# Thread Bugs War Stories

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### letter Imming

## What Is A Bug?



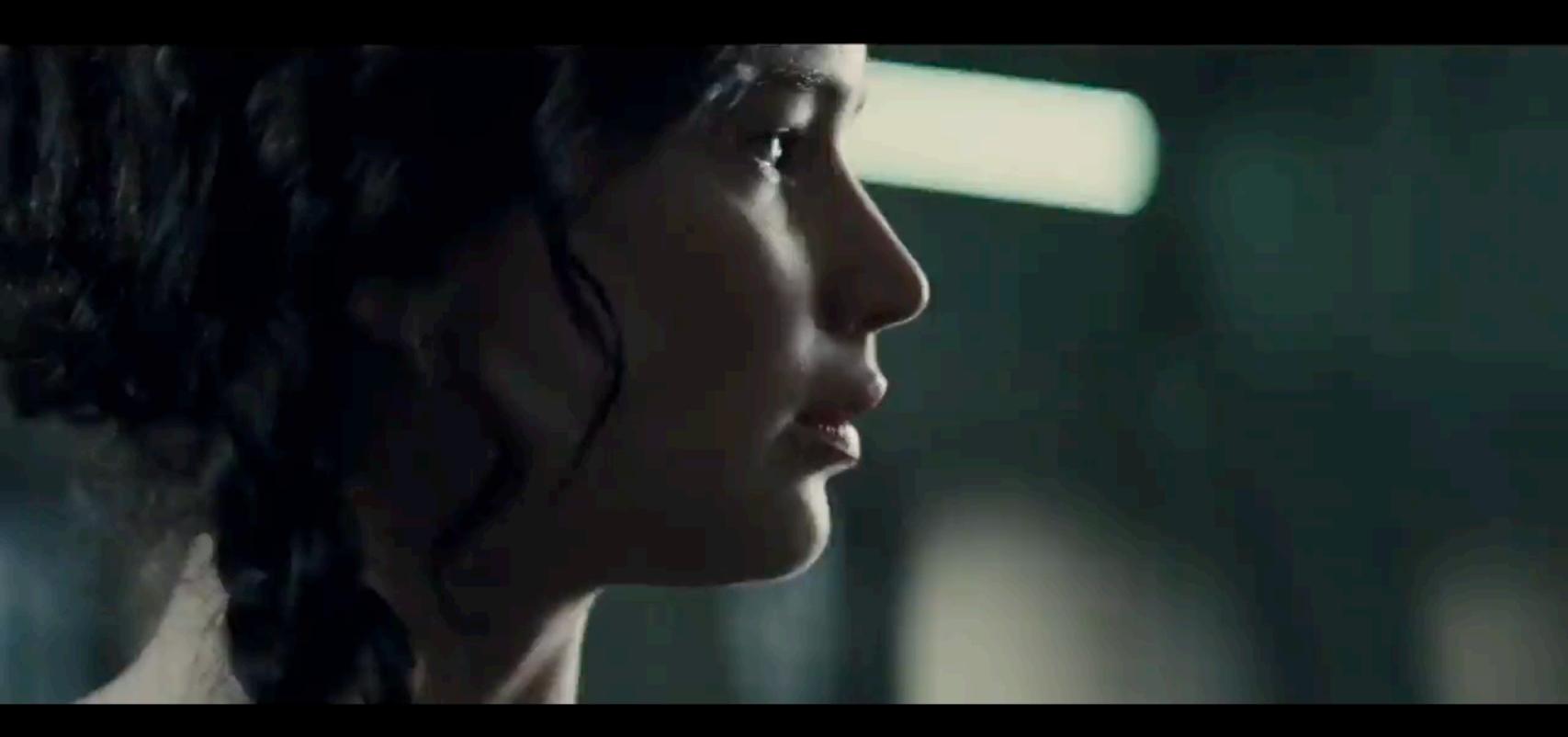


# And What Is A Threading Bug?



## Race Condition





## Deadlock



## Contention



## Thread Leak





## Livelock



## Visibility



# How Do We Spot A Threading Bug?



## #1 Persistence

### Never give up





## Never



## Ever



## Give



# Up



## #2 Luck



## #3 Don't Touch



# #4 Doubt Everything





## Questions?





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