

## Assignment 1

### 1. What is JDK? JRE? JVM?

JDK is an implementation of Java Specifications and includes a bundle of development tools and libraries to support Java-based application development.

JRE is included in JDK and stands for Java run time environment. JRE is a software platform where all java codes are executed. it contains class libraries and other resources for a java program to run.

JVM is java virtual machine, it runs live java program and it is platform independent and it manages and optimizes program memory.

### 2. What is java compiler?

Java Compiler compile the text source code into java bytecode, it check for code syntactic error and any unhandled exceptions.

### 3. Why is java platform independent?

Because Java Virtual Machine runs java bytecode and can run java code generated from another platform.

### 4. What is IDE? Why is it important for developers?

An IDE is a integrated Development Environment that enables programmers to consolidate different aspects of writing a computer program. It usually contains a debugger, compiler and a editor using a GUI. It increase the programmer's productivity and combining all the activity of developing a software into one application.

### 5. Is java case sensitive?

Yes, Java is case sensitive and it gives you more flexibility with naming and inferring class names. It uses a C-style syntax.

### 6. What do the following key words do?

static, final, public, private, void, null, package, Class, new

Static means that only one copy of the variable or method would be made across all instances of a class. It could only be created at class level, and you can access it using the classname.variable

Final means that you can not reassign reference and once it has been set, you can not change it.

Public is an access modifier keyword that means that the elements it modifies can be access by any other class

Private is an access modifier and it can be assigned to variables, methods, and inner classes, and a private access modifier is only accessible within the declared class.

Void mean that a method does not have a return type or anything to return

Null means that the current variable does not refer to any object or any array. It can not be assigned to a primitive data type.

Package is used to create a package which is a group of similar type of classes, interfaces and sub package.

Class keyword is used to create a Java class

New is used to create an instance of a class object, it is the only way to invoke the constructor of a class to create a new object of that class.

7. What is primitive type and reference type?

Primitive type stores the actual value of that type variable, reference data type store a address reference of the actual object they refer to.

8. Is parameter passed by value or reference?

Java is always pass by value

9. What is the output: `System.out.println(1 > 0 : "A":"B");`  
Output: "A"

10. How to define constants in java?

Use final keyword to define constant in java

11. What is String? Is it primitive type?

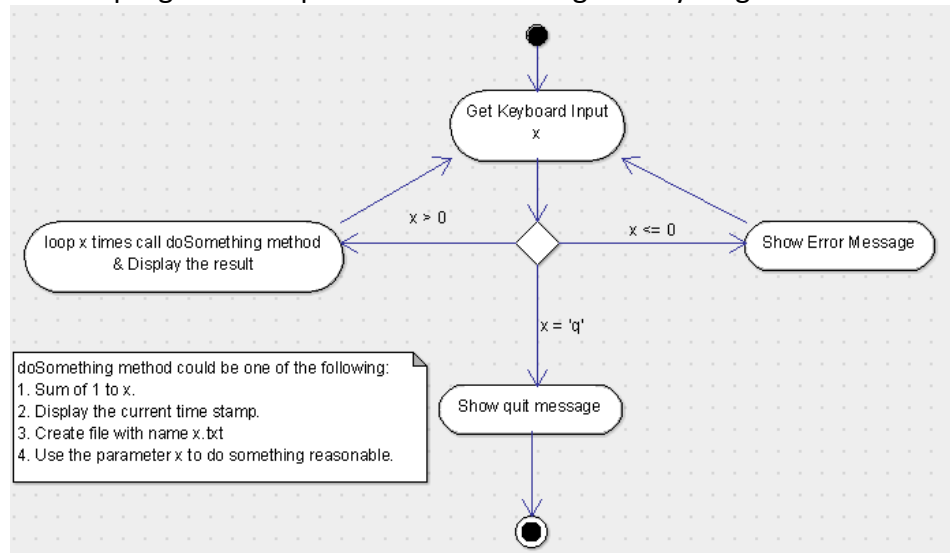
String is a sequence of characters which resembles the normal everyday text we see. It is not a primitive type but it is an object.

12. How to check if a String is representing a number?

The easiest way to use built-in java library to check. For example, to check if a string represents a double, use `Double.parseDouble(String)`. The second is to Pattern class

with a regular expression to match any numeric String representation. Lastly, we can use Apache Common library to check as well.

13. Write a program to implement the following activity diagram



```

1 import java.sql.Timestamp;
2 import java.util.*;
3 public class Practice {
4     public static void main(String[] args) {
5         Scanner s=new Scanner(System.in);
6         Boolean flag=true;
7         while(flag) {
8             System.out.println("Enter a integer value (or q to quit):");
9             String x=s.next();
10            if(x.equals("q")) {
11                flag=false;
12            }
13            try {
14                if(Integer.parseInt(x)<=0) {
15                    System.out.println("Please enter a valid input:");
16                }else if(Integer.parseInt(x)>0) {
17                    int target=Integer.parseInt(x);
18                    for(int i=1;i<=target;i++) {
19                        doSomething();
20                    }
21                }
22            }catch(NumberFormatException e) {
23                System.out.println("input is invalid");
24            }
25        }
26        System.out.println("Bye Bye");
27        s.close();
28    }
29 }
30
31 public static void doSomething() {
32     Timestamp ts=new Timestamp(System.currentTimeMillis());
33     System.out.println(ts);
34 }
35
36 }
37
  
```

14. Write a program to merge two array of int.

```
public static int[] mergeArrays(int[] a,int[] b) {  
    int first=a.length;  
    int second=b.length;  
    int[] res=new int[first+second];  
    System.arraycopy(a, 0, res, 0, first);  
    System.arraycopy(b, 0, res, first, second);  
    return res;  
}
```

15. Write a program to find the second largest number inside an array of int.

```
public static int secondLargest(int[] arr) {  
    Arrays.sort(arr);  
    int secondLargest=arr.length-2;  
    return arr[secondLargest];  
}
```