SOFTWARE PROJECT MANAGEMENT PLAN (SPMP)

Team 2.

CS673 SOFTWARE ENGINEERING

1. **Team members, roles, and responsibilities:**

Name	Role	Responsibilities
Shanthakumar Sivakumar	Project Manager (PM)	- Provide overall project leadership and coordination. - Ensure project objectives are met. - Oversee risk management. - Facilitate communication among team members.
Yuan Gao	UI Designers	- Create visually appealing icons and graphics. - Ensure a cohesive user experience for the Rubik's Cube project.
Yuchen Zheng	Backend Developer	- Implement the Rubik's Cube-solving algorithm. - Set up the backend server. - Handle deployment tasks.
Xinyu Yang	Frontend Developer	- Lead frontend development using React.js. - Implement the 3D Rubik's Cube simulation with Three.js. - Add interactive features like hints, scrambles, and resets.
Shanthakumar Sivakumar	QA	- Test the application for functionality and usability. - Identify and report bugs. - Ensure a smooth user experience. - Provide assistance in backend development.
Chandana Nandan	Document Writer	- Create, maintain, and organize project documentation. - Manage requirements, technical materials, user guides, and meeting minutes.

2. Project management tools

Tool	Purpose
GitHub	Primary version control system for collaborative coding, code review, issue tracking, and task automation (e.g., testing and deployment). Also used as the SCM system.
	- Version Control: GitHub will be the central hub for our codebase. We will maintain different branches for various aspects of the project, such as development, testing, and production. This ensures that the main branch, typically called master or main, remains stable and contains the most up-to-date, production-ready code.
	- Document Storage: Additionally, we will use GitHub to store PDF versions of essential documents such as the project plan, requirements, and design documents. This approach ensures version control for our project documentation, making it easy to track changes and access previous versions.
WhatsApp	Team communication and collaboration, with dedicated groups for project aspects, facilitating real-time discussions and notifications.
Google Workspace	Utilized for document collaboration, storage of project-related files, and real-time editing. Includes Google Drive and Google Docs.
JIRA	Considered for extensive issue tracking and advanced project management features, especially for larger-scale projects or those with multiple updates.
Zoom	Used for virtual meetings, screen sharing, and team collaboration.
Visual Studio Code	Code editor supporting collaborative coding with Git integration and code sharing features.

3. Risk management plans

Risk Description	Likelihood	Impact	Mitigation Strategy	Contingency Plan
Technical challenges in implementing the solver	High	High	Conduct a thorough feasibility study and prototyping phase.	Allocate additional time for research and development.
Delays in frontend development due to complexity	Moderate	High	Use experienced front-end developers and provide training.	Extend the project timeline if necessary.
Inadequate communication within the team	Low	Moderate	Establish regular team meetings and communication channels.	Implement agile project management for better collaboration.
Loss of project documentation or codebase	Low	High	Regularly back up project files on multiple cloud platforms.	Maintain version control with Git to track changes.
User dissatisfaction with the solver's accuracy	Moderate	Moderate	Involve users in testing and gather feedback for improvements.	Develop a plan to address user concerns and iterate the solver.

4. Project Estimation:

Cost Category	Description	Cost Estimate (USD)
Personnel Costs		
- Project Manager	4 months of work (full-time)	$20,000
- UI Designers (Yuan Gao and Chandana Nandan)	4 months of work (full-time) each	$20,000 each
- Backend Developer (Yuchen Zheng)	4 months of work (full-time)	$20,000
- Frontend Developer (Xinyu Yang)	4 months of work (full-time)	$20,000
- Developer and QA (Shanthakumar Sivakumar)	4 months of work (full-time)	$20,000
- UI and Document Writer (Chandana Nandan)	4 months of work (full-time)	$20,000
Subtotal: Personnel Costs		$140,000
Software Licenses		
- Pixso (UI Design Tool)	Annual subscription for collaborative design work	$500
- Adobe Creative Cloud (Graphics Software)	Annual subscription for creating icons and graphics	$600
Subtotal: Software Licenses		$1,100
Material Costs		
- Server Hosting and Domain	Estimated cost for hosting the web application	$2,000
Subtotal: Material Costs		$2,000
Total Estimated Project Cost		$143,100
Cost Category	Description	Cost Estimate (USD)

