# Assignment 4

# (Theory)

1. What is Thread?

Ans: A thread is an independent path of execution within a program. Many threads can run concurrently within a program. Every thread in Java is created and controlled by the java.lang.Thread class. A Java program can have many threads, and these threads can run concurrently, either asynchronously or synchronously.

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1. What is the difference between multitasking and multithreading?

Ans)

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| Multitasking | Multithreading |
| More than one program gets executed simultaneously | More than one part of the program gets executed simultaneously |
| It is a time-sharing process | It is a time-sharing process |
| Since each program occupies different memory location. Multitasking is a heavy weight process | Here each thread occupies same memory location it is a light weight process |

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1. What is Enumeration?

Ans) Enumeration means a list of named constants. In Java, enumeration defines a class type. An Enumeration can have constructors, methods and instance variables. It is created using Enum keyword.

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1. What is autoboxing?

Ans) Autoboxing is the automatic conversion that the Java compiler makes between the primitive types and their corresponding object wrapper classes.

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1. What is wrapper class?

Ans) The wrapper class in Java provides the mechanism to convert primitive into object and object into primitive.

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1. What is transient modifier?

Ans) The modifier transient in java can be applied to field members of a class to turn off serialization on these field members. Every field marked as transient will not be serialized. You use the transient keyword to indicate to the java virtual machine that the transient variable is not part of the persistent state of an object.

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1. What is generic class? write the syntax of generic?

Ans) A class, interface, or method that operates on a parameterized type is called generic, as in generic class or generic method.

Class Generic<T> {

//Constructor

Generic<T> () {

}

Public static void main (String a [])

{

Generic<Integer> I = new Generic<Integer> ();

}

}

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1. What is stream?

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

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1. What is predefined stream?

Ans) Java. Lang package defines a class called System, which encapsulates several aspects of the runtime environment. System also contains three predefined stream variables in, out, and err. These fields are declared as public, static, and final within system. This means that they can be used by any other part of our program and without reference to a specific system object.

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1. What is multithreading?

Ans) a multithreaded program contains two or more parts that can run concurrently. Each part of such a program is called a thread and each thread defines a separate path of execution.

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1. What is the use of to String ()?

Ans) The toString method is used to return a string representation of an object. If any object is printed, the toString () method is internally invoked by the java compiler. Else, the user implemented or overridden toString () method is called. If you override the to String () method of the Object class, it will return values of the object, hence we are not required to write a lot of code.

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1. What is deadlock?

Ans) Deadlock in java is a part of multithreading. Deadlock can occur in a situation when a thread is waiting for an object lock, that is acquired by another thread and second thread is waiting for an object lock that is acquired by first thread. Since, both threads are waiting for each other to release the lock, the condition is called deadlock.

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1. Write inter thread communication methods?

Ans) Inter thread communication must be used in a synchronized block only.

Wait (): It tells the calling thread to give up the lock and go to sleep until some other thread enters the same monitor and calls notify ().

Notify (): It wakes up one single thread that called wait () on the same object. It should be noted that calling notify () does not actually give up a lock on a resource.

Notifyall (): It wakes up all the threads that called wait () on the same object.

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1. Write the difference between the checked exception and un checked exception?

Ans)

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| --- | --- |
| checked Exception | Unchecked Exception |
| Checked exceptions are also known as compile time exceptions | Unchecked exceptions are also known run time exceptions |
| Checked exception are propagated using throws keyword | Unchecked exception are automatically propagated |
| We can create custom exception by extending java.lang exception class | By extending runtime exception we can create custom exception |

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1. What is thread synchronization?

Ans) Thread Synchronization in java is the capability to control the access of multiple threads to any shared resource.