



# PROJECT PLAN

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GROUP 3 – PROTOTYPE 3 – SUSAN SAUSAGE ROLL



Group 3  
WITS | WSOA3000

## 1. Project Overview

This project aims to clone the game *Stephen Sausage Roll* to gain a deeper understanding of the development process of the game. The team is given a week to complete the task.

The game created, *Susan Sausage Roll*, includes base level mechanical aspects of the original. This includes character movement, rolling and cooking sausages and selecting levels. This is to develop the mechanical understanding of the game and the division of the development process of the mechanics. The inconsistent yet acceptable mix of art styles from the original were duplicated to understand how to replicate the aesthetic.

Levels were replicated as the difficulty of designing the levels could not be achieved within the time frame. However, in cloning the levels, an understanding of the layout and reasoning for puzzle solving was developed. As well as a method to easily create the levels.

Daily testing, check-ups and development was applied to the project. The deliverables include a Project Plan, Game Design Document and a Build of the game. Deadlines and schedules are laid out with leeway for mishaps.

## 2. Technologies Used

Table 1: Technology and Tools used

| Name                      | Use                                | Specification   |
|---------------------------|------------------------------------|---|
|                           | Software                           |   |
| Unity Version 2019.1.11f1 | Development Environment            | The cross-platform game engine being used as team members have the most experience using this engine.   |
| Visual Studio             | Text Editor                        | Used to code in C#; currently comes with the Unity game engine.   |
| Krita                     | Art Tool                           | Used for 2D art assets  |
| Paint.net                 | Art Tool                           | Use of grid system to create the map texture to easily create the layout of the ground in Unity.  |
| Blender                   | Art Tool                           | Used for 3D modelling, texturing and animations.  |
| GitHub and SourceTree     | Source Control, Backup and Storage | Provides access and source control and several collaboration features such as bug tracking, feature requests, task management, and documentation for ease of use.     |
| WhatsApp                  | Communication Media                | Quick access communication means between individuals to deliver information to each other.  |
| Discord                   | Communication Media                | It enables you to centralize all your notifications into one searchable place where your team can discuss and act on each.  |
| In-Design and MS Word     | Documentation                      | Free (for students) and easy to use online and offline (respectively) document creator and editor. Used to create the Design Document and Project Plan, respectively. |
| Gmail                     | Communication Media                | Communication means when GitHub fails a single team member (contingency plan to get assets in the development environment).   |

|                                      |                  |  |
|--------------------------------------|------------------|--|
|                                      | Hardware         |  |
| DELL Inspiron 15 70000 Gaming Laptop | Work Environment | Basic hardware setup needed for the team to develop the prototype. |

### 3. Group Management

The project manager is to set up the repository (on GitHub) and ensure that every team member is a collaborator (ensuring that everyone has a GitHub account); thereafter, each team member is to clone the repository on their device. Thereafter, the means of communication is setup—a WhatsApp group is made, and a Discord Group Chat is started. This is to ensure communication channels are open and clear. The team must also ensure that they are using the same version of Unity (2019.1.11f1). A to-do list for each day must be laid out immediately. This setup must be done upon forming the group.

The project manager does daily progress check-ups on team members and adjusts the schedule accordingly. An audio list and asset list are developed after considering the styles that the Designer, Audio designer and Artist agree upon. The GitHub repository is managed by the team. Each team member must state when they have pushed an update, on WhatsApp—and thereafter, everyone should pull to avoid Merge Conflicts and out-of-date models.

The Programmer has daily code submissions to complete core mechanics. These submissions are noted on GitHub. The Designer and the Programmer are to collaborate on Level Design aspects due to the methodology used to create the levels (mapping colours to Gameobjects).

The Artist and Sound designer are to communicate with the Designer and vice versa to obtain assessment of art assets and a list of adjustments to be made. The Project Manager must always be aware of any completed task or progress done.

The Project Manager is to pin the overall to-do list on Discord. Each member is to pin their respective to-do list on Discord (such as asset lists and audio lists) and then the Project Manager will confirm if this list is complete or requires adjustments. Each to-do list requires an estimated date of completion. This list is referred to daily.

