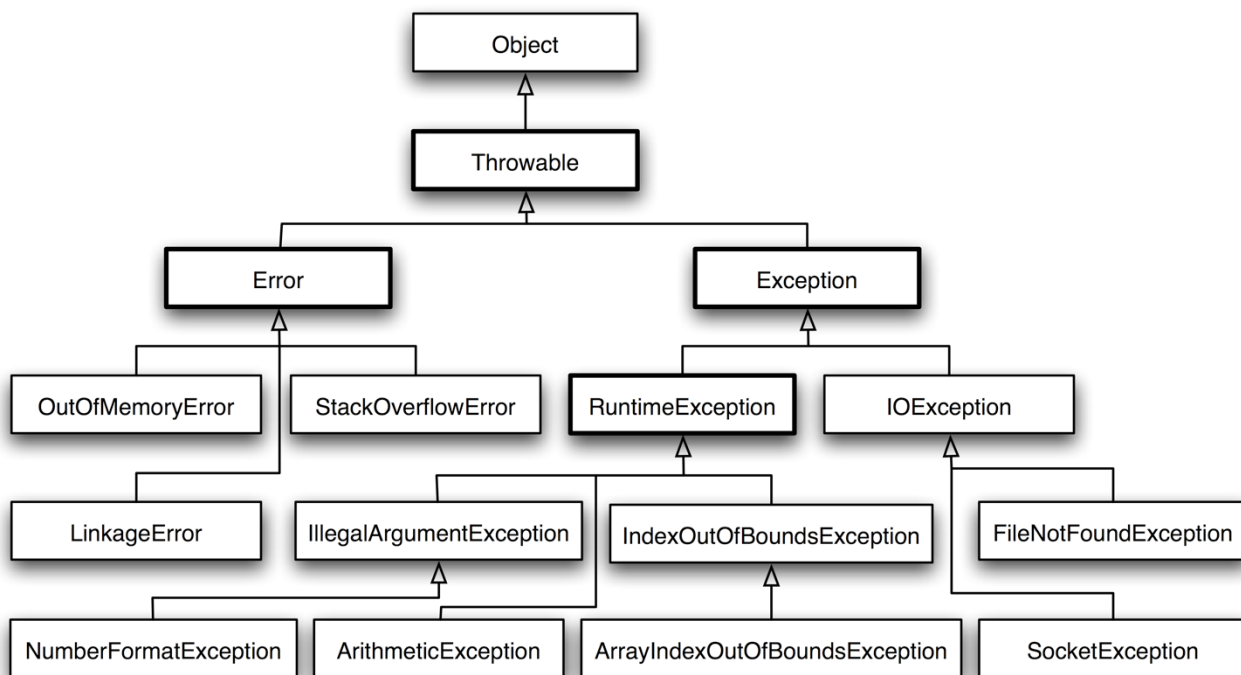# Lab 5

Objectives:
- Learn to build generic queue
- Learn to write an application (seminar registration system) using the queue
- Learn to write and use exception classes

A queue is a data structure of ordered entries that can only be added to one end, removed from the other end. For example, a queue is formed when customers wait in line to pay for their purchases. Operations on a queue occur only at its two ends. This property is called *First-in, first-out (FIFO)*. We are going to implement a Queue using the generic Node class we learned last week.

In the previous labs, we assumed that some inputs are valid, but in the real world, we can't always assume that. How to handle invalid inputs/actions, for example, dequeue an empty queue? Today, we are going to learn a new way to handle them: exceptions.

There are many exception classes in the standard library. They are arranged in a hierarchy:

The QueueEmptyException is a sub class of the RuntimeException.

Note:
1. The image above is downloaded from
   https://www.protechtraining.com/content/java_fundamentals_tutorial-exceptions