Graveyard Management System (GMS)

By: JANG Tech.

Project Overview:

I. **Our Team:**

- **A.** Joshua Heeren
- **B.** Ashton Hoeft
- **C.** Noah Huesman (Requirements Phase Team Leader)
- **D.** Gavin Kestner

II. **Project Description:**

The Graveyard Management System (GMS) project aims to develop and create a refined web application for Rosemound Cemetery, located in Barnesville, Minnesota, and overseen by St. James United Church of Christ. The application emphasizes a user-friendly interface, an interactive plot map, administrative tools, robust search capabilities, and privacy measures. The project will consist of two main web pages: one for public access, displaying all of the information such as a map of the plots with details of buried individuals, and another for administrator/Sexton access that allows inputs to manage existing and new plot data of deceased members of the church.

III. **Project Purpose:**

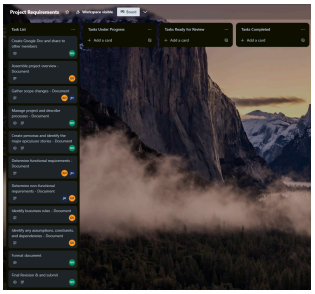
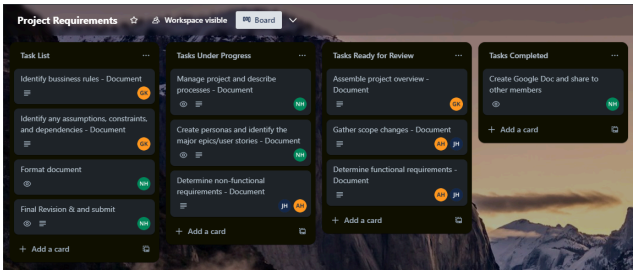
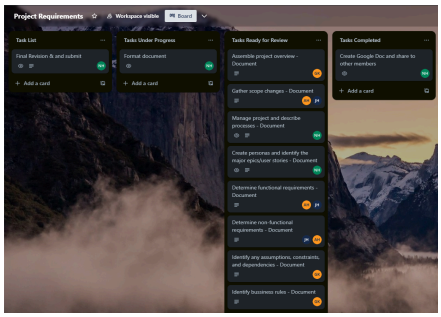
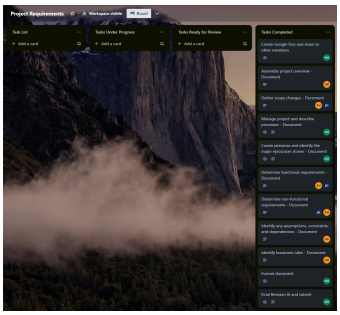
The purpose of the GMS project is to help solve the problem of manual cemetery information upkeep by providing a streamlined and efficient digital solution for managing and displaying Rosemound Cemetery's vast amount of information. Users of this web application will be able to gather detailed information about the plots in Rosemound Cemetery. One notable limitation involves the reliance on manual data input and maintenance by authorized users, introducing the potential for human error and requiring consistent effort in data upkeep. However, the GMS project also aims to mitigate this limitation by implementing features that streamline the data entry processes.

IV. Scope Changes:

As stated above, the main scope of our project is to develop a refined web application for Rosemound Cemetery. This application will include features such as a user-friendly interface, an interactive plot map, administrative tools, robust search capabilities, and privacy measures. In addition to this general list of features, the project will have functional requirements to make it a complete and polished product. In the timeline we were given to complete this project, we have had to change and modify the scope so that we can deliver a feature-complete web application by the deadline. This change of scope has modified the vision of the project for the end user to be more exclusive to Rosemound Cemetery. The specification of the vision for the end user means that this application will work well for Rosemound Cemetery but may not be adaptable to other users. The scope will be revisited throughout the project to ensure the project's success.