The team meets up on Monday, Tuesday, Wednesday and Friday for an hour to review progress and set the tasks for the following day. Thursday, Saturday and Sunday meetings are held online (for an hour with specific individuals).

Table 2: Team and Duty division

| Team Member      | Core Duty                           | Sub Duties  |
|------------------|-------------------------------------|---|
| Dhannya Mathew   | Project Manager                     | 3D Modelling, Quality Assurance, Main Menu Programmer |
| Blake Denham     | Programmer                          | Particle Effects                                      |
| Nkosinathi Mviko | Artist<br>(3D Modelling and 2D Art) | Animation   |
| Marco Prinsloo   | Sound                               | Quality Assurance                                     |
| Victoria Bench   | Designer                            | 3D Modelling, Quality Assurance                       |

The reasoning behind splitting up the 3D Models is outlined in the Game Design Document.

Table 3: Duty Definitions

| Duty            | Includes  |
|-----------------|---|
| Project Manager | Creating the Project Plan<br>Creating the Repository<br>Ensuring the team communicates with each other and stays up to date on tasks<br>Scheduling and re-scheduling after progress evaluation<br>Checking up on and managing team members and progress |

|                               |  |
|-------------------------------|--|
|                               | Managing repository processes and problems   |
| Programmer                    | Creating code for the game<br>Creating a technical outline to include in the Design Document<br>Testing the game during the development process<br>Implements Assets |
| Art (3D Modelling and 2D Art) | Creating 3D models and 2D art assets   |
| Sound                         | Creating and/or locates audio for the game<br>Creating an audio development outline to include in the Design Document  |
| Designer                      | Creating the Design Document<br>Creating level/map design<br>Dealing with adjustments and final decision on art assets   |
| Quality Assurance             | Testing the build<br>Finding and reporting bugs  |
| Particle Effects              | Creating Particle effects for the game   |
| Animation                     | Animating 3D models and 2D art assets  |

## 4. Asset Lists

### Particles Effects

- Cooking
- Burning
- Sausages Disappearing

### 3D Art Assets

- Character
- Fork
- Flowers
- Ground Tiles (7 different types: Grill (on and off), Sand, 3 Grass and Dirt)
- Sausage pieces (4 separate pieces)

### 2D Art Assets

- Cooked Sausage for when hovering over buttons
- Burnt Sausage for when buttons are clicked

### Audio Assets

#### *Royalty Free sounds:*

- Sizzle
- Character Turn Sound
- Shove or push with the pitchfork
- Button hover and button click
- Sausage in water plop sound
- Walking sound
- Ouch (for when the player walks onto the fire)

#### *Composed Audio:*

- Background-Game
- Background-Main Menu
- Lose/Sad loss
- Win/ Puzzle Complete SFX

## 5. Schedule

The team is given a week to complete. Tasks were designated for each day. The colour coding is according to the Team Member who completed the task (in accordance to the key in Table 2). No colour means that the team completed the task together. Red Highlights are late events and Green Highlights are early events.

Table 4: Estimated Schedule

| Monday   | Tuesday  | Wednesday   | Thursday  | Friday   | Saturday  | Sunday  |
|--|--|---|---|--|---|---|
| Check-In with Team Members (during meeting time) | Check-In with Team Members (during meeting time)             | Check-In with Team Members (during meeting time)                          | Check-In with Team Members (via WhatsApp)           | Check-In with Team Members (during meeting time)                               | Check-In with Team Members (via WhatsApp)             | Check-In with Team Members (via WhatsApp)         |
| Update Discord Pins                              | Update Discord Pins  | Sausage Mechanics (rolling sausages, level selection and moving sausages) | Sausage Mechanics (undo movement, cooking, burning) | Update Discord Pins  | Update Discord Pins                                   | Complete Design Document                          |
| Choose Game to clone                             | Core Mechanics (character movement and undo, map generation) | Design and implement map  | Model and texture all tile assets                   | Core Mechanics (winning levels, end game if sausage burnt, escape button menu) | Particle Effects                                      | Edit and implement audio and remaining art assets |
| Assign Duties                                    | Asset List discussion  | Model and texture fork  | Find royalty free audio assets                      | Test and modify audio tracks tested  | Complete Project Plan                                 | Quality Assurance Testing                         |
| Make a list of assets required and due dates     | Complete Concept Art   | Model and texture sausage   | Model, texture and animate character and flowers    | Implement tiles  | Complete composed audio                               | Debugging according to quality assurance testing  |
| Setup GitHub Repository, Discord and WhatsApp    |  |   |   | Create art for main menu buttons (2D)  | Add main menu System and do Quality Assurance Testing | Create Water Shader                               |

