ConcurrentModificationException

This exception is thrown by methods when they discover concurrent modification of object which such modifications are not permitted.

So if the collection is modified structurally (add or delete element or change size of backing array) then this exception is thrown.

Generally when one thread is iterating over the collection & another thread modify the collection structurally then this exception is thrown. Generally, iterators tend to throw an exception under these circumstances. The iterators that do this are called fait-fast iterators, as they fail quickly and cleanly rather than risking non deterministic behavior at undetermined time in future.

Also, there is one more important thing about this exception. It is not always that different thread will only modify the collection structurally. If we are using iterator to traverse the collection and use remove method of collection rather than of iterator then also this exception is thrown.

Note that fail-fast behavior is on best effort basis. It does not guarantee that collection was not modified. Never assume while writing code that ConcurrentModificationException will handle the structural modification.

Below program throws ConcurrentModificationException.

**package** org.collections;

**import** java.util.ArrayList;

**import** java.util.Arrays;

**import** java.util.Iterator;

**public** **class** ArrayListExample {

**private** ArrayList<Integer> list;

**public** ArrayListExample() {

list = **new** ArrayList<Integer>(Arrays.*asList*(1, 2, 3, 4, 5));

}

**public** **void** throwConcurrentModificationException() {

Iterator<Integer> iter = list.iterator();

**while**(iter.hasNext()){

iter.next();

list.remove(2);

}

}

**public** **static** **void** main(String[] args) {

ArrayListExample a=**new** ArrayListExample();

a.throwConcurrentModificationException();

}

}

Exception in thread "main" java.util.ConcurrentModificationException

at java.util.ArrayList$Itr.checkForComodification(Unknown Source)

at java.util.ArrayList$Itr.next(Unknown Source)

at org.collections.ArrayListExample.throwConcurrentModificationException(ArrayListExample.java:19)

at org.collections.ArrayListExample.main(ArrayListExample.java:27)