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Experiment -6

Aim :- Multithreading -
(a) Create thread using Thread class and Runnable Interface.
(b) Synchronized Keyword.

Software Used :- Netbeans IDE.

Theory :-

Multithreading in Java is a 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.

Threads can be created by using two mechanisms :-
1. Extending the Thread class.
2. Implementing the Runnable Interface.

Thread creation by extending the Thread class :-
We create a class that extends the java.lang.Thread class. This class overrides the run() method available in the Thread class. A thread begins its life inside run() method. We create an object of our class & call start() method to start the execution of thread.

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Thread creation by implementing the Runnable Interface :-
We create a new class which implements Java.lang.Runnable interface & override run() method. Then we instantiate a Thread object and call start() method on this object.

Synchronized in Java :-

Multi-threaded programs may often come to a situation where multiple threads try to access the same resources and finally produce erroneous and results.

Thus, Java provides a way of creating threads and synchronizing their task by using synchronized blocks. Synchronized blocks in Java are marked with the synchronized keyword. A synchronized block in Java is synchronized on some object. All synchronized blocks synchronized on the same objects can only have one thread executing inside them at a time. All other threads attempting to enter the synchronized block are blocked until the thread inside the block exits the block.

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