

ThreadPool

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Plan

1. Introduction
2. Thread's life in threadPool
3. Managing queued tasks
4. Saturation policy
5. Thread's termination
6. Hooks methods

You will know

- `Executors.newCachedThreadPool()`
- `Executors.newSingleThreadPool()`
- `Executors.newFixedThreadPool()`
- ~~`Executors.newScheduledThreadPool()`~~
- ~~`Executors.newWorkStealingThreadPool()`~~

```
public ThreadPoolExecutor(  
    int corePoolSize,  
    int maximumPoolSize,  
    long keepAliveTime,  
    TimeUnit unit,  
    BlockingQueue<Runnable> workQueue,  
    ThreadFactory threadFactory,  
    RejectedExecutionHandler handler  
)
```

Thread's sweat life in ThreadPool

1. Wrap with Future if submit()
2. Task queue and saturation policy
3. ThreadFactory creates Thread
4. beforeExecute()
5. Running your Thread
6. afterExecute()
7. Terminating/waiting for new task

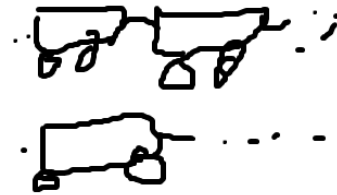


Если ты не голубой, прицепи вагон другой...

