DISPLAY

Project Proposal

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CS 401 Capstone

I. Table of Contents

II. Introduction

This development proposal is intended to communicate its own relevance; explaining why the project should exist, who will find it valuable, and how it will come to be.

III. Project Description

DISPLAY is a lightweight game designed for mobile and desktop environments where players launch various types of fireworks to show off the best 'display'. Facing rival teams, each with a proprietary battery of fireworks, players must master the launch procedure and determine the most efficient way to outclass their opponents.

Interaction occurs solely through clicking the mouse or pressing on the screen. The game is based on one skill check and one strategy check. The launch procedure is a timing-based check, where players must precisely press and release the launch button and fire their shot as high into the sky as possible, earning extra power if done perfectly. The strategy element is more abstract, but essentially, players navigate a tiered game

of rock-paper-scissors. Fireworks have three main traits: color, size, and type. To win an exchange, players can launch a bigger mortar or use a shot type that wins the rock-paper-scissors contest. Additionally, they want to achieve maximum ballistic height by perfectly timing the launch, and avoid using the same color as their rivals. The rock > paper > scissors relationship plays out with the shot types mega > multi > spiral.

Whoever wins an exchange earns a star coin, and after all 15 fireworks have been fired by each team, the one with the most star coins wins the match. The player's chosen team comes with a preset inventory of fireworks that they can select from for each shot. If the player bests their rival, that team becomes playable, and the next rival becomes available to compete against.

IV. Project Objectives

Games must provide value to players, yet that value is subjective and hard to quantify. The best way to do so is by understanding the target audience and what they consider valuable. Based on that analysis, DISPLAY provides value through visual excitement from mesmerizing animations, and delivers the satisfaction of overcoming a skill check. Additionally, strategic gameplay spices up decision making and gives players a higher ceiling to reach before mastering the game. Successfully overcoming a new rival with a unique set of fireworks keeps players looking ahead to the next battle. The ability to also play with the same loadout as bested rivals gives players an added level of customization and variety as they try to defeat all ten teams. The skill check consisting of a meter with press and release timing serves as a very minor problem that most players can easily overcome. Difficulty increases slightly for each of a shot's three power levels, but overall the check is meant more to keep players engaged than to stretch their abilities.

V. Target Audience

Every genre relies on the programs it's comprised of to set standards and expectations for users. Being that Display is a casual game that could be played in short sessions on mobile or the web, research indicates its target audience is appeased along two main dimensions: strategic gameplay and visual satisfaction. Players will accept minimal visual fidelity if the strategic elements are ingenious. On the other side, casual games may rely on juicy, delightful animations and visual effects to keep repetitive gameplay interesting. Striking a balance between the two, where one compensates for the other, is a grounded premise for designing products in this genre. The casual gaming demographic is 40+, played more by women, and a worldwide favorite with over 17 million users who currently download this genre (Ozkan, 2023).

VI. Genre

Display is a casual game that fits into the puzzle subgenre. Some of the most famous games from this category are Tetris, Candy Crush, Bubble Spinner, Sudoku, and Angry Birds. Most games of this type monetize either through micro-transactions or by running adverts, with one-time purchases making up less than 1% of revenue earned (Ozkan, 2023). Display generates revenue by partnering with advertisers to engage players between matches, preserving the game flow.

VII. Concept

Launching high grade fireworks is quite an involved process, but the detailed preparation and safety measures are worth it for the magnificent, surreal visuals that get thrown at sky for all to see. It's a peaceful application of ballistics and explosive expertise that adds flair to celebrations around the globe. The folks who specialize in providing massive fireworks displays are often a competitive bunch, and this project is intended to celebrate that spirit.

By framing a fireworks display as a conflict between two teams, DISPLAY asks players to learn how the different types of fireworks are related and strategically deploy each volley. They must determine how to counter their rival's decisions while conserving their own inventory. In other words, win each exchange by as little as possible. A match victory unlocks a new rival to compete against (ten total) and grants players the opportunity to use their defeated rival's unique inventory.

VIII. Ethical Concerns

DISPLAY's premise is meant to be widely accessible and controversy free. The only major concern is monetization strategy. With adverts it's important to avoid untimely or obnoxious ads, as well as any with edgy content. Partnering with a reputable firm and properly managing API calls around the ideal game flow is crucial. For instance, DISPLAY sticks to skippable ads after a timer and between sessions only.

IX. Platform & Environment

DISPLAY is built for web and mobile users. Being that it's programmed in Gamemaker Language (GML) using the Gamemaker Studio 2 IDE, the project can be exported as an exe, mobile app, or HTML5 game. DISPLAY's portrait format and simple control scheme are naturally suited to phone use, but they also work as a small desktop window. A web demo of DISPLAY is available on itch.io for promotional purposes. All visual assets are developed in house at Lab Cat Games using GIMP and Pixel FX Designer. Sound assets are also produced in house with Audacity.

X. Key Features

DISPLAY is intended to satisfy players who value colorful, mesmerizing patterns and bright retro graphics. A very efficient animation pipeline makes generating the fireworks sprites fairly easy, which is one reason there are 27 unique shots to enjoy. The game's

"one button action" is the simplest possible way to interact with a game, which widens accessibility to all ages and experience levels. The desire to see and launch all the different fireworks drives engagement, while strategically deploying each shot requires players to learn the game's layered mechanics. Replayability is also based on the satisfaction that comes from defeating and unlocking rival teams, given that each has a slight bump in difficulty. To further broaden the game's possible audience, DISPLAY is a lightweight program with a small profile, ensuring compatibility with a wide range of modern and legacy devices.

XI. Delivery Schedule

Milestone	Estimate
Concept / Placeholder Art	10/06/23
Core Structure Implemented	10/13/23
Game Flow Finalized	10/20/23
Playable Vertical Slice	10/27/23
Visual Asset Production	11/10/23
Integrate All Assets & Systems	11/17/23
Playtest / Bugfix	12/12/23
Complete Documentation	12/13/23
Prototype Complete	12/15/23

XII. References

Ozkan, I. 2023. "What Are Casual Gamers?" *Adjoe*. https://adjoe.io/glossary/casual-games-and-casual-gamers/