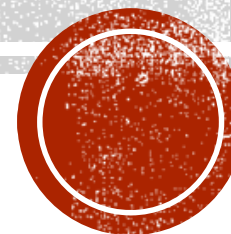


# SPARK TUNGSTEN



# WHAT IS PROJECT TUNGSTEN

- Better Memory Management
- Cache Aware Computations
- Codegeneration



# MEMORY MANAGEMENT

- Problem
  - JVM garbage collection ☹️
  - JVM memory overhead
- How It is solved
  - Unsafe memory 😊
  - Better Memory Management
  - No GC overhead



# CACHE AWARE COMPUTATIONS

- Spark waste lot of time waiting data being read from RAM
- Cache Friendly Data Structures and Algos



# OTHER

- Code Gen - Dynamically generate Bytecode for expressions
- Intermediate data in memory vs CPU registers
- Loop unrolling and SIMD – compiler specific SIMD instructions

