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DinoTracks
Thrive To Survive

By Dan Phillips, Cindy Li, Ben Krupka, and Kevin Yuan

9/26/19 Revision 1
10/22/19 Revision 2
11/12/19 Revision 3
12/05/19 Revision 4

Executive Summary

The game is based on islands during the Mesozoic period. Being limited on time while also trying to manage resources and fight other dinosaurs is what makes the game interesting. This game should be published because it combines the awesomeness of dinosaurs with classic survival and roguelike mechanics.

Overview

Title: DinoTracks
Tagline: Thrive To Survive
Names:

- Dan Phillips
- Ben Krupka
- Cindy Li
- Kevin Yuan

Genre: roguelike.
Platform: PC
Market:

- Age: 18-22.
- Gender: all.
- Interests: dinosaurs, survival, strategy.
- Occupation: students.

Setting:

- Where: a remote island (climate varies based on player selection).
- When: shortly before the meteor that ends the Dinosaurs' reign strikes.
- Conditions: pre-apocalyptic (player's dinosaur knows).
- Tone: comic, lighthearted.

Plays Like: NetHack meets dinosaurs.
Summary: players control a dinosaur that has somehow gained knowledge that a meteor will soon strike and wipe them out. They must explore, eat, and possibly fight their way to a place that will somehow protect them from the impact. This is complicated by the time limit of the asteroid, along with players having to maintain their dinosaurs' energy level through eating and avoid predators that want to eat their dinosaur.
Mechanics:

- Selecting an island and dinosaur.
- Move and explore.
    - Collecting powerups.
- Health, energy, and time management.
- Combat (both offense and defense).
- Other dinosaurs also perform actions.

Reference Art:

- Jurassic Park/World (books/movies).
- Terraria.
- Nethack.
- Dwarf Fortress.
- Crypt of the Necrodancer.
- Rimworld

Related Games:

The Isle, Afterthought LLC, Simulation/PC, 2015:

- Link to Steam: https://store.steampowered.com/app/376210/The_Isle/
- Interesting point: This game's idea is similar to ours. This game is about controlling a dinosaur to survive and evolve on an island.

Don't Starve, Klei Entertainment, Survival/PC, 2013

- Also a top-down survival game. Although Don't Starve focuses more on crafting and building to aid survival, both games are about managing your time and energy to survive as long as possible.

Wayward, Unlok, Roguelike/PC, 2016

- Both games focus on survival with the players actions affecting their stats and chance at survival. Wayward has no levels and players roam the map freely as they collect items, whereas our game will have a time limit and rounds.

Related Games

The Isle

Afterthought LLC, 2015

This game is similar to ours in that both are about dinosaurs. More specifically, both involve the player being a dinosaur that has to survive on an island.

This game is different from ours in that it is multiplayer, with PvP combat between the dinosaurs of other players, while our game's combat will be versus AI since it is singleplayer. This game also has more sandbox elements than ours, which will focus on survival. Related to both of these is that The Isle is far more open-ended than our game, which has the time limit imposed by the meteor. Another difference is the fact that this game is 3D while ours is 2D.

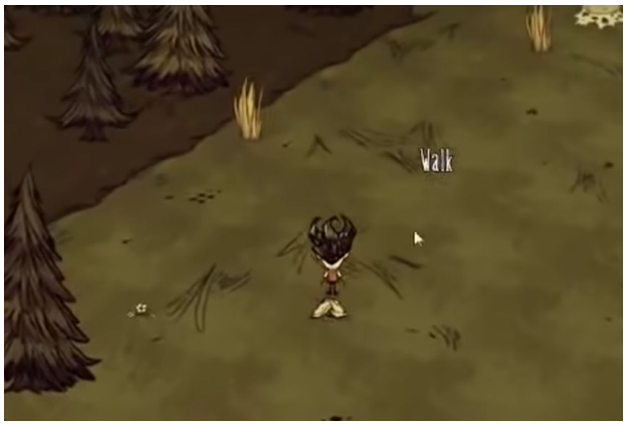
Another similarity is that in both games, dinosaurs are able to consume other dinosaurs (or, in our case, the "meat item" dropped by dinosaurs) in order to regain energy.