Project Management:

I. Timeline of Trello Board:

Starting Line	End of Sprint #1
	
End of Sprint #2	**Finish Line**
	

II. Scrum Process & Team Schedule:

Our team used weekly meetings to plan and divide tasks accordingly. Our first meeting was used to discuss and create our product backlog. To create our product backlog, our team carefully went through the provided project requirements guidelines document and identified key tasks of this phase. During our second meeting, the division of tasks was laid out. This was done by first asking if any team members had a preference for their assigned tasks and then distributing the remaining tasks based on current workloads. The following meetings consisted of going through our project backlog and sprint planning/revision.

III. Sprint Tasks:

A. Sprint #1 Backlog:

1. Creating Google Doc for a shared document **(Start & Finish)**.
2. Assemble the project overview **(Start & Finish)**.
3. Gather scope changes **(Start & Finish)**.
4. Determine functional requirements **(Start & Finish)**.
5. Manage project **(Start)**.
6. Create epics/user stories **(Start)**.
7. Determine non-functional requirements **(Start)**.

B. Sprint #2 Backlog:

1. Manage project **(Finish)**.
2. Create epics/user stories **(Finish)**.
3. Determine non-functional requirements **(Finish)**.
4. Identify business rules **(Start & Finish)**.
5. Identify assumptions, constraints, and dependencies **(Start & Finish)**.
6. Format document **(Start & Finish)**.
7. Revise and submit **(Start & Finish)**.

IV. Communication Methods:

A Discord server and weekly lunch meetings facilitated team communication during the project's requirements phase. Discord provided flexible communication, while in-person meetings, even during Spring break, ensured thorough discussions. This combination allowed for constant collaboration, leading to a timely project conclusion.

Project Backlog:

I. Functional Requirements:

The average user will be a generic user who is trying to locate and identify someone's grave plot. Our application will need to show a list of all the occupied plots and their information about who is in the plots. Along with that list, the application will display a map that will show where each plot is geographically located in the cemetery. Each plot on the map will have a preview of information to display to the user. The user will need to be able to scroll through the map to find plots while not being able to scroll past certain points of the map where the cemetery is not located. While searching for a plot, the user will be able to filter plots by searching for specific parameters. These filtered plots will be displayed in the list of plots and highlighted on the interactive cemetery map. When the user selects a plot, a view will open up and they will be able to see more detailed information regarding the plot and who is buried in it. This detailed information view will include items such as plot location, name of the person buried there, obituary, pictures, etc. Along with being able to view and search plot information, there will also be an information section that contains more information about the cemetery and church.

The Sexton will have the ability to manipulate the cemetery and plot information. The Sexton will have the ability to insert, edit, and remove data using a form to add, change, or remove information from plots. The Sexton will also have the ability to view sensitive information which the average user will not have access to. To access the Sexton page which has these features, the user will have to log in using a secure email and password.

Our application will use a database to store information about the cemetery and its plots. This information will include plot information, who is buried there, and detailed information about the person. The average user will only be able to see public information regarding the plot, while sensitive information will be hidden to the average user, the Sexton will be able to see and manipulate this data. Our application will also have a link to St. James UCC's existing donation page where users can donate money to the graveyard.

II. Personas & User Stories:

A. Sexton Stories:

1. As a Sexton, I want to be able to add, remove, or manipulate data about plots so that visitors to the site have access to reliable information.
2. As a Sexton, I want to know and be able to change the status of plots so that I can efficiently manage maintenance, burial operations, and sales.
3. As a Sexton, I want a secure page for accessing sensitive cemetery data and performing administrative tasks, ensuring that only authorized personnel can access and manipulate this information.

B. Administrator Stories:

1. As an admin, I want to have full access to user accounts and permissions so that I can manage user roles and ensure appropriate access levels are maintained.
2. As an admin, I want to oversee the implementation of requested features, ensuring they align with project goals and requirements so that the application meets the needs of its users effectively.
3. As an admin, I want to be able to customize the layout and design of the application's data interface so that a high level of user satisfaction can be maintained.

