

Akka :

Play

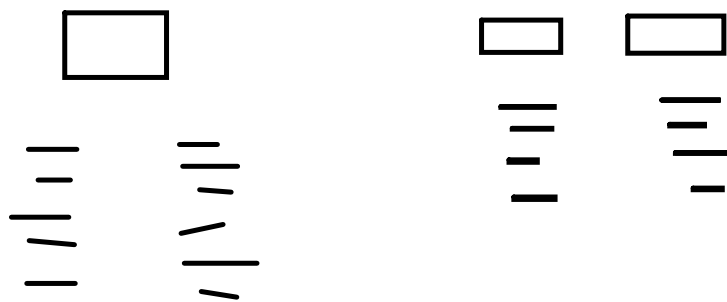
Concurrent Application :

CPU is getting wider : multi-core

Req : Application to sync with CPU arch.

Shared Mutable State

Concurrency V/s parallelism



Concurrency : Multitasking on single core

Parallelism : Multiple Threads running on multicore processor

Asynchronous V/s synchronous

sync : caller waits

async : caller may proceed and called method may inform back using callback or future or message

Blocking V/s Non-Blocking
one thread delaying other

Race Condition

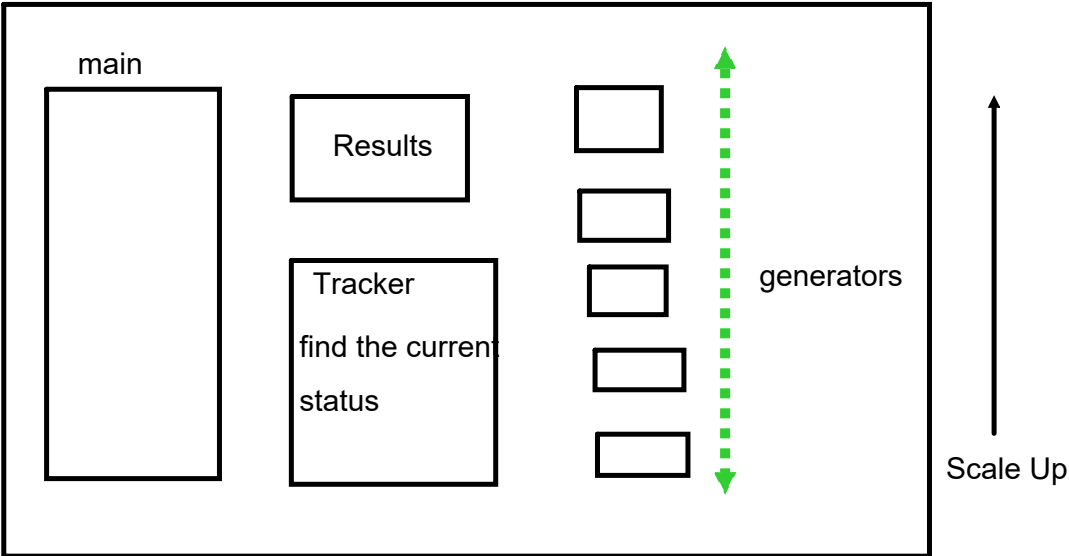
more than one thread try to change state of shared mutable data

USe - Case : Create a sorted set of 20 probable prime big integers

```
BigInteger.nextProbablePrime()
```

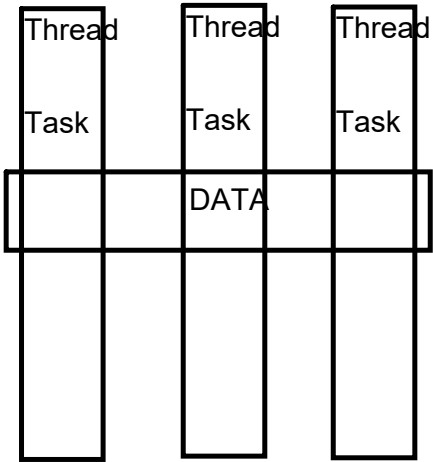
Single Threaded response : 24852 ms.