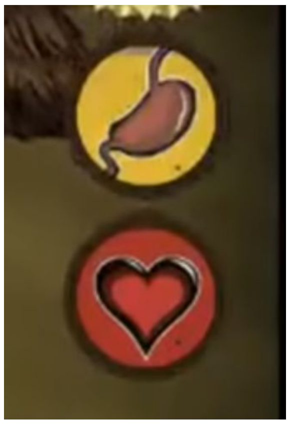
While the goal of both games is to survive, DinoTracks has an end goal and a time limit in order to win the game; The Isle is just that, survive. In The Isle, the goal is to strengthen the player's dinosaur and survive among the other players.

Don’t Starve

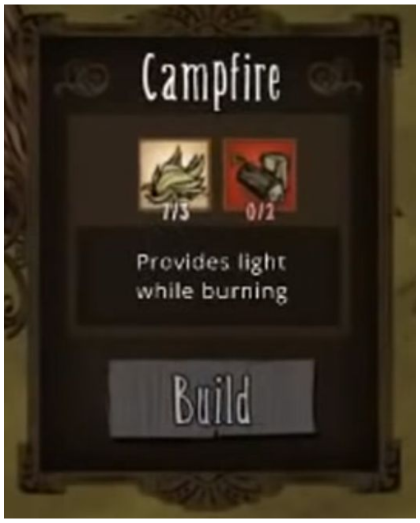
Klei Entertainment, 2013

This game is similar to ours in that it involves managing resources like health and hunger. It is also roughly top-down. Both games also involve combat that is in-world without moving to a separate combat screen and system. Also, both games have predefined characters (although ours are dinosaur genera/species rather than humans/robots/monsters).

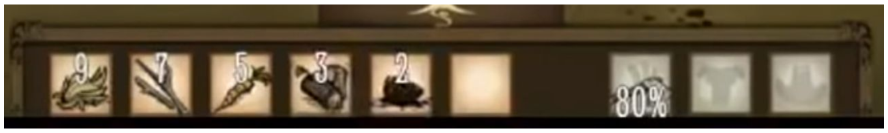




This game is different from ours in that it is more open-ended with the main goal being to survive as long as possible. Don’t Starve also has crafting and building mechanics that our game won’t have. Also, Don’t Starve’s maps are procedurally-generated while our maps will be hand-made with locations of items and enemies randomized.



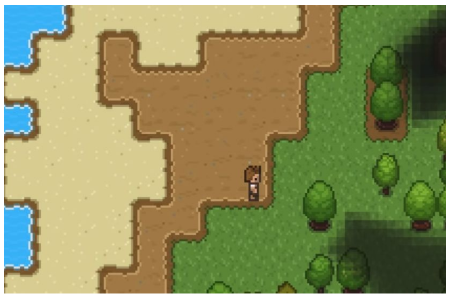
Similar to DinoTracks system of having an inventory of powerups; however, in Don’t Starve, the player has an inventory of supplies to use in crafting and building

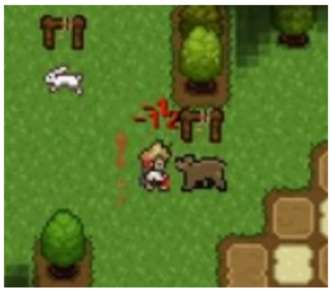


Wayward

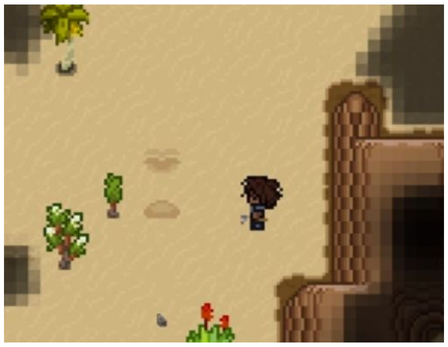
Unlok, 2016

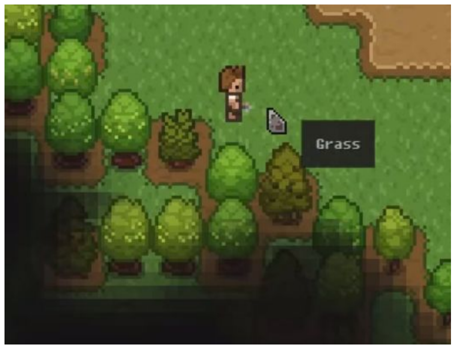
Similar to DinoTracks, Wayward is a top-down survival game where the player collects resources that will affect their stats. Both games are turn-based, where the actions in the world around the player only happen when the player performs an action. Another similarity is that both games have in-world combat, with the combat being triggered as the player approaches the enemy. In both games, if the player defeats the enemy, they will receive items that can be used. If the player's health runs out during combat, the game ends.



