Assignment-4 Theory

1. What is thread?

A: A thread is a single sequential flow of control within a program. The real excitement surrounding threads is not about a single sequential thread. Rather, it's about the use of multiple threads running at the same time and performing different tasks in a single program.

2. Write the difference between multithreading and multitasking

A: The basic difference between Multitasking and multithreading is that Multitasking allows CPU to perform multiple tasks (program, process, task, threads) simultaneously whereas, Multithreading allows multiple threads of the same process to execute simultaneously.

3. What is Enumeration?

A: Enumeration means a list of named constant. In Java, enumeration defines a class type. An Enumeration can have constructors, methods and instance variables. It is created using enum keyword. Each enumeration constant is public, static and final by default.

4. What is autoboxing?

A: Autoboxing is the automatic conversion that the Java compiler makes between the primitive types and their corresponding object wrapper classes. For example, converting an int to an Integer, a double to a Double, and so on. If the conversion goes the other way, this is called unboxing.

1. What is wrapper class?

A: A Wrapper class is a class which contains the primitive data types (int, char, short, byte, etc). In other words, wrapper classes provide a way to use primitive data types (int, char, short, byte, etc) as objects. These wrapper classes come under java. util package.

6. what is transient modifier?

A: Transient in Java is used to indicate that a field should not be part of the serialization process. The modifier Transient can be applied to member variables of a class to turn off serialization on these member variables. Every field that is marked as transient will not be serialized.

7. What is Generic class?Write the syntax of generic class.

A: Java Generic classes enable programmers to specify, with a single method declaration, a set of related methods, or with a single class declaration, a set of related types, respectively. Generics also provide compile-time type safety that allows programmers to catch invalid types at compile time.

Syntax:

BaseType <Type> obj = new BaseType <Type>()

8. What is stream?

A: A stream is a sequence of objects that supports various methods which can be pipelined to produce the desired result.

9.What is predefined stream?

A: Java provides three predefined stream objects: *in*, *out*, and *err*, defined in the *System* class of the *java.lang* package. The *out* object refers to the standard output stream or console. The *in* object refers to standard input, which is the keyboard.

10.What is multithreading?

A: Multithreading is a Java feature that allows concurrent execution of two or more parts of a program for maximum utilization of CPU. Each part of such program is called a thread. So, threads are light-weight processes within a process.

1. What is the use of toString()?

A: A toString() is an in-built method in Java that returns the value given to it in string format. Hence, any object that this method is applied on, will then be returned as a string object.

12.What is deadlock?

A: Deadlock describes a situation where two or more threads are blocked forever, waiting for each other. Deadlock occurs when multiple threads need the same locks but obtain them in different order. A Java multithreaded program may suffer from the deadlock condition because the synchronized keyword causes the executing thread to block while waiting for the lock, or monitor, associated with the specified object.

13. Write inter thread communication methods.

A: The interthread communication is done with the help of three final methods defined in the Object class: wait(), notify(), and notifyAll(). The wait() method puts the current thread into a sleep state and releases the monitor until some other thread holds the monitor and invokes the notify() or notifyAll() method.

14. Write the difference between Checked and Unchecked exception.

A: There are two types of exceptions: checked exception and unchecked exception. The main difference between checked and unchecked exception is that the checked exceptions are checked at compile-time while unchecked exceptions are checked at run time.

15. What is thread synchronization?

A: Thread synchronization is the concurrent execution of two or more threads that share critical resources. Threads should be synchronized to avoid critical resource use conflicts. Otherwise, conflicts may arise when parallel-running threads attempt to modify a common variable at the same time.