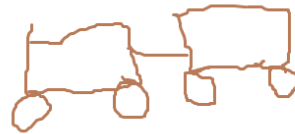
New Tasks



Unbounded Queue



Bounded queue



Synchronous queue



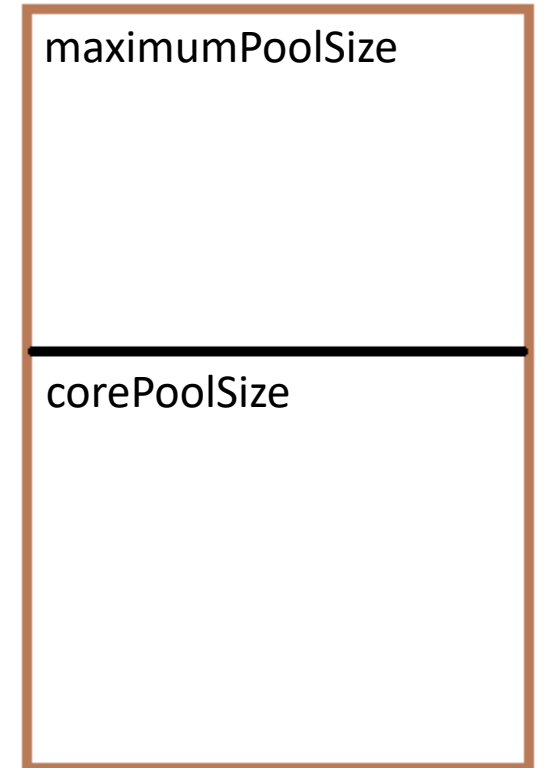
only if queue is full



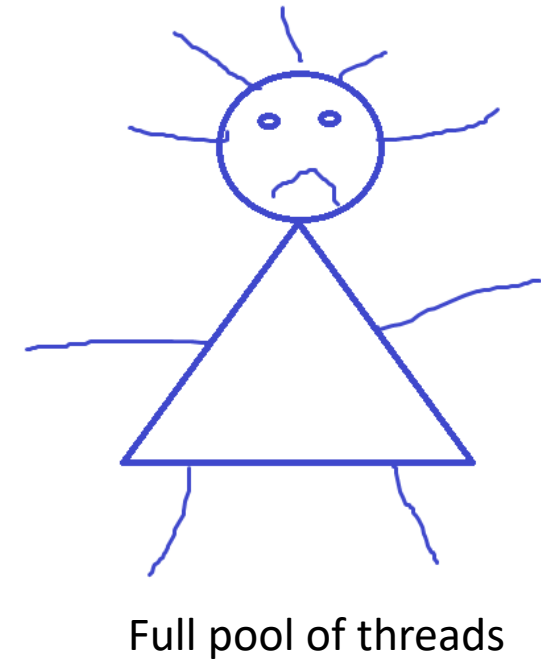
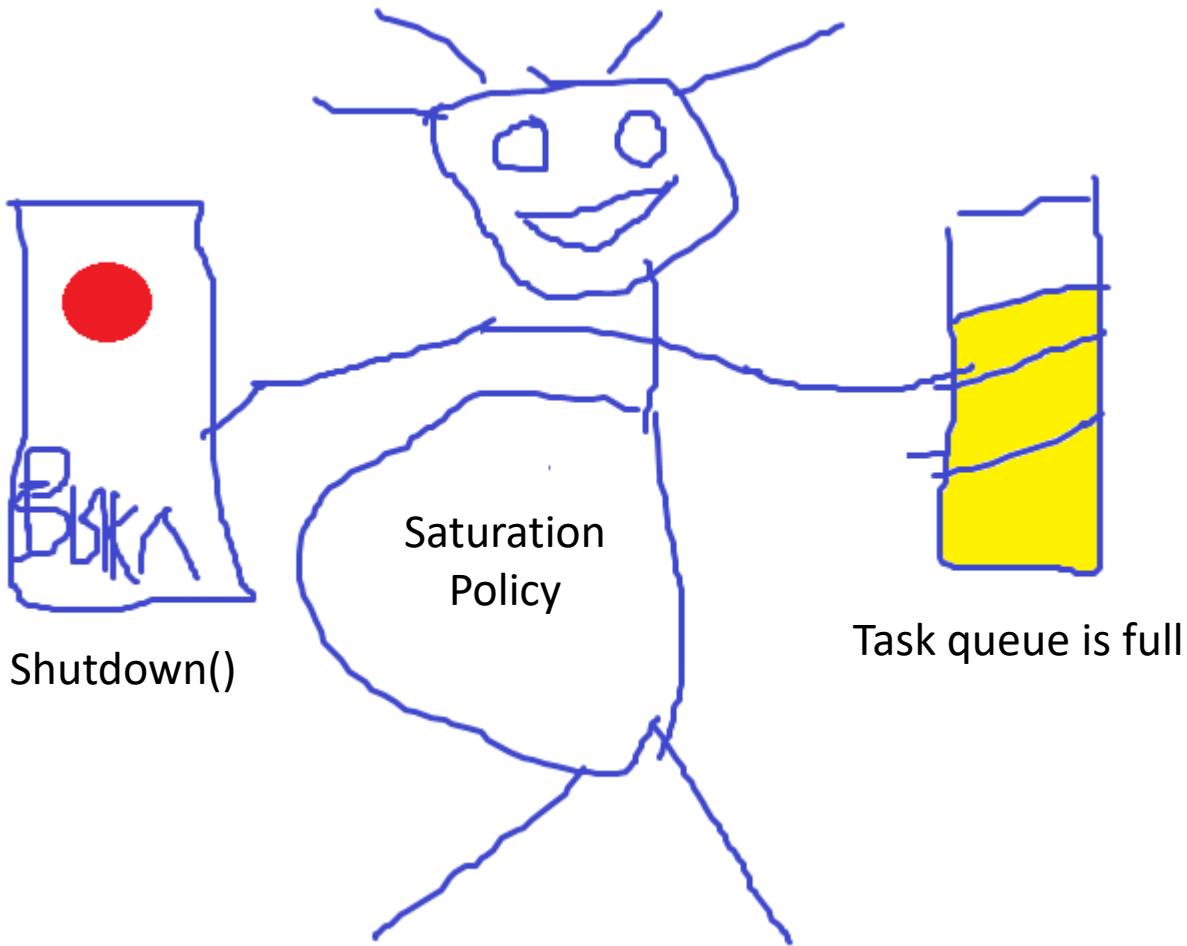
ThreadPool

