Deadlock

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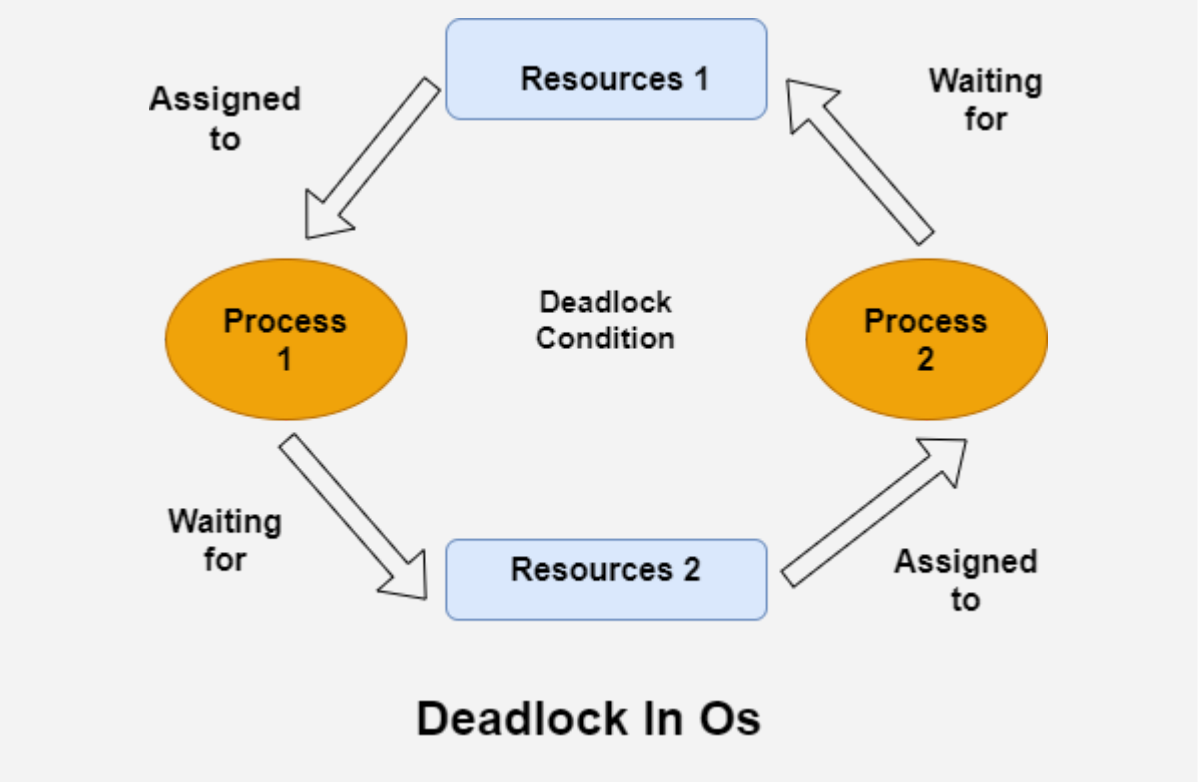
In a multiprogramming system, several processes may compete for a finite number of resources. A process requests for resources, and if the resources are not available at the time then the process enters the waiting state. Sometimes, a process will wait indefinitely because the resources it has requested for are being held by other similar waiting processes.
Deadlock is a state in which two or more processes are waiting indefinitely because the resources they have requested for are being held by one another.

A process is deadlocked if it is waiting for an event which is never going to happen. Deadlocks can occur via system calls, locking, etc.



Example of deadlock

```
Let S and Q be two semaphores initialized to 1
     P0                  P1
wait (S);              wait (Q);
wait (Q):              wait (S);
.
.
.
signal (S);            signal (Q);
signal (Q);            signal (S);
```