Sprint 4 Plan

Product Name: LEMMA
Team Name: LEMMA
Sprint Completion Date: June 2, 2025
Revision Number: 1.0
Revision Date: May 19, 2025

Goal

Enhance the application's functionality by implementing idea synthesis capabilities, upgrading the knowledge graph visualization to 3D, adding automatic extraction of key information from webpages in the Chrome extension, implementing UI customization options, and ensuring basic offline functionality.

Task Listing, Organized by User Story

US4.1 - As a user, I want the system to help me synthesize ideas across my notes so that I can generate new insights.

1. Research and select appropriate models for text synthesis (6 hours)
2. Design architecture for ideas cross-referencing (5 hours)
3. Implement semantic clustering algorithm for related concepts (7 hours)
4. Develop synthesis generation pipeline (8 hours)
5. Create UI for displaying synthesized insights (6 hours)
6. Implement user feedback mechanism for generated insights (4 hours)
7. Add citation functionality to trace insights back to source notes (4 hours)
8. Test synthesis system with various note collections (3 hours)

Total for user story 4.1: 43 hours

US4.2 - As a user, I want the Chrome extension to automatically extract key information from webpages so that capturing content requires less manual effort.

1. Research and implement content importance algorithm (6 hours)
2. Develop HTML structure analysis for identifying key content sections (5 hours)
3. Create system for extracting main text, headings, and important quotes (6 hours)
4. Implement image relevance assessment and capture (5 hours)
5. Add options for extraction granularity (summary vs. detailed) (4 hours)

6. Design UI for reviewing and editing extracted content (5 hours)
7. Test extraction across various website types and structures (3 hours)
Total for user story 4.3: 34 hours

US4.3 - As a user, I want to customize the appearance of the application so that it matches my preferences.

1. Design theme system architecture (3 hours)
2. Implement light and dark mode themes (5 hours)
3. Add color accent customization options (4 hours)
4. Create font style and size adjustment capabilities (3 hours)
5. Develop layout customization options (4 hours)
6. Implement theme persistence across sessions (2 hours)
7. Test themes across all application components (3 hours)
Total for user story 4.4: 24 hours

Team Roles

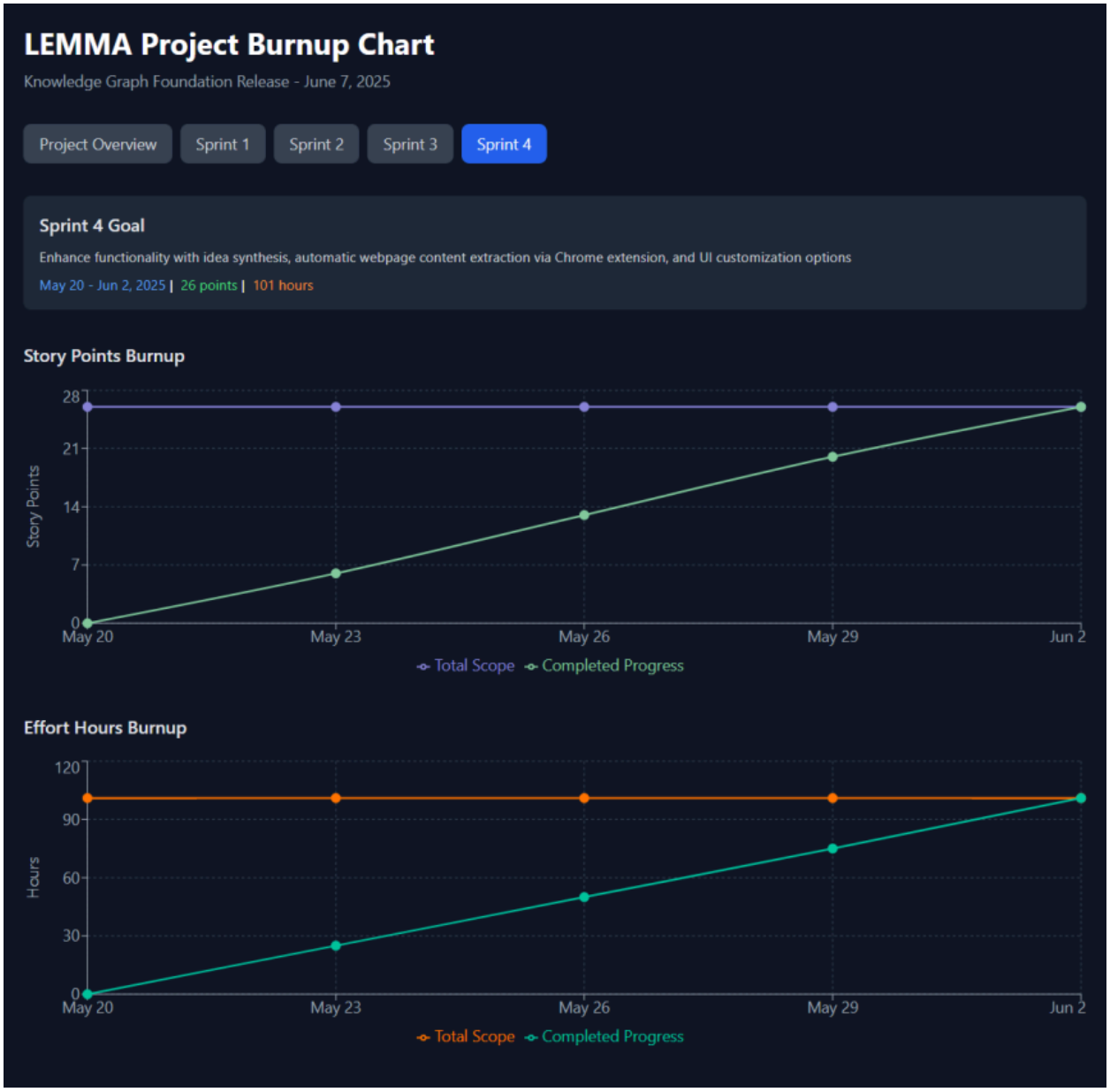
- Project Lead (Cory): Developer (assisting all areas)
- Team Member 1 (Howard): Scrum Master, Frontend Developer (UI/UX, visualization)
- Team Member 2 (Jiancheng): Database/Backend Developer (synthesis, data processing)
- Team Member 3 (Mason): Chrome Extension Developer (extraction features)