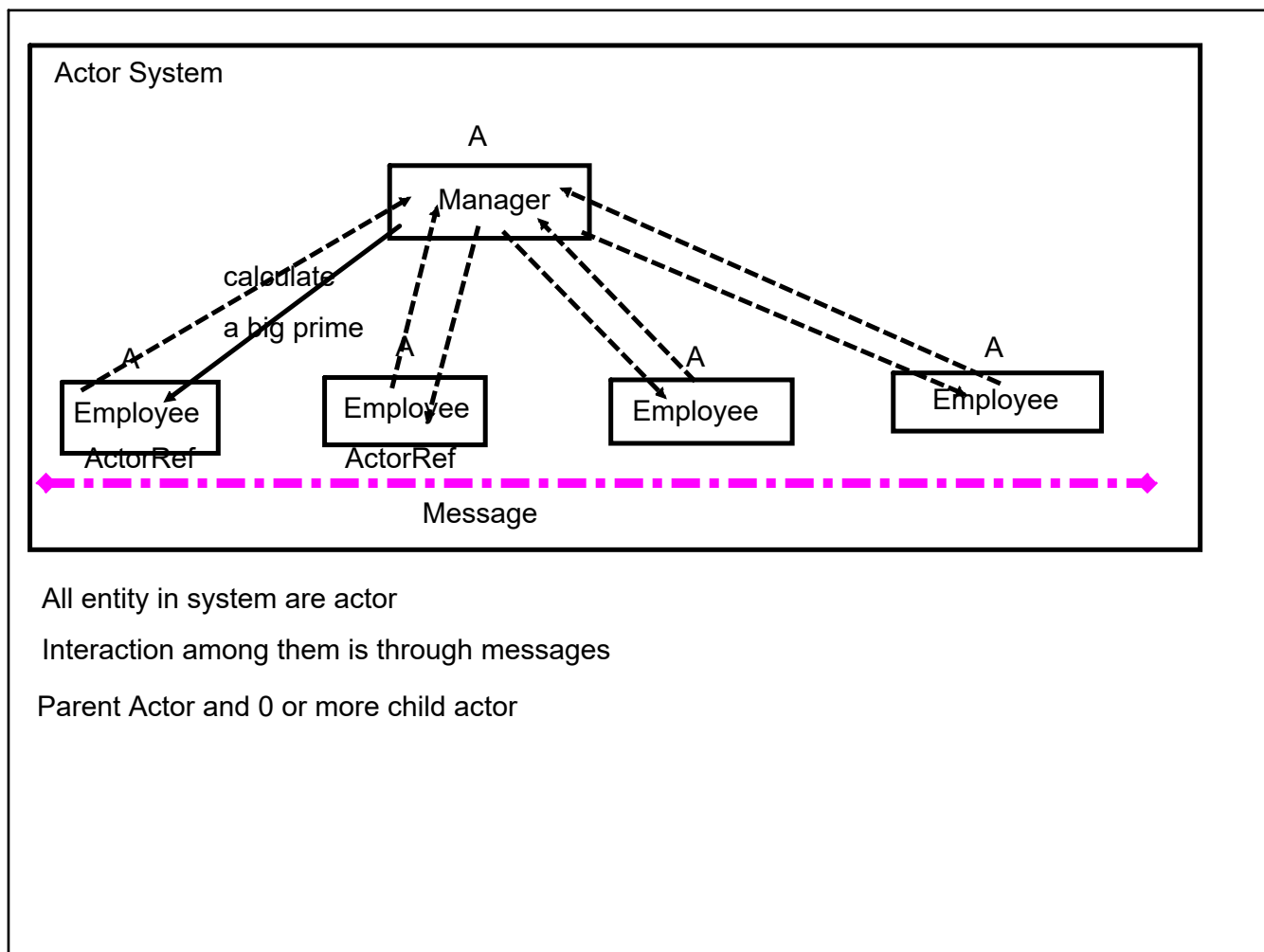
Multi Threaded env : 10957 ms.