maximumPoolSize

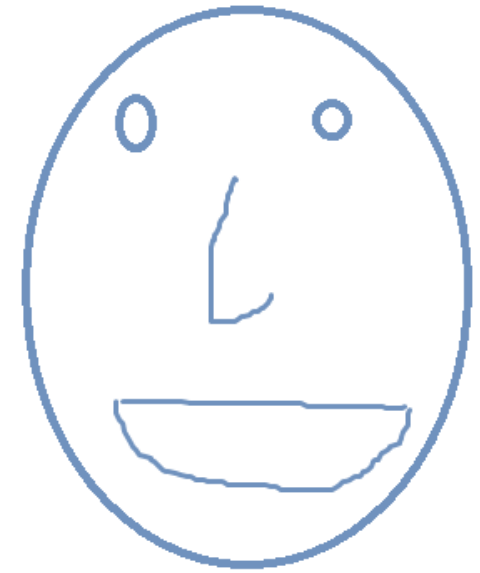
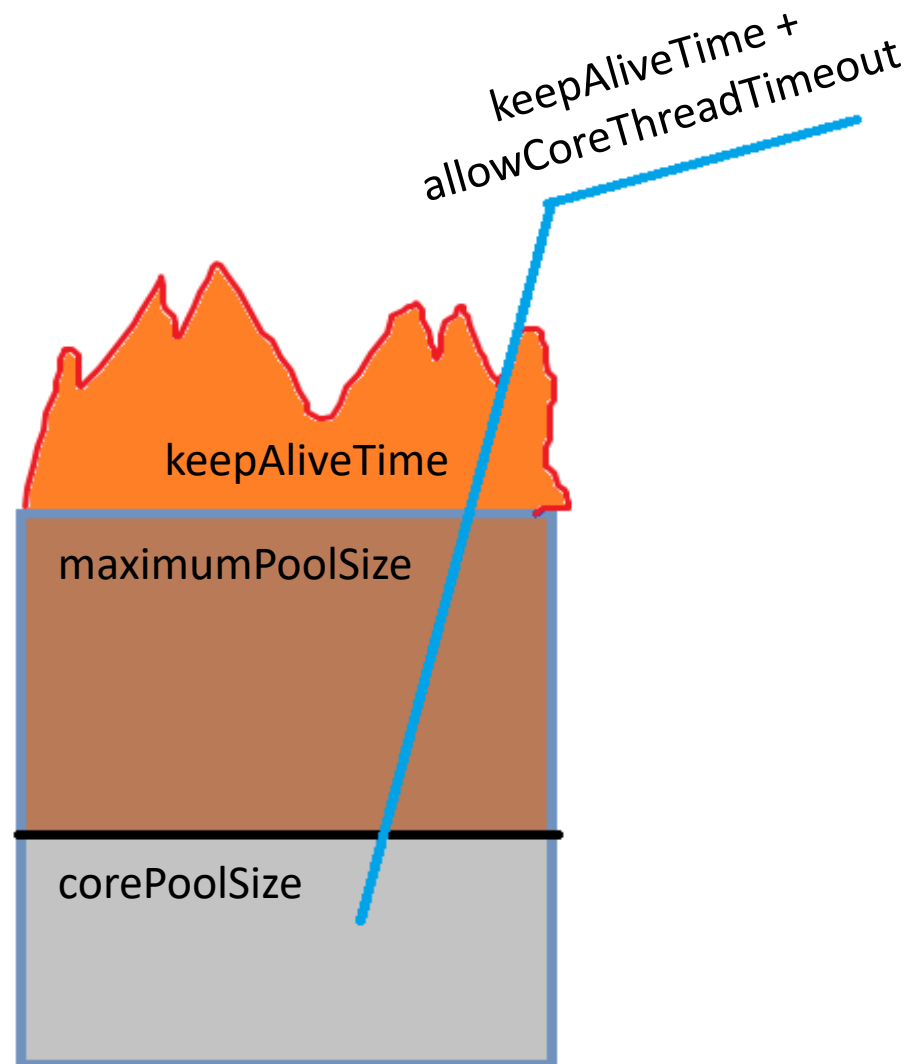
corePoolSize



Saturation Policy



Termination



Finished Threads

Hooks methods

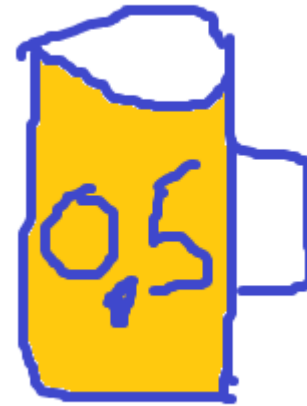
beforeExecute()



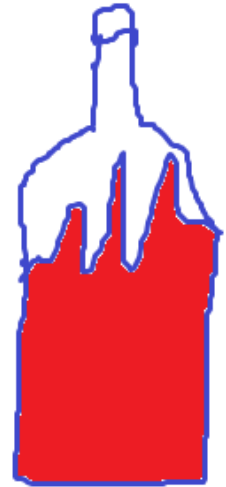
run()



afterExecute()



ShutdownHook



Hooks methods

beforeExecute()



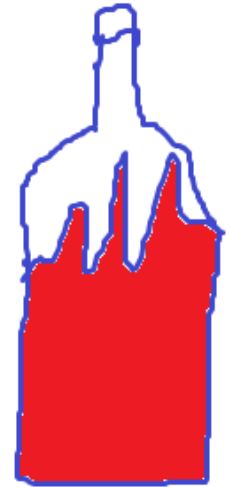
run()



afterExecute()



ShutdownHook



Bad choice

- `awaitTermination << keepAliveTime`
- `corePoolThread << maximumPoolSize` + Unbounded queue
- `DiscardOldestPolicy` + `PriorityQueue`
- Always rely on `afterExecute()`

Bonus - StarvationDeadlock