Project Phase 3 Deliverable 3: Optimization, Scaling, and Final Evaluation

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2025 Fall - Algorithms and Data Structures (MSCS-532-M80)

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### **CLI Commands**

* add --task\_id <id> --description <desc> --deadline <date> --urgency <urg>: Add a new task
* find --task\_id <id>: Find a task by ID
* next: View the next highest-priority task
* test: Run the test suite

**Changes from Original Code**

**TaskScheduler\_final.py**

* Removed is\_empty method; emptiness checked via IndexError
* Removed \_push method; merged into add\_task
* Merged \_purge\_stale logic into get\_next\_task and complete\_task
* Removed duplicate task\_id check in add\_task
* Removed urgency validation in add\_task
* Simplified find\_task error message: Task ID {task\_id} not found to Task not found
* Removed class docstrings and comments on priority/time complexity
* Shortened Task.\_\_str\_\_: Task ID: ... to ID: ...

**test\_TaskScheduler.py**

* Replaced demonstrate\_task\_scheduler with single run\_tests function
* Reduced test cases from 5 to 3: add tasks, show next, find ID 1 and complete
* Removed tests for nonexistent task ID and explicit empty list
* Added argparse CLI with add, find, next, test commands
* Added psutil and time.time() for metrics in test and find
* Simplified output: removed "Test Case X" headers, shortened messages
* Added find test in run\_tests and find CLI command