Optimization Model for Scrum-based Software Development

Generated Model

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Contents

1 Sets (Entities)

- Project
- Team
- Worker
- Feature
- Sprint
- Sprint Goal
- Task
- Blocker
- Release Plan
- Development Snapshot

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 duration ($\min \sum_j Sprint_j \cdot end\_date_j$)

- G4: Maximize feature completion ($\max \sum_k Feature_k \cdot status_k$)

4 Conditions

- C0: Ensure product owner availability ($ProductOwner.availability \geq threshold$)

- C1: Blocker resolution ($Blocker.status = resolved$)

- C2: Sprint goal alignment ($SprintGoal.objective\_description \in productgoals$)

- C3: Team velocity threshold ($\sum_i Velocity_i \cdot avg.\_story\_points_i \geq threshold$)

5 Decision Variables

- DV0: Team assignment to projects ($x_{ij} \in \{0, 1\}$)

- DV1: Worker assignment to teams ($y_{il} \in \{0, 1\}$)

- DV2: Sprint goal selection ($z_j \in \{0, 1\}$)

- DV3: Feature selection for sprints ($w_{jk} \in \{0, 1\}$)