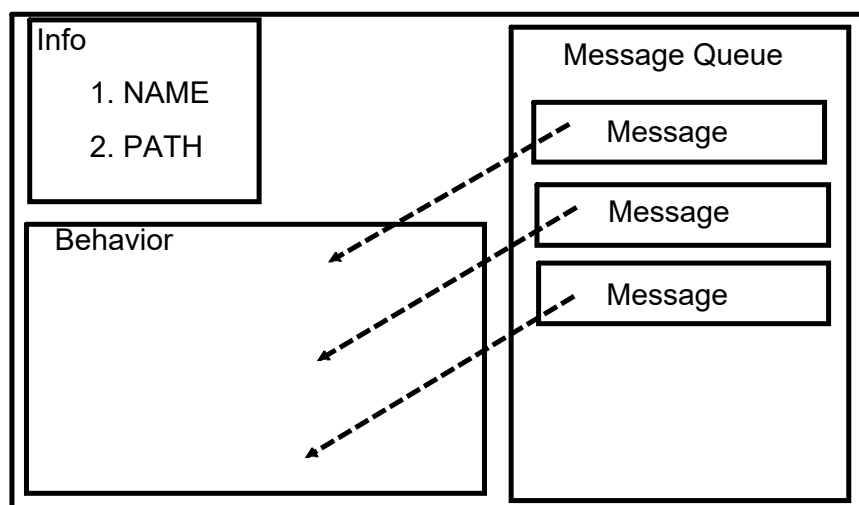
Three primary concerns

1. Data Thread Safe
2. Thread blocking
3. Exception handling





ACTOR



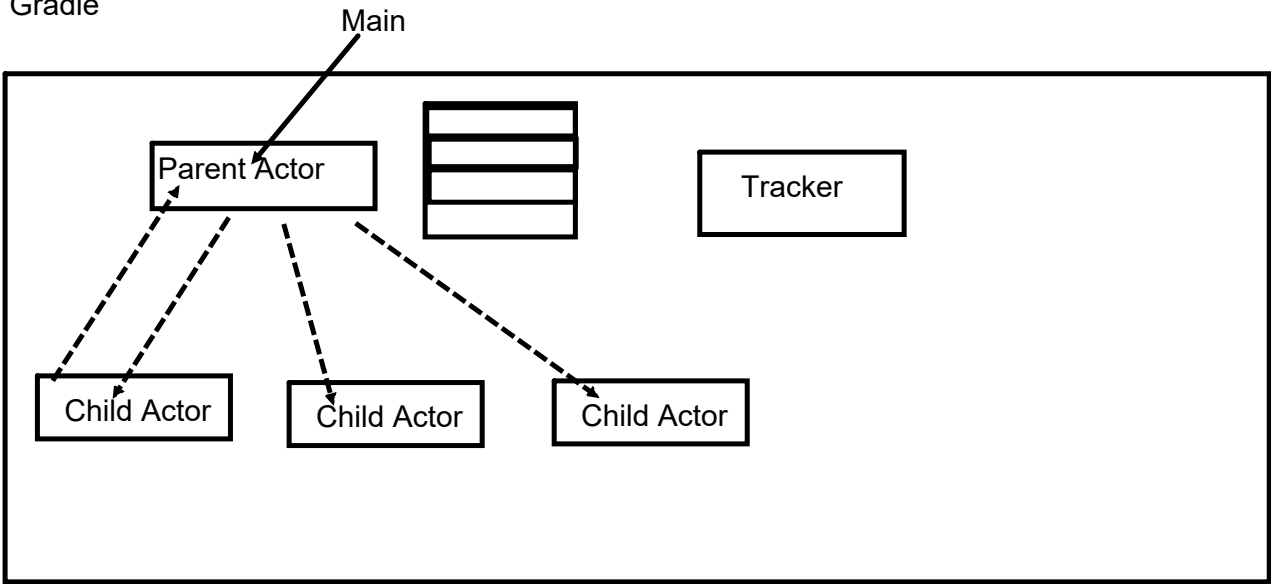
