GAM400 Project Brief: *The Darkworm*

Team Name: Team Snark

Name	Primary Role	Secondary Role	PERSONAL GOAL/ R&D
Spencer Williams	Programmer	Producer, Audio	Develop complex AI & cellular automata systems
El Schaefer	UI/UX Designer	Game Designer, Artist	Make a simple system engaging through smooth UI/UX

Game/Project Summary

The player is spawned into a darkened arena with a goal to hunt the Darkworm. The player has a limited supply of flares to find their way through the darkness and to unlit braziers to light up the arena. These lights will help the player to track the Darkworm to finish it off with their flares. Sessions should be brief, with the game encouraging skill-building and replaying.

Target Demographic

Players 13 years and up with some experience in action/survival games.

Target Play Time

Atom: Finding and lighting a brazier or dealing a blow to the Darkworm should take around 1-2 minutes on a first playthrough.

Session: Lighting all braziers and killing the Darkworm should take about 10 minutes on a first playthrough.

Project Development

Development Cycle

This is the first and only semester of a one-semester project.

Technology

Professional Engine: We will be using Unity LTS Release 2021.3.1f1.
Rationale: We are choosing Unity as it can create 2D games with physics, graphics, and collision.
Academic Rationale: Our UI/game designer is familiar with the engine already and should be able to work quickly and have more time to iterate, while our programmer would like more experience with it.

Art and Audio Asset Development

Asset Creators: El and Spencer
Asset Sources: DigiPen-provided libraries
Rationale: We have no artists or sound designers on the team, but we will keep assets simple and easy to ensure they are within our ability and not detracting from our given tasks.

Game/Project Design Description:

DESIGN
Darkness System – the environment will be built around a cellular automata system representing light, shadow, and dark
> **Flares** – dropped by the player, generated by braziers, temporarily light an area when dropped, deal 1/3 damage to the Darkworm when used to illuminate its head
> **Braziers** – permanent light sources, one lit at player spawn, others can be lit by the player, generate flares once lit, deal 1/3 damage to the Darkworm when used to illuminate its head

Player Character – spawns in at a random preset spawn point, can travel the arena, drop flares, and light braziers based on player input, picks up new flares at braziers, dies on contact with the Darkworm
> **Camera** – smoothly follows the player

Darkworm – spawns in at a random preset spawn point, travels around dark or shaded areas of the arena based on its AI, kills player on contact with its body, dies when head is struck three times by light from braziers/flares

UI – Guides players into the game, allows players to change settings (e.g. volume), tracks and displays flares and Darkworm lives during play, allows players to pause and exit the game, provides win/loss feedback after rounds, displays credits
> **Tutorial** – Must teach the player the core mechanics
> **Transitions & FX** – Makes the game flow more appealing and action more engaging.

Special Functionality:
Wide-view of arena for visualization of Darkness & AI.
Stretch goal: heatmap of player positions per round

Risks

Risk Area #1: Overscoping
Description: As we are only two people (a programmer and a designer), it is easy to create an idea that is far broader than we have time for.
Mitigation: Keep a tight hand on project scope, build necessary systems first and gratuitous systems later, constant checks on progress.

Risk Area #2: Getting bogged down in asset production
Description: While we plan to make the majority of assets ourselves, neither of us are artists or sound designers. This means we are liable to spend an excessive amount of time (due to our relatively low skill) on items that are unrelated to our goals.
Mitigation: Keep assets extremely simple; graybox where appropriate until other assets can be made; use external assets where possible.

Risk Area #3: Gamefeel
Description: Fun gameplay can be elusive, and what sounds good on paper may not be to play. With this in mind, we must be careful about what we make and how it feels to play, lest we end up with an unenjoyable game.
Mitigation: Regular playtesting and review of gameplay and feedback.

System Survey / Project Plan:

System	Owner	Duration	Start Date	Due Date
Darkness CA System	Spencer	10d	Week 2	Week 3
Flares & Light CA	Spencer	3d	Week 3	Week 3
Basic Darkworm AI	Spencer	3d	Week 4	Week 4
Darkworm Damage/Player Attacks/Winning	Spencer	4d	Week 4	Week 5
Braziers	Spencer	2d	Week 4	Week 4
Player Damage/Lose Condition	Spencer	2d	Week 5	Week 5
Darkness Graphics Effects	Spencer	4d	Week 6	Week 7
Audio System	Spencer	5d	Week 6	Week 6
Advanced Darkworm AI	Spencer	4d	Week 8	Week 8
Player Controller	El	4d	Week 2	Week 3
Level Spawning	El	3d	Week 3	Week 4
Main Menu	El	4d	Week 3	Week 4
Game UI	El	6d	Week 4	Week 5
Win/Lose Screen	El	6d	Week 5	Week 6
Pause Menu	El	4d	Week 6	Week 7
Options Menu	El	4d	Week 6	Week 7
Credits	El	4d	Week 7	Week 8
Tutorial	El	6d	Week 8	Week 9

Content Survey / Project Plan:

Content	Owner	Duration	Start Date	Due Date
Darkworm Audio	Spencer	2d	Week 6	Week 6
Player Audio	Spencer	2d	Week 6	Week 7
UI Audio	Spencer	2d	Week 7	Week 7
Flares/Braziers Audio	Spencer	1d	Week 7	Week 7
Environmental Audio	Spencer	2d	Week 8	Week 8
VFX	Spencer	2d	Week 8	Week 9
Levels	El	4d	Week 5	Week 6
Game UI Art & Animation	El	4d	Week 6	Week 7
Darkworm Art	El	2d	Week 6	Week 7
Environment Assets	El	4d	Week 7	Week 8
Player Art & Animation	El	2d	Week 7	Week 8
Menu Art & Animation	El	4d	Week 8	Week 9
Flare/Brazier Art & Animation	El	2d	Week 8	Week 9
Fonts	El	2d	Week 9	Week 10
Tutorial Assets	El	3d	Week 9	Week 10

Milestone Deliverables

Alpha Milestone – Pre-Production Exit

At this milestone, we will demonstrate the core gameplay loop in a single, basic level. A person playing at this point will be able to review the game loop in its entirety. The darkness system will be implemented, with support for flares and braziers. The Darkworm will be implemented with a basic AI and will be killable by the player to win.
Some of the gameplay audio will be implemented in a basic form. Some of the game art will be implemented in a basic form, while the rest will be placeholder.

STRETCH GOALS:
Things to complete for Beta milestone.

Beta Milestone – First Playable

At this milestone, the game should be functionally complete. All levels will be implemented, along with all menus. The Darkworm AI will be updated to a more advanced form for the player to fight. All art and audio will be in a submittable state. A tutorial will be added so that players can learn how to play. Game will be stable.

STRETCH GOALS:
Advanced graphics, & polished art. VFX/Gamefeel improvements.

Final Milestone – Production Exit

Game will be polished from previous milestone. No major features will be implemented, but existing features will be improved. A player will be able to play the entire game and have fun.

STRETCH GOALS:
More polish.