5. Project Scheduling:

Week Starting	Project Manager (PM)	UI Designers	Backend Developer	Frontend Developer	SQA	Document Writer
September 25, 20XX	Lead the project, coordinate tasks, organize meetings	Checking requirements	Conduct feasibility study, implement solving algorithm	-	Testing requirements, assist in backend development	Create drafts, take minutes of meetings
October 2, 20XX	Lead the project, coordinate tasks, organize meetings	Design icons and graphics	Conduct feasibility study, implement solving algorithm	-	Testing requirements, assist in backend development	Create drafts, take minutes of meetings
October 9, 20XX	Lead the project, coordinate tasks, organize meetings	Design icons and graphics	Conduct feasibility study, implement solving algorithm	-	Testing requirements, assist in backend development	Create drafts, take minutes of meetings
October 16, 20XX	-	-	Implement Rubik's Cube-solving algorithm	Lead frontend development using React.js	Testing functionality and usability	-
October 23, 20XX	-	-	Implement Rubik's Cube-solving algorithm	Lead frontend development using React.js	Testing functionality and usability	-
October 30, 20XX	-	-	Implement Rubik's Cube-solving algorithm	Lead frontend development using React.js	Testing functionality and usability	-
November 6, 20XX	-	-	Implement Rubik's Cube-solving algorithm	Lead frontend development using React.js	Testing functionality and usability	-

November 13, 20XX	-	-	Implement Rubik's Cube-solving algorithm	Lead frontend development using React.js	Testing functionality and usability	-
November 20, 20XX	-	-	Set up backend server	Implement 3D simulation with Three.js	Testing functionality and usability	-
November 27, 20XX	-	-	Set up backend server	Implement 3D simulation with Three.js	Testing functionality and usability	-
December 4, 20XX	-	-	Set up backend server	Implement 3D simulation with Three.js	Testing functionality and usability	-
December 11, 20XX	Lead the final testing and feedback, coordinate project closure	Finalize UI/UX	Finalize backend	Finalize frontend	Lead final testing, ensure smooth user experience	Create final drafts, organize meetings, finalize documentation

Please Note: The schedule provided is a tentative plan and will be fine-tuned and adapted as the project progresses. We understand that flexibility and agility are crucial for the success of any project. As we move forward, we will continually assess our progress, make necessary adjustments, and ensure that our timeline aligns with the evolving needs and challenges of the project. This approach allows us to respond effectively to any unforeseen circumstances and ensures the highest quality outcome for our Rubik's Cube Solver and Simulator project.

6. Document Configuration and Monitoring

Effective configuration management and monitoring are essential components of our project's success. We adhere to a robust set of practices to ensure that our project remains organized, transparent, and adaptable throughout its lifecycle. Below are key aspects of our document configuration and monitoring strategy:

Configuration Identification

1. Version Control: Our project relies on Git as the version control system. This facilitates collaborative code management and tracking.
2. File Naming Conventions: We enforce standardized naming conventions for source code files, documents, and project assets to maintain consistency.
3. Change Requests: We employ a formal change request process that includes thorough documentation, impact assessment, and approval procedures.
4. Baseline Components: We identify and establish baselines for crucial project elements, including source code, database schema, design documents, user documentation, and configuration control.
5. Change Management Process: A formal change management process encompasses change request submission, rigorous review and assessment, approval or rejection, and implementation of approved changes.
6. Change Log: We maintain a comprehensive change log that records all alterations made to the project's software and associated documentation.

Configuration Status Accounting

1. Configuration Items: All configuration items, spanning source code files, documentation, and design artifacts, are meticulously defined and documented.
2. Status Reports: We generate regular status reports that provide insights into the current state of configuration items, encompassing version numbers and change history.
3. Audit Trails: Rigorous audit trails are maintained, allowing us to trace changes back to their origins and provide an exhaustive historical record of modifications.

Release Management

1. Release Planning: We thoroughly plan and document release schedules, including version numbers, comprehensive release notes, and well-defined deployment procedures.

2. Deployment Process: Our deployment process is meticulously documented, encompassing procedures for deploying new releases and, importantly, rollback procedures to address unforeseen issues.

Backup and Recovery

1. Backup Procedures: Robust backup procedures are implemented to safeguard all project assets, ranging from source code repositories and databases to essential documentation.
2. Disaster Recovery: We have developed a comprehensive disaster recovery plan to ensure the integrity and availability of data in the event of system failures or data loss.

Incorporating these configuration management practices ensures the reliability and integrity of our project, allowing for efficient monitoring and adaptation as needed.