PROJECT INITIAION DOCUMENT

B and F hate mazes

1. Introduction

There are mazes present in various areas. One such example is psychology experiments where mice must find their prize which in many instances is a piece of cheese. Other examples include movies such as “Maze Runner”. Mazes however have had an important role in the gaming industry over the last decades with unforgettable titles such as "Doom" and "Legend of Zelda" containing maze levels that made them extremely popular for the public. Not many games focus as much on the puzzle element of the maze. Top-down view maze games have been popular on small mobile games because they represent a quick puzzle to solve that does not require as much concentration to remember the correct path to the exit. “B and F hate Mazes” is an ambitious project containing one of the main “mechanics” of a real maze: “orientation”. Making an action role-playing game which at its core requires the user to focus on each of the turn that he is taking without having a first-person view is the primary objective of my project for the final year. Maintaining the suspense of not knowing where you are and what direction you are looking is one of the challenging aspects of a maze puzzle. Using proper game design choices together with procedural generation algorithms will allow me to develop a replayable game that always offers a true maze experience.

2. Business Rationale

Although there are many people who are passionate about mazes, there are very few quality titles available on the mobile market. With examples such as “Mazes & More” and ”Labyrinth 3D” that although providing viable examples of mazes and puzzle experiences, they do not offer a more authentic experience of a maze. My application has two purposes. The first one is to allow me as a developer to further extend my programming knowledge and apply my skills in procedural generation algorithms. The second goal is to also provide an enjoyable and authentic experience with mazes for mobile users.

2.1 Business Objectives

- Create a game that offers a true maze experience
- Make a game that does not require constant maintenance and updates
- Allow for infinite replayability

3. Project Objectives

- Expand procedural generation algorithm knowledge.
- Create a single player action role-playing puzzle/shooter game
- Allow for a new map to be generated for each new game.
- Multiple types of procedurally generated perfect mathematical mazes
- User can choose up to 3 different difficulty levels.
- User can choose between 2 Characters to play with

4. Initial scope

- Create a GDD of the project to outline all the objectives and development plans.
- GDD will also include UML Diagrams of the menu with specified artistic and gameplay choices.
- Create a Trello page which will be tracking all the progress and management side.
- Create a repo to manage each iteration of the project as a backup.

5. Resources and dependencies

- 3D Character Models
- Royalty Free menu music
- Royalty Free in-game music

6. Method of approach

Game development will Focus on the following elements: Variety in difficulty based on used algorithm, maze size and enemies; Attractive low poly art style; Replayability by using procedural generation.

Possible technologies are C# due to the already accumulated experience.

7. Project Plan

Stage	Expected Start Date	Expected Completion Date	Products/Deliverables/Outcomes
1. Initiation		Fri 02 Feb	PID
2. Outline requirements; Development plan	Mon 29 Jan	Thu 08 Feb	Prepare Trello board, GitHub and Project GDD, report introduction, background
3. Research phase	Fry 09 Feb	Thu 15 Feb	Analysis of maze generation algorithms; Select ideal algorithms, report objectives and deliverables, literature review
4. Increment 1	Fry 16 Feb	Thu 22 Feb	Set Game Scene and character controls; Design and Test proper scene and object arrangement for initial Game feel.
5. Increment 2	Fry 23 Feb	Thu 08 Mar	Maze Wall Generation tool
6. Increment 3	Fry 09 Mar	Thu 15 Mar	Report method of approach, processes, structure alignment
7. Increment 4	Fry 16 Mar	Thu 22 Mar	Assets insertion, UI, sound and menu
8. System testing	Fry 23 Mar	Thu 29 Mar	Bug testing, game polish
9. Finalize Report	Fry 30 Mar	Thu 19 Apr	Report segments: stages, deliverables, conclusions, further developments, references

7.1 Stage Management

The development will be managed using the Scrumban agile development method with Trello. Structure of the board will be as follows: 1 List containing all the research documentation and links for the project; 1 Appendix to showcase all states of each week's task; 1 Dates List; 1 Documents List; Other future elements might be added depending on the project evolution.

7.2 Control Plan

Based on the deadlines/deliverables for PRCO304 the following control techniques will be applied:

a) Highlight reports as dictated on the SPMS page.
b) Project report
c) Review meetings with project supervisor
d) Risk management (Section 8); Communication plan (Section 7.3); quality plan; exception reports and plans if required

7.3 Communication Plan

A review meeting will be held with the project supervisor for every sprint session. Any other urgent meetings will take place with the supervisor if needed.

8. Initial risk list

The following table includes possible initial risks along with strategies to prevent them from occurring during the project development.

Risk	Management strategy
Schedule overrun	A plan highlighting the project development stages has been done to properly manage the deadlines. Furthermore, and exception plan will be created, and approved by the project supervisor in the event of falling behind schedule.
Algorithm implementation working against game design	Downscale game size levels to achieve acceptable results.
Difficulty learning	Use online sources such as stack overflow to find assistance in solving issues that delay the development process.
Hardware/Technology failure	Have all the information backed up on more than one location including to an online service as well as using version control.
Poor Game design	Contact supervisor and acquire advice regarding possible changes to improve overall user experience
Not enough time for implementations	Create a list with the Key Features required to offer an acceptable deliverable product

9. Initial quality plan

There will be two quality checks going throughout the development stage. The first one will establish the game design choices together with the overall feel of the game to assure a high-quality deliverable. Second quality check will be done during the test phase of the project in which small adjustments can be made based on provided feedback by testers. Following quality plan will be used:

Quality check	Strategy
Requirements	Project objectives will be set using game mind maps, a GDD and user story mapping to ensure that the deliverable will meet the requirements.
Design validation	The design will be checked against requirements compliance, HCI guidelines compliance, screen design acceptance and coding conventions
Verification and validation	A verification and validation will be done for each highlight in concordance with the control and communication plans (Sections 7.2,7.3)

10. Legal, ethical, social and/or professional issues

All user testing will comply with Plymouth University's ethics policy.

During the testing phase a PEGI rating for the minors will be set.