Optimization Model for Scrum Software Development

Generated Model

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Contents

1   Sets (Entities)

- Project
- Team
- Worker
- Feature
- Skill
- Role
- ProductOwner
- ScrumMaster
- Sprint
- Task
- Stakeholder
- ReleasePlan
- DevelopmentSnapshot

2 Indices

- i: Team index

- j: Sprint index

- k: Feature index

- l: Task index

3 Goals

- G0: Maximize team velocity ($\max \sum_i Velocity_i \cdot avg.\_story\_points_i$)

- G1: Minimize blocker severity ($\min \sum_l Blocker_l \cdot severity_l$)

- G2: Maximize sprint goal achievement ($\max \sum_j SprintGoal_j \cdot achievement\_status_j$)

- G3: Minimize sprint backlog effort ($\min \sum_j SprintBacklog_j \cdot total\_effort_j$)

- G4: Maximize feature priority ($\max \sum_k Feature_k \cdot priority_k$)

4 Conditions

- C0: Ensure sprint goal alignment ($SprintGoal_j \cdot objective\_description_j \geq 0$)

- C1: Require scrum master experience ($ScrumMaster_i \cdot experience_i \geq 1$)

- C2: Ensure product owner availability ($ProductOwner_i \cdot availability_i \geq 1$)

- C3: Limit blocker severity ($Blocker_l \cdot severity_l \leq 3$)

- C4: Prioritize features ($Feature_k \cdot priority_k \geq 1$)

5 Decision Variables

- x_{ij}: Team assignment (0 or 1)

- y_{jl}: Task status (0, 1, or 2)

- z_j: Sprint goal achievement (0 or 1)

- w_l: Blocker resolution (0 or 1)