITUTE OF SOFTWARE ENGINEERING

GRADUATE DIPLOMA IN SOFTWARE ENGINEERING

ASSIGNMENT NAME
Programming fundamentals
ASSIGNMENT NO
01

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Programming Fundamentals

Assignment 01

1. Fill in the blanks in each of the following sentences about the java environment:

    a. The **java** command from the JDK executes a java application.

    b. The **javac** command from the JDK compiles a java program.

    c. A java program file must end with the **.java** file extension.

    d. When a java program is compiled, the file produced by the compiler ends with the **.class** file extension.

    e. The file produced by the java compiler contains **bytecodes** that are executed by the Java Virtual Machine.

2. What is the task of the compiler in programming languages?

- The main task of a compiler is to map programs written in a given source language into a target language. Often, the source language is a programming language and the target language is a machine language.

3. What is the difference between C and Java language?

Metric	C	Java
Origin	Assembly	C and C+
Translator	Compiler	Interpreter and Compiler
Code execution	Direct	Java virtual machine
Approach	Top down approach	Bottom up approach

4. If we compile a Java program in the Windows environment, can we run that

program in any other operating system? Explain your answer briefly.

- Yes. Because any compiled program translated by the compiler can run in another java environment.

5. What is the difference between Java interpreter (in JVM) and O/S interpreter (command interpreter)?

Java interpreter	Command interpreter
• The Java compiler converts the java source code into an intermediate from called java class files. The class files are the same for all operating systems.	• A command interpreter is the part of a computer operating system that understands and executes commands that are entered interactively by a human being or from a program.

6. What is the meaning of "Compile" in Java language? And why is that necessary?

- Compiling a Java program means taking the programmer-readable text in your program file and converting it to bytecodes, which are platform-independent instructions for the Java VM. Because computer can't understand the source code directly. So, the compiler is intermediate between human readable format and machine-readable format. The compiler will parse the source file and translate it into machine understandable object file.

7. What are the steps needed to create and run a Java program in a Linux environment?

- Open terminal on your system after installing Java on your program. • Create a directory to hold your Java program.
- Write a java program and save the file as filename.java
- Now to compile use this command from the terminal
  javac filename.java
  If everything works well then a new "filename.class" file should be created. • To run your program that you've just compile type the command below in terminal: java filename

8. Akila creates a Java program in his HP laptop machine. He gave the compiled

code (Class File) to Manoj to run that program in his computer. But Manoj's laptop brand is Dell. When Manoj tries to run the program, it didn't work. What can be the reason for that?

- The problem is that manoj doesn't have java installed on his computer.

9. Explain the command "java Example" that we write in Terminal.

- This command is used to run a java program on a computer. The file should be compiled into a class file before running.

Java Example

JVM Bytecode

10. Which of the following main method declarations are valid (Runs without errors)?

A. Public static void main(String args[]){ } - Valid

B. Public void main(String args[]){} - Invalid (Compiles)

C. Static void main(String args[]){} - Invalid (Compiles)

D. Public static void main(String args){ } - Invalid (Compiles)

E. Void main(String args[]){ } - Invalid (Compiles)

F. Public static void main(){ } - Invalid (Compiles)

G. Static public void main(String args[]){ } - Valid

H. Void main(String args){ } - Invalid (compiles)

I. Public static main(String args){ } - Illegal

J. Public static void main(String []){ } - Illegal K. Static

void public main(String args){ } - Illegal