Project: The Calculator Mod

Project Report: Individual Contributions

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CSCI441: Software Engineering

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Project website: https://spaces.w3schools.com/space/the-calculator-mod/editor

Team D Group Members:

Alexander Redinger

Thol Ucca Kool

Oziel Martinez

Uong SovanDara

Merging the Contributions from Individual Team Members

All members contributed substantial portions across documentation, diagrams, and prototype implementation.

The merging process required consolidating multiple document formats (Word, PDF, Google Docs) into a single consistent report. The main challenge was aligning terminology across sections (e.g., "Faction Builder," "Calculator," "Integration System") to maintain conceptual consistency. Formatting differences between exported diagrams and text sections were resolved through unified font and style templates.

Issues Encountered and Resolutions

- **Inconsistent Terminology:** Some early drafts referred to "Builder" vs. "Calculator." This was standardized to *The Calculator Mod* throughout.
- **Integration of UML Diagrams:** Diagrams were contributed using various tools (Lucidchart, Draw.io). Standardized exports (PNG, same aspect ratio) were used for alignment.
- **Version Control Conflicts:** Edits made offline by multiple members were merged using GitHub's comparison feature, avoiding overwriting progress.
- **Formatting Loss:** When converting Google Docs to PDF, page breaks shifted; resolved by exporting as PDF directly from Docs with fixed section numbering.

The final merging process was coordinated by **Uong SovanDara**, ensuring all sections followed the report structure, numbering, and style guide set in previous reports.

Project Coordination and Progress Report

Project Progress Overview

The Calculator Mod web application has reached a major milestone with the completion of the main website and the successful execution of the first live demo.
 All major UI components, calculation systems, and export workflows are now functional. The team's focus has transitioned from development to optimization, testing, and documentation in preparation for final delivery.

Current Project Status:

Category	Status	Notes
Website Development (UI/UX)	✅ Completed	The full web interface has been developed and hosted on W3Schools Spaces. It includes the Faction Builder interface, accessibility compliance, and dynamic UI components.
Balance Calculation System (JavaScript)	✅ Completed	All balancing formulas have been converted from Google Sheets to JavaScript, improving performance and flexibility. Calculations now update in real time on the website.
Backend Integration	✅ Completed	Export and validation features are functional, linking the frontend to backend data scripts. Integration with mod packaging workflows has been tested successfully.
Testing and Debugging	⚙️ In Progress	Unit and integration testing are ongoing. Minor refinements are being made to

		calculation accuracy and error messaging.
Documentation and Report Finalization	⚙️ In Progress	Final report edits, UML updates, and formatting are underway. Team coordination continues to ensure consistency across all documentation sections.
Demo Presentation	✅ Completed	The first demo was successfully conducted, showing a working prototype that allows players to create, calculate, and export custom factions. Feedback was positive, with planned improvements to the UI responsiveness and export speed.

Management Activities and Coordination

- **Weekly Meetings:** The team meets twice a week on Discord to discuss progress, assign new tasks, and track issues.

- **Version Control:** GitHub remains the central repository for project code and documentation synchronization.

- **Integration Oversight:** Thol Ucca Kool oversees integration alignment between frontend (Oziel, SovanDara) and backend (Alexander).

- **Post-Demo Adjustments:** Based on the first demo feedback, UI responsiveness and export data validation are being refined for smoother operation.

Plan of Work:

Through our Calculator Mod, we will give gamers access to a faction builder integrated into Total War: Rome II using widely accessible online technologies and hosting from W3Schools spaces and GitHub. A web application is created, linked to Google Sheets for computations, and scripts are written to include each faction into a common master mod.

Languages: HTML, CSS, JavaScript(frontend), Python(Backend)

Platforms/Tools: GitHub, W3Schools Spaces(hosting), Google Apps Script

Integrations: Google Sheets API, Total War: Rome II Assembly Kit, GitHub repository for version tracking.

Success Criteria:

- The online builder, which is hosted on W3Schools Spaces, allows players to establish factions, and the results are saved in Google Sheets.
- When creating a faction, the balance rules are automatically applied.
- The master mod seamlessly incorporates data from Sheets.
- All community factions are constantly updated in the common master mod.

Road Map:

Phase	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Research	███	███												
Design			███	███										
Implementation					███	███	███	███						
Integration									███	███				
Testing											███	███		
Finalization													███	███

Breakdown of Responsibilities

Team Member	Modules/Classes Responsible	Primary Tasks	Testing Responsibility
Uong SovanDara (Coordinator & Web Lead)	FactionBuilder UI, User Effort Estimation, Accessibility Components	Coordinates team efforts and develops the main website interface on W3Schools Spaces. Ensures consistency and accessibility.	UI testing and front-end to backend integration checks.
Oziel Martinez (Data Integration & Testing Lead)	FactionBuilder UI, Interface Mockups, UI Scripts	Develops UI/UX, manages frontend logic, ensures WCAG compliance, integrates with Sheets API.	UI functionality and user experience testing.
Thol Ucca Kool (Systems Analyst & Debugging Lead)	SystemSequenceManager, ConnectorProtocols, DebugHandler	Oversees system logic flow, ensures inter-module communication stability, and manages debugging logs.	Integration testing, backend performance analysis.
Alexander Redinger (Backend & Mod Integration Lead)	BalanceCalculator, EconomyContextSheet, IntegrationService, Exporter, GitHubSync	Develops export scripts, integrates mod files into PACS, manages version control for releases.	In-game testing with Assembly Kit, final release validation, backend functionality.

Integration Coordination:

● Integration coordination is handled by **Thol Ucca Kool**, who ensures that all front-end, backend, and export modules align during combined testing.

Integration Testing

Integration testing is performed collaboratively by all members:

● **Alexander Redinger** – Backend and in-game validation.
● **Uong SovanDara** – UI-to-backend data checks.
● **Oziel Martinez** – UI usability and responsiveness tests.
● **Thol Ucca Kool** – Oversees coordination and debugging.

Work Item	Assigned To
UI Layout and Navigation (W3Schools Web App)	Uong SovanDara, Oziel Martinez
Faction Builder Interface (Input forms, menus, dynamic updates)	Oziel Martinez
Frontend Logic and Event Handling (JavaScript)	Uong SovanDara, Oziel Martinez
Accessibility Components (WCAG Compliance, keyboard navigation)	Uong SovanDara
Balance Calculation System (JavaScript-based cost and upkeep formulas)	Alexander Redinger
Data Validation and Error Handling	Alexander Redinger, Thol Ucca Kool
System Sequence Flow and Connectors (Frontend ↔ Backend Integration)	Thol Ucca Kool
Debugging Tools and Log Handlers	Thol Ucca Kool
Export Function (Rome II Assembly Kit Integration)	Alexander Redinger
File Packaging and Deployment Scripts	Alexander Redinger
GitHub Repository Maintenance and Version Control	Uong SovanDara, Alexander Redinger
User Effort Estimation Module	Oziel Martinez
Testing Scripts (Unit and Integration Tests)	Thol Ucca Kool, Alexander Redinger
UI/UX Testing	All Team Members
Integration Coordination and Debugging	Thol Ucca Kool
Technical Documentation and Formatting	Uong SovanDara
Final Editing and Report Submission	Uong SovanDara, Oziel Martinez
Project Management and Progress Tracking	Uong SovanDara, Thol Ucca Kool
Presentation Slides and Demo Setup	Oziel Martinez, Uong SovanDara