=> Each Actor has its own thread

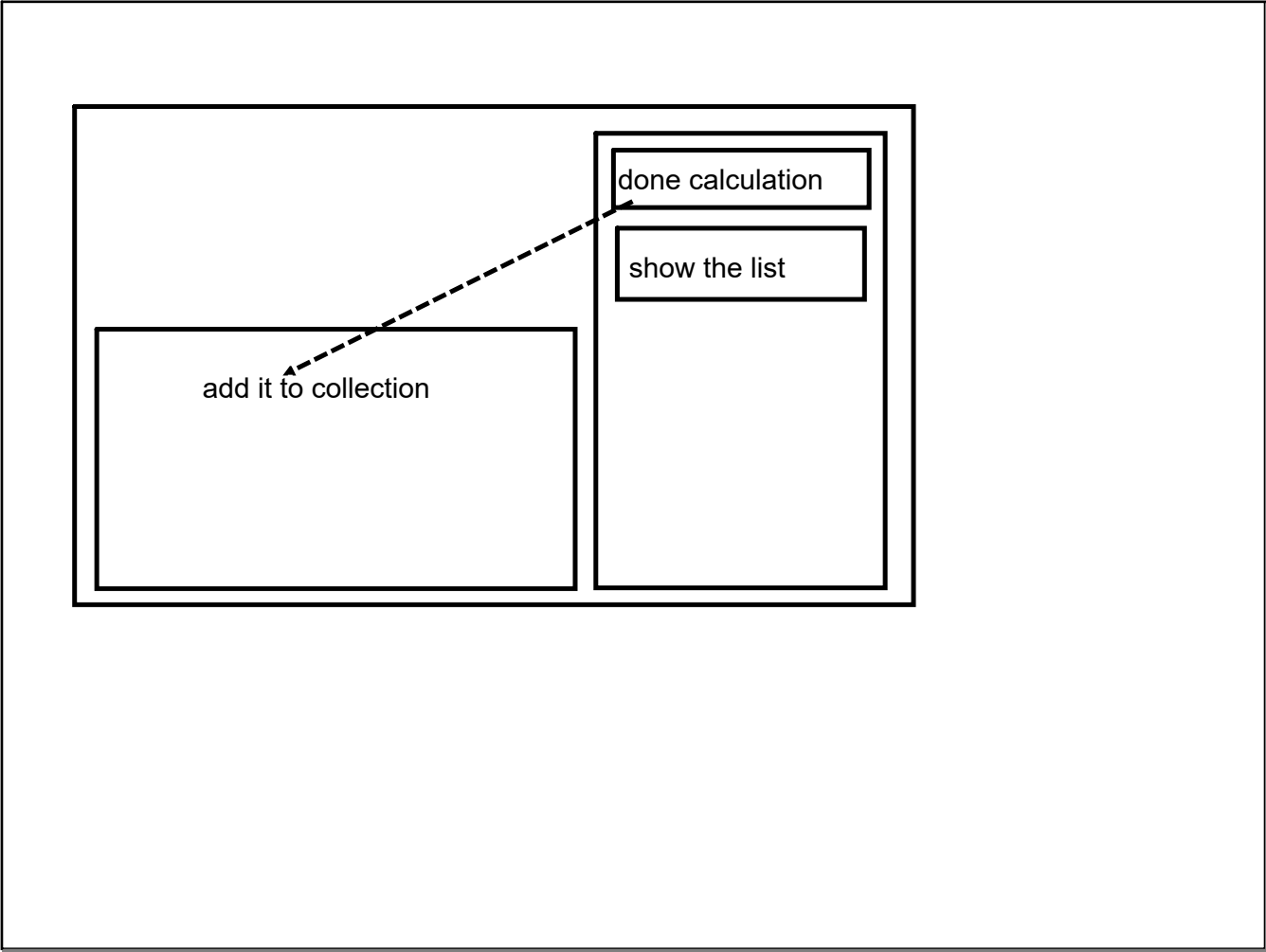
=> Actors won't share data

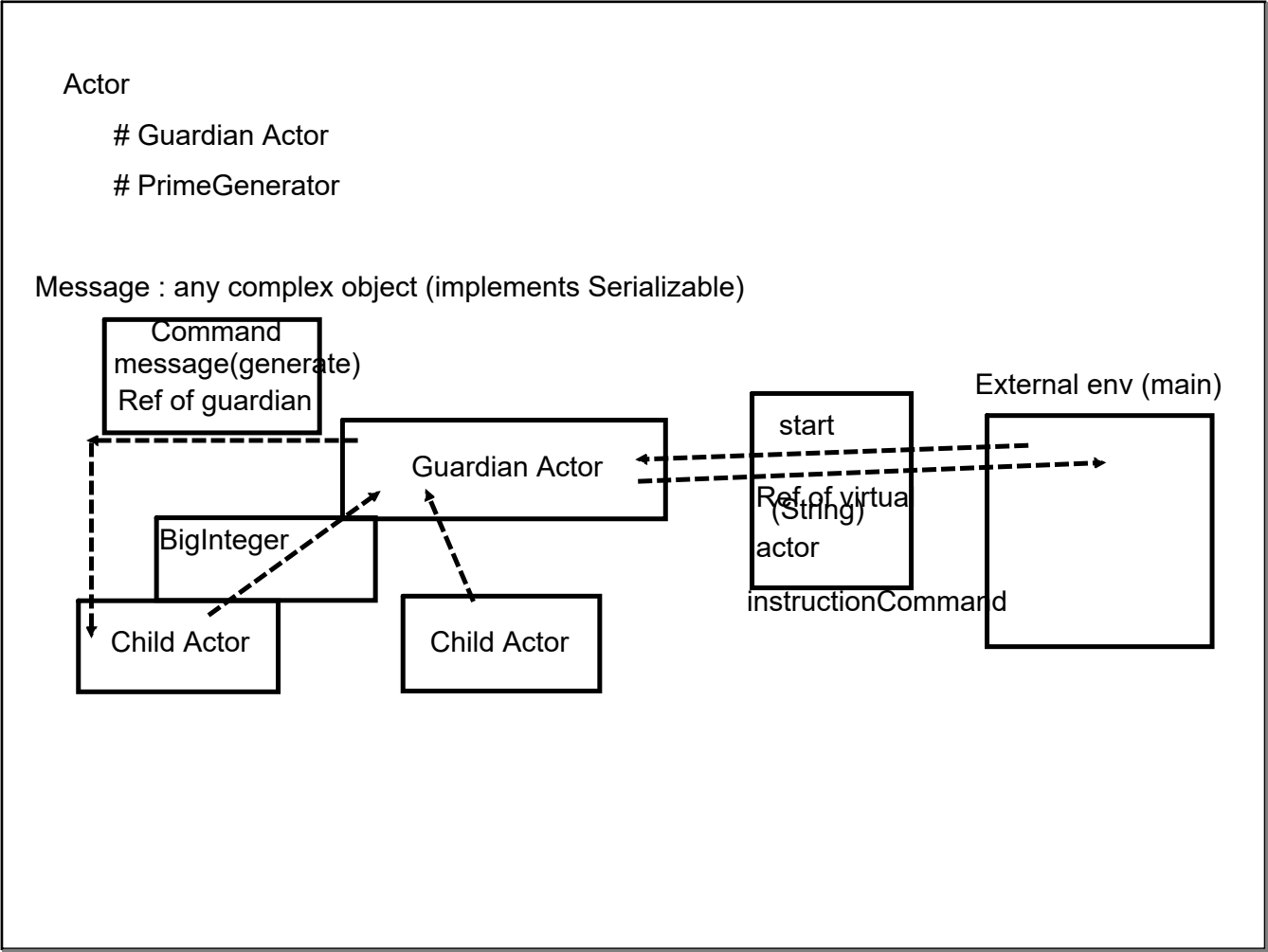
