# Optimization Model for Scrum Development Process

Generated Model

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## 1 Sets (Entities)

- Projects
- Teams
- Features
- Blockers
- Sprint Goals
- Tasks
- Stakeholders
- Product Owners
- Sprint Retrospectives
- Release Plans

## 2 Indices

- $p \in P$ (Projects)
- $t \in T$ (Teams)
- $f \in F$ (Features)
- $b \in B$ (Blockers)
- $g \in G$ (Sprint Goals)
- $k \in K$ (Tasks)
- $s \in S$ (Stakeholders)
- $po \in PO$ (Product Owners)
- $r \in R$ (Sprint Retrospectives)
- $rp \in RP$ (Release Plans)

## 3 Goals

- G0: Maximize project budget $\max \sum_{p \in P} budget_p$
- G1: Minimize project duration $\min \sum_{p \in P} project\_end_p$
- G2: Maximize team size $\max \sum_{t \in T} team\_size_t$
- G3: Maximize feature priority $\max \sum_{f \in F} priority_f$
- G4: Minimize blocker severity $\min \sum_{b \in B} severity_b$
- G5: Maximize sprint velocity $\max \sum_{g \in G} avg\_story\_points_g$

## 4 Conditions

- C0: Ensure project status is active $\sum_{p \in P} status_p = 1$
- C1: Ensure team availability $\sum_{t \in T} team\_status_t = 1$
- C2: Ensure feature priority is high $\sum_{f \in F} priority_f \geq 2$
- C3: Ensure blocker resolution $\sum_{b \in B} status_b = 1$
- C4: Ensure sprint goal achievement $\sum_{g \in G} achievement\_status_g = 1$

## 5 Decision Variables

- D0: Project start date $x_p \in \{0, 1\}$
- D1: Team assignment $y_t \in \{0, 1\}$
- D2: Feature priority $z_f \in \{1, 2, 3\}$
- D3: Blocker resolution date $w_b \in \{0, 1\}$
- D4: Sprint goal status $v_g \in \{0, 1\}$