Table 5: Actual Schedule

| Monday   | Tuesday   | Wednesday   | Thursday                                  | Friday   | Saturday  | Sunday   |
|--|---|---|---|--|---|--|
| Check-In with Team Members (during meeting time)   | Check-In with Team Members (during meeting time)              | Check-In with Team Members (during meeting time)                          | Check-In with Team Members (via WhatsApp) | Check-In with Team Members (during meeting time)     | Check-In with Team Members (via WhatsApp)                               | Check-In with Team Members (via WhatsApp)        |
| Update Discord Pins                                | Update Discord Pins   | Update Discord Pins   | Sausage Mechanics (undo movement)         | Update Discord Pins                                  | Update Discord Pins   | Complete Design Document                         |
| Choose Game to clone                               | Core Mechanics (character movement and undo, map generation)  | Sausage Mechanics (rolling sausages, level selection and moving sausages) | Model and texture all tile assets         | Sausage Mechanics (cooking, burning, winning levels) | Model, texture and animate character. Create main menu button art (2D). | Implement audio and remaining art assets         |
| Assign Duties                                      | Rescheduling according to design changes (Art Asset Division) | Design and implement map  | Royalty free audio assets found           | Add main menu system                                 | Particle Effects and end game conditions                                | Water shader and fixing undo                     |
| Make the list of assets required and due dates     | Model and texture Sausage                                     | Model and texture fork  |   | Test and modify audio tracks tested                  | Project Plan completed  | Escape button options                            |
| Concept Art  | Map Designing   |   |   | Rescheduling according to new art asset deadlines    | Composed Audio completed  | Quality Assurance Testing                        |
| Setup GitHub Repository, Discord and WhatsApp chat |   |   |   | Implement tiles                                      | Quality Assurance   | Edit and evaluate audio                          |
|  |   |   |   |  | Remodel and texture flowers   | Debugging according to quality assurance testing |

Table 6: Gantt Chart for overall schedule

| Activity                             | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|--------------------------------------|--------|---------|-----------|----------|--------|----------|--------|
| <b>Design and Planning</b>           |        |         |           |          |        |          |        |
| Brainstorming game                   |        |         |           |          |        |          |        |
| Task creation and delegation         |        |         |           |          |        |          |        |
| Design adjustments                   |        |         |           |          |        |          |        |
| <b>Development</b>                   |        |         |           |          |        |          |        |
| Art Asset development                |        |         |           |          |        |          |        |
| Audio development                    |        |         |           |          |        |          |        |
| Mechanical Development               |        |         |           |          |        |          |        |
| Menus                                |        |         |           |          |        |          |        |
| Integrating assets                   |        |         |           |          |        |          |        |
| Tweaks and fixes                     |        |         |           |          |        |          |        |
| <b>Testing and Quality Assurance</b> |        |         |           |          |        |          |        |
| Play test                            |        |         |           |          |        |          |        |
| Build test                           |        |         |           |          |        |          |        |

## 6. Difficulties Occurred

There was a time crunch for art assets. This was due to the inexperience with Blender for animation. Deadlines for the art assets were pushed by 3 days due to this.

A team member did not inform the team that they had not set up the repository until Thursday; by then it was deemed pointless to set it up as emailing the assets would be far less time consuming than explaining the setup and risking unadvised actions to be done on SourceTree.