=> Messages must be immutable

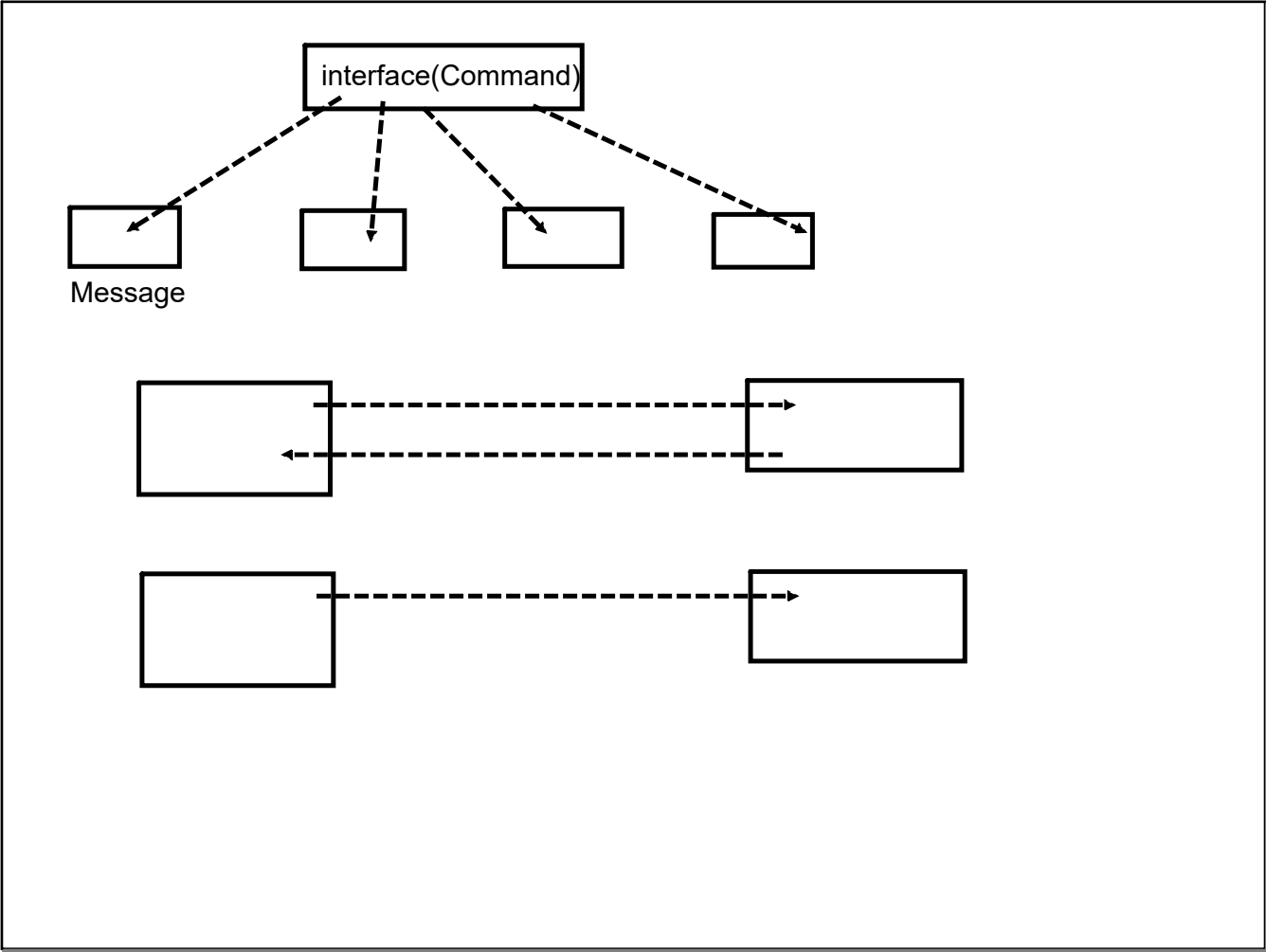
=> Messages are processed one at a time

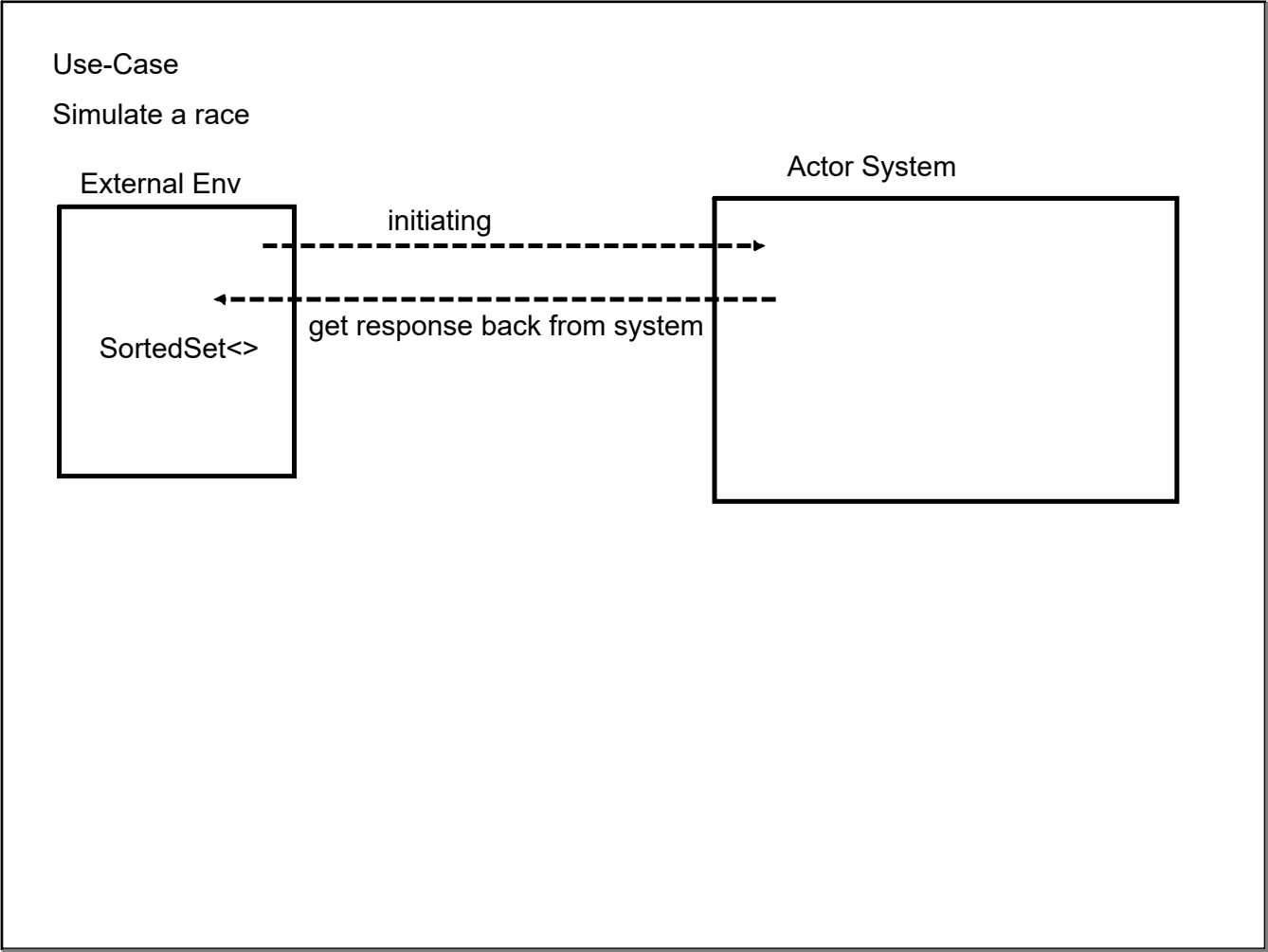
SBT : scala build tool
Maven
Gradle











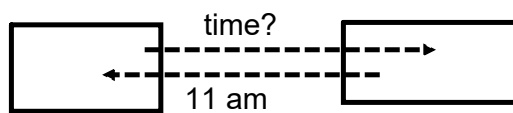
Actor interaction patterns

Fire n Forget

we send a message but does not waits for response

Request-Response (Request-Adapter response : ActorRef)

we send a message and expects the response



must have a response
must be time bounded

ask pattern