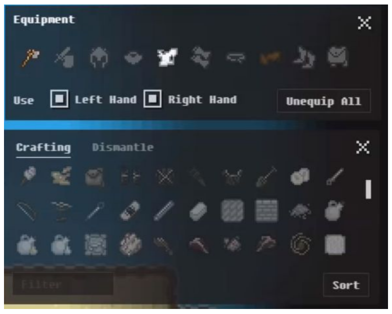


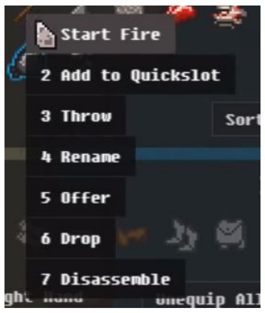
Like DinoTracks, Wayward has different environment types to explore. The terrain for both have obstacles and vegetation. In addition to that, both have/will have terrain types that affect the player's movement around the map.





One of the biggest differences is that while DinoTracks has a time limit and an end goal in the form of the meteor strike, Wayward is open-ended and does not have a goal other than character development and survival. Also, Wayward has crafting and building elements, as well as skills that DinoTracks will not have. The map for DinoTracks will also not be procedurally generated, as it is for Wayward.

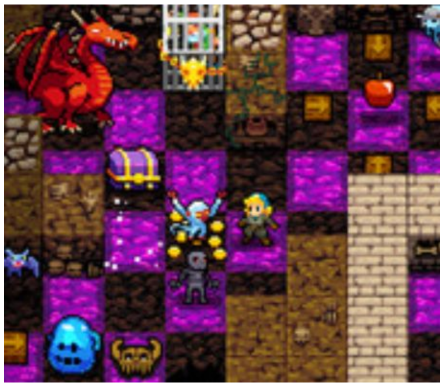
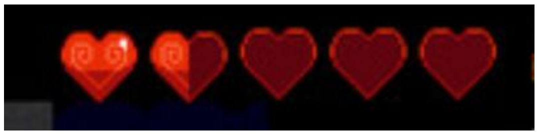




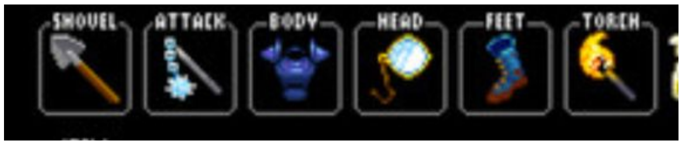
Crypt of the Necrodancer

Brace Yourself Games, 2015

Both games are top-down roguelike games with combat and item collection that focus on the player moving in a turn-based fashion. Both games also have a health system to indicate how much more damage the player can take.

Unlike DinoTracks, the progression of Crypt of the Necrodancer is a series of levels where the player collects weapons, armor, and treasure.



While Crypt of the Necrodancer requires the player to move with a rhythm and has the other aspects of the game happen according the rhythm, our game will have it so that things only happen when the player moves or performs another action.

Player Composition

- Victor Bennett: male, 16 years old, highschool student, love Jurassic Park movies, play pixel games for 1 hour everyday.
- Philip Williams: male, single, 28 years old, doing research in dinosaurs with a professor in archaeology, play video games for 3 hours a week.
- Sharon Anderson: female, single, 22 years old, love survival games, especially don’t starve, play video games after work for 2 hours a day.
- Alice Howard: female, single, 26 years old, huge fan of dinosaurs, buy lots of dinosaur models, go to the dinosaur section in every natural museum.

