SmartTeach AI - Planning Logic

Project Information

- **Date**: January 15, 2025
- **Team ID**: LTVIP2025TMID24661
- **Project Name**: SmartTeach AI
- **Team Leader**: Sk. Mohammad Hussain
- **Team Members**: Sd Naseer, Regula Dinesh, Seelam Santhosh

Agile Terminology & Concepts

Sprint

A **Sprint** is a **fixed period or duration** in which a team works to complete a set of tasks.

For SmartTeach AI Project:

- Each sprint duration: **5 days**
- Total sprints: **6 sprints**
- Total project duration: **30 days (6 weeks)**

Epic

An **Epic** is a **big task or project** that is too large to complete in one sprint. It is broken down into **smaller tasks (stories)** that can be completed over multiple sprints.

SmartTeach AI Epics:

1. **User Authentication System** - Spans Sprint 1
2. **AI-Powered Chat Assistant** - Spans Sprint 2
3. **Dynamic Quiz Generation** - Spans Sprint 3
4. **File Processing System** - Spans Sprint 2
5. **Progress Tracking Dashboard** - Spans Sprint 4
6. **Testing & Deployment** - Spans Sprint 5-6

Story

A **Story** is a **small task**. It is part of an **Epic**.

Example Stories from SmartTeach AI:

- USN-1: User registration functionality
- USN-6: AI-powered question answering
- USN-10: Quiz generation system

Story Point

A **Story Point** is a number that represents how much effort a story takes to complete (usually in form of Fibonacci series).

SmartTeach AI Story Point Scale:

- **1** - Very Easy task (1-2 hours)

- **2** - Easy task (2-4 hours)

- **3** - Moderate task (4-8 hours)

- **5** - Difficult task (1-2 days)

- **8** - Complex task (2-3 days)

Sprint Breakdown Analysis

Sprint 1: Foundation Setup (5 Days)

Epic: User Authentication & Project Setup

Task	Story Points	Complexity
User Registration System	3	Moderate
User Login System	2	Easy
User Logout System	1	Very Easy
IBM WatsonX API Integration	5	Difficult
Streamlit Framework Setup	3	Moderate

Sprint 1 Total = 14 Story Points

Sprint 2: Core AI Features (5 Days)

Epic: AI Chat Assistant & File Processing

Task	Story Points	Complexity
AI-Powered Chat System	8	Complex
Document Upload for Context	5	Difficult
PDF Text Extraction	3	Moderate
OCR Image Processing	5	Difficult

Sprint 2 Total = 21 Story Points

Sprint 3: Quiz System (5 Days)

Epic: Dynamic Quiz Generation

Task	Story Points	Complexity
Quiz Generation Engine	8	Complex
Difficulty Level Selection	3	Moderate
Quiz Scoring System	5	Difficult
Responsive UI Development	5	Difficult

Sprint 3 Total = 21 Story Points

Sprint 4: Analytics & Dashboard (5 Days)

Epic: Progress Tracking Dashboard

Task	Story Points	Complexity
Performance Dashboard	8	Complex
Progress Visualization	5	Difficult
Resource Finder	3	Moderate

Sprint 4 Total = 16 Story Points

Sprint 5: Testing & Security (5 Days)

Epic: Quality Assurance

Task	Story Points	Complexity
Comprehensive Testing	8	Complex
Security Implementation	5	Difficult
Performance Optimization	3	Moderate

Sprint 5 Total = 16 Story Points

Sprint 6: Deployment (5 Days)

Epic: Production Deployment

Task	Story Points	Complexity
Streamlit Cloud Deployment	5	Difficult
User Documentation	3	Moderate
Final Testing & Bug Fixes	5	Difficult

Sprint 6 Total = 13 Story Points

Velocity Calculation

Formula:

Velocity = Total Story Points Completed ÷ Number of Sprints

SmartTeach AI Velocity Calculation:

Total Story Points:

- Sprint 1: 14 points

- Sprint 2: 21 points

- Sprint 3: 21 points

- Sprint 4: 16 points

- Sprint 5: 16 points

- Sprint 6: 13 points

Total Story Points = 14 + 21 + 21 + 16 + 16 + 13 = 101 points

Number of Sprints = 6

Velocity = 101 ÷ 6 = 16.83 Story Points per Sprint

Daily Velocity:

Daily Velocity = Sprint Velocity ÷ Sprint Duration Daily Velocity = 16.83 ÷ 5 = 3.37 Story Points per Day

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Team Velocity Analysis

SmartTeach AI Team's Velocity: 16.83 Story Points per Sprint

This means:

- The team can complete approximately **17 story points** worth of work in each 5-day sprint

- On average, the team completes **3.37 story points** of work per day

- For planning future sprints, allocate **16-17 story points** to maintain sustainable pace

Velocity Trends:

- **Sprint 1:** 14 points (Ramp-up phase)

- **Sprint 2-3:** 21 points (Peak productivity)

- **Sprint 4-5:** 16 points (Consistent delivery)

- **Sprint 6:** 13 points (Final polish & deployment)

Capacity Planning:

With 4 team members and 5-day sprints:

- **Individual Daily Capacity:** $3.37 \div 4 = 0.84$ story points per person per day

- **Individual Sprint Capacity:** $16.83 \div 4 = 4.2$ story points per person per sprint

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Story Point Distribution Analysis

By Complexity Level:

- **Complex Tasks (8 points):** 4 stories = 32 points (31.7%)

- **Difficult Tasks (5 points):** 8 stories = 40 points (39.6%)

- **Moderate Tasks (3 points):** 7 stories = 21 points (20.8%)

- **Easy Tasks (2 points):** 2 stories = 4 points (4.0%)

- **Very Easy Tasks (1 point):** 1 story = 1 point (1.0%)

Key Insights:

- **71.3%** of work consists of difficult to complex tasks

- Heavy focus on **AI integration** and **complex feature development**

- Balanced approach with simpler tasks for sprint completion

- Realistic estimation accounting for **learning curve** with new technologies

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Sprint Planning Recommendations

For Future Projects:

1. **Maintain 16-17 story points** per sprint for this team composition

2. **Balance complexity** - mix of easy and difficult tasks per sprint

3. **Account for dependencies** - AI integration affects multiple stories

4. **Include buffer time** - 10% extra for unexpected issues

5. **Regular velocity review** - adjust estimates based on actual completion

Risk Factors Affecting Velocity:

- **API Dependencies:** IBM WatsonX availability

- **Learning Curve:** New technology adoption

- **Integration Complexity:** Multiple system components