Initial Task Assignment

- Project Lead: US4.1, Research and select appropriate models for text synthesis
- Frontend Developer: US4.2, Research and select appropriate 3D visualization library
- Database/Backend Developer: US4.1, Implement semantic clustering algorithm for related concepts
- Chrome Extension Developer: US4.3, Research and implement content importance algorithm

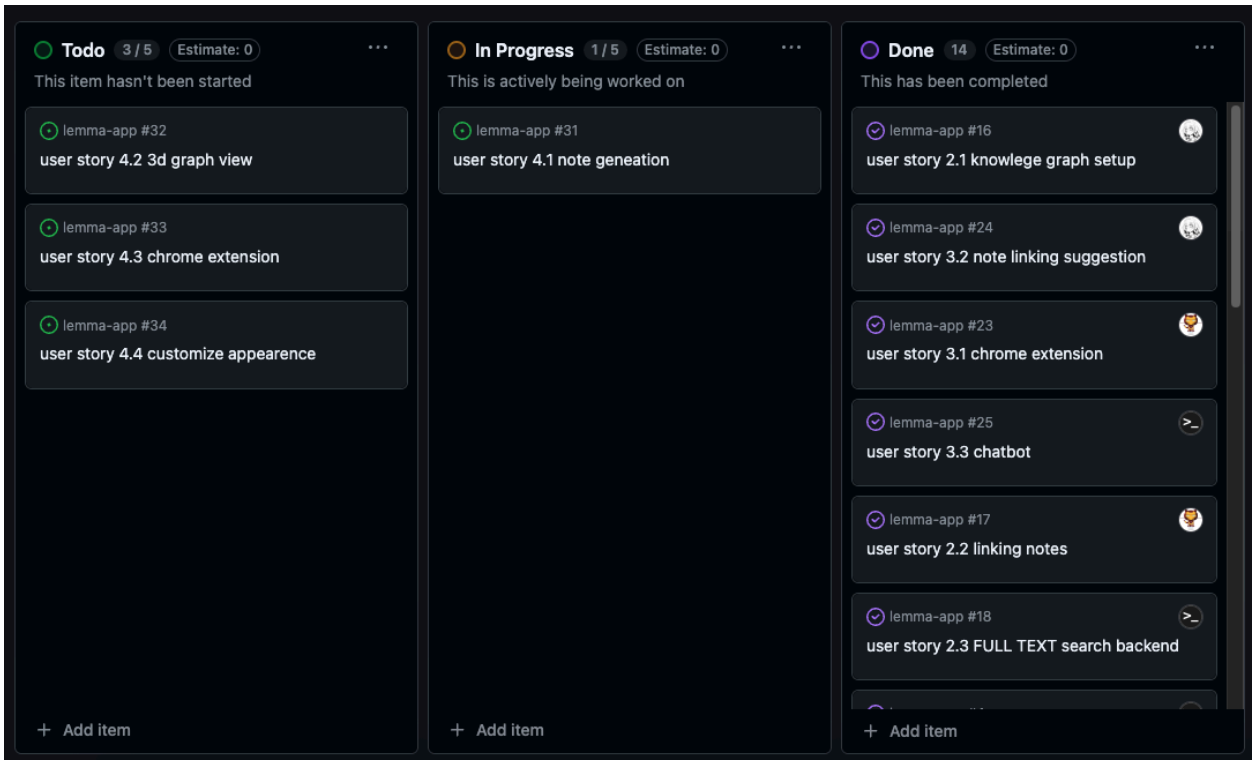
Initial Burnup Chart

[A physical burnup chart is created and located in the lab, labeled "Sprint 4 - LEMMA"]



Initial Scrum Board

[A physical scrum board is set up in the lab with four columns: User Stories, Tasks Not Started, Tasks in Progress, and Tasks Completed. All tasks are currently in the "Tasks Not Started" column, except for the initial assignments which are in "Tasks in Progress"]



Scrum Times

- Monday, Wednesday, Friday at 10:00 AM - Daily standup (TA/tutor will join Friday meeting during lab time)
- Additional ad-hoc scrum meetings will be scheduled as needed

Risk Assessment

1. Complexity of idea synthesis algorithms - Mitigation: Begin with simple patterns and iteratively improve sophistication
2. Performance issues with 3D visualization - Mitigation: Implement level-of-detail optimizations and test with large graphs
3. Webpage extraction accuracy across diverse sites - Mitigation: Focus on common patterns first, then expand to handle edge cases

4. Theme consistency across application components - Mitigation: Develop comprehensive CSS variable system for unified styling
5. Data synchronization when transitioning between online/offline - Mitigation: Implement robust state management and conflict resolution