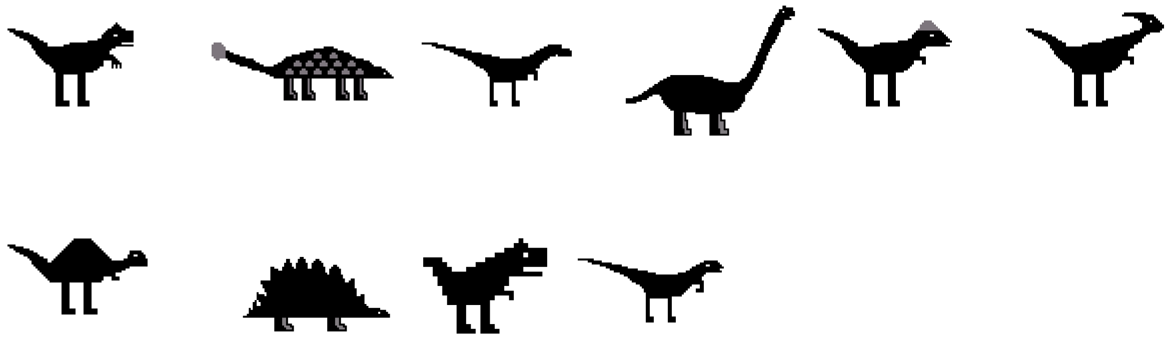
World

- Island during Mesozoic period filled with plant life and dinosaurs.
    - Dinosaurs are the only animals on the islands.
- A meteor is going to collide with the Earth and wipe out many groups of life.
- The player’s dinosaur knows about the dinosaur because it has been granted advanced intelligence by aliens that are trying to preserve life from disasters.
- The aliens have provided an escape pod that will bring the player’s dinosaur up to their ship, and the player needs to survive and traverse the island to get there before the meteor hits.
- Other dinosaurs on the island will try to attack the player as they search for the escape pod.
- Player must collect the eggs spread around the island and bring them to the escape pod to increase their score.

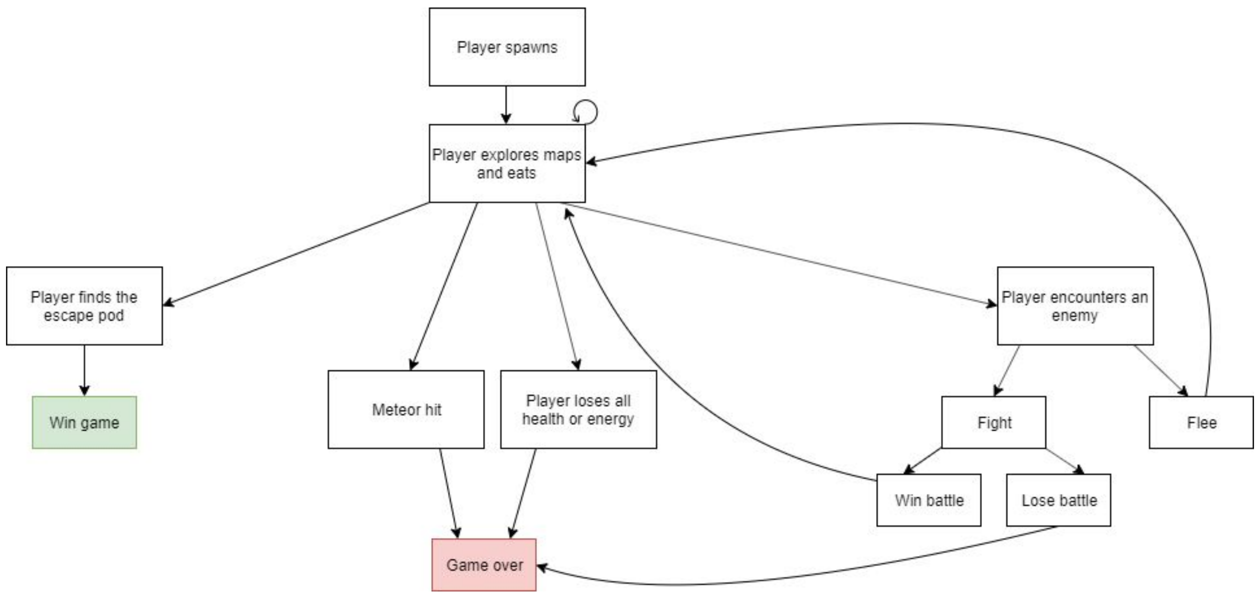
Characters

- Carnivores:
  - Tyrannosaurus
    - Large.
    - Medium speed.
    - High damage.
    - Low defense.
  - Velociraptor
    - Small.
    - High speed.
    - Medium damage.
    - Low defense.
  - Spinosaurus
    - Large.
    - Slow speed.
    - High damage.
    - Low defense.
  - Allosaurus
    - Medium.
    - High speed.
    - Low damage.
    - Medium defense.
- Herbivores:
  - Stegosaurus
    - Large.
    - Slow speed.
    - Medium attack.
    - High defense.
  - Pachycephalosaurus
    - Medium.
    - Medium speed.
    - High attack.
    - Medium defense.
  - Protoceratops
    - Small.
    - High speed.
    - Low attack.
    - Medium defense.
  - Parasaurolophus
    - Medium.

- Very high speed.
- Low attack.
- Low defense.