C. Generic User Stories:

1. As a generic user, I want to be able to view information about the plots of Rosemound Cemetery so that I can learn more about those who reside there.
2. As a generic user, I want the option to securely donate money to the graveyard through the application so that I can contribute to the upkeep and maintenance of Rosemound Cemetery.
3. As a generic user, I want to be able to accurately search for specific plots based on criteria such as name, dates, or other applicable fields.
4. As a generic user, I want the application to offer interactive features, such as zooming and panning so that I can explore the cemetery map with ease and precision.

III. Non-functional Requirements:

A. Sexton Requirements:

1. As a Sexton, I want the sensitive plot information (PII) to be secure so that sensitive information about the people who own the plots is not compromised.
2. As a Sexton, I want data manipulation to be easy and understandable so that people of varying technological knowledge may be able to alter plot and cemetery data.
3. As a Sexton, I want the satellite images for the interactive cemetery map to update as new satellite images are available so that the map stays up-to-date with the real-world cemetery.
4. As a Sexton, I want the application to run on Rosemound St. James UCC's server so that I may be able to have direct access to the application and database.
5. As a Sexton, I want the plots on the interactive cemetery map to change color so that I can determine their status.
6. As a Sexton, I want users to be able to find the rules and regulations of Rosemound Cemetery so that people interested in Rosemound Cemetery are aware of rules and guidelines.

B. Administrator Requirements:

1. As an admin, I want to be able to do CRUD operations on the web application so that features of the GMS can be tested for quality.
2. As an admin, I want a straightforward system for the above operations so that feature rollout and implantation is a smooth process.
3. As an admin, I want the application to provide intuitive and user-friendly interfaces for performing administrative tasks so that I can minimize the time and effort required to manage the system and enhance the overall user experience.

C. Generic User Requirements:

1. As a generic user, I want the plot information to be easy to read so that I can understand and learn more about the plot I have selected.
2. As a generic user, I want the donation payment information to be secure so that my card and banking information will not be stolen.
3. As a generic user, I want the plots I search for to stand out so that I am aware of which plots match my criteria.
4. As a generic user, I want the interactive cemetery map to have satellite images of the cemetery so that I can correlate the location of the plots in the application with the location in the real world.
5. As a generic user, I want the pages to load quickly so that I may find information promptly.
6. As a generic user, I want each page to run smoothly and be easily accessible so that it is easy to navigate through the application.

IV. Business Rules:

A. Input Validation Rules:

1. Ensure the required fields are all filled out (name, birth/death/burial date, and plot location).
2. Validate fields such as date of birth/death, burial date, and plot numbers.
3. Verify the ID of deceased members and plot dates to prevent duplicates.

B. Search Rules:

1. Define filters for searching the database such as name, date range (either burial date or birth/death), and plot number.
2. Validation rules will also be needed for this to handle searches in case there is an empty or invalid search result.

C. Security Rules:

1. Implement security measures for the administrator to ensure that plot information is safe.
2. Security measures are implemented to protect PPI where applicable.

V. Assumptions, Constraints, & Dependencies:

A. Assumptions:

1. The project will be completed following the scheduled timeline.
2. The use of Django and Angular will be sufficient technology for completing the project.
3. The quality of the project will adhere to the requirements.
4. The availability of required resources, such as development tools and infrastructure, will remain consistent throughout the project timeline.
5. Necessary documents for the layout of plots will be provided by the current Sexton of Rosemound Cemetery.

B. Constraints:

1. The project deadline must be adhered to.
2. The technologies required to be used for the project.
3. The project team size is limited to the current members, impacting the distribution of workload and project timeline management.
4. The project must comply with regulatory requirements and legal constraints related to data privacy and security.

C. Dependencies:

1. Relies heavily on accurate data about Rosemound Cemetery.
2. Relies on manual data entry by the Sexton.
3. The project is dependent on the specific technologies being used.
4. The availability of satellite imagery and mapping data from reliable sources is crucial for accurate visualization of plot locations.
5. The layout of the plots will depend on the provided documents and satellite imagery.