The lack of access to a stable Internet connection forced one team member to stay at university throughout the week.

## 7. Design Process Model



Figure 1: Design Process model

NASA's new BEST Design Model is followed by the team to produce *Susan Sausage Roll*. A minor change was made to the model whereby the "SHARE" process is added to the cycle and a "RELEASE" process replaces the current "SHARE" process. This allows the iterative cycle for the one-week production process to move smoothly.

**Ask:** the task (to clone a game) is given to the team i.e. a problem is defined for the team to find a solution.

**Imagine:** the team brainstorms for a plausible solution within the team's capabilities and timeframe with reasonable work hours.

The requirements for the game are defined in terms of mechanics, art and audio assets. The has a rough idea of level design, planning and style for the game decided upon.

**Plan:** individuals are appointed tasks; a schedule is designed, and problems are solved through communication and collaboration.

Each member of the team is assigned tasks. These tasks are assigned daily according to how far the previous tasks have come—however, the daily assignment follows a general schedule for the week that is tweaked according to the actual progress versus the estimated progress.

**Create:** individuals work on their assigned tasks, checking in with other members of the team (according to the team management outline) to ensure communication in the team is smooth.

**Test:** at the end of the day, the game is tested. Feedback is obtained and changes are made accordingly and added to the schedule.

**Share:** the rest of the team obtains the updated version of the game to view and note the progress.

**Improve:** during the first iteration of this stage; the team can re-imagine the solution as well. The schedule is re-assessed at this stage and a checklist of everything that has been done and left to do is drawn up according to the daily progress report.

**Release:** the game is released for quality assurance. It is likely that this stage falls back into the cycle if a major bug is found in the released game.

## 8. Testing and Quality Assurance

Upon testing before the build phase, the mechanics and aesthetics are tested in Unity by the programmer and designer. Changes are implemented after each test. Tests are done at the end of each day; after each mechanical implementation for the day.

After building the project, the game is tested for bugs and gauging the game's comparison to the original. Upon locating a bug, the Assurance Tester notifies the Programmer via WhatsApp stating the bug and what triggered it. If it is difficult to explain via text, the individuals discuss it on Discord.

## 9. Risk and Conflict Management

During the week, risks are anticipated to occur. Plans were made to bypass these risks.

Table 7: Risks and Contingencies

| Possible Risks          | Contingencies plans in place   |
|-------------------------|--|
| Limited Internet Access | A meeting is held every day except for Thursday, Saturday and Sunday. During these meetings, deliverables are scheduled to be due to pass them via portable devices to the responsible individuals. Individuals who are most likely to be without internet access have earlier deliverable dates to avoid stress over the weekend as contact is limited then.  |
| GitHub Errors           | Errors are made to be prevented by stating when a push is made via communication means setup. However, if an error does occur, the project manager keeps an up to date version of the project (constantly pulls from the repository) and can recreate the latest version of the repository at any time.<br>The error that the team member has must be shown to the group to see if it can be resolved. If so, the team communicates via Discord to solve the error. Otherwise, the individual emails the assets implemented and re-clones the repo to save time. |
| Miscommunication        | Any errors via WhatsApp are to be clarified via a Discord voice call and or in person during meetings. To ensure that the team knows their respective deliverables and duties, each team member themselves writes  |



|   |   |
|---|---|
|   | <p>their to-do list, after being debriefed on it on the first day, and posts it on Discord to be pinned.</p> <p>The project manager then evaluates the list and notifies individuals if things are missing and how they can fit back in.</p>  |
| Requested Changes                                     | <p>The schedules are made with a (max) two-day leeway. Individuals are allowed 1-2-day delay in deliverables (depending on the deliverable).</p>  |
| Over scoping and/ or Insufficient training/ knowledge | <p>Although the game has been chosen according to a thorough evaluation of the team's skills; it is still very possible to over scope the game.</p> <p>Online tutorials for insufficient training are to be found on the first day and is scheduled in to 'train' the individual.</p> <p>The team is versatile enough to take on tasks for other members if necessary. Team members are on standby for such situations.</p> |