

Class Diagram → Group 8 (Dnyaneshwar, Aryan)  
 \* Shows all system classes and their relationships.

### Task

→ id: String  
 → type: TaskType  
 → priority: int  
 → estimatedRuntime: float  
 → memoryRequired: int  
 → status: TaskStatus  
 → assignedWorker: String  
 → actualDuration: float  
 + setStatus()  
 + Duration()  
 + toJson()

### Worker

→ id: String  
 → status: WorkerStatus  
 → assigns completed Tasks: int  
 → failed Tasks: int  
 → successRate: float  
 → current task: Task  
 + ExecuteTask()  
 + updatedMetrics()  
 + Healthcheck()

### Scheduler

→ TaskClassifier  
 → workerPredictor  
 → durationEstimator  
 → modeVersion: String  
 → classifyTasks()  
 + PredictWorker()  
 + EstimateDuration()  
 + Schedule()

uses

### Task Queue

→ buffer: channel  
 → capacity: int  
 + Push()  
 + Pop()  
 + Size()

updates

### Metrics

→ totalTasks: int  
 → successfulTasks: int  
 → successRate: float  
 → avgExecutionTime: float  
 + UpdateTask()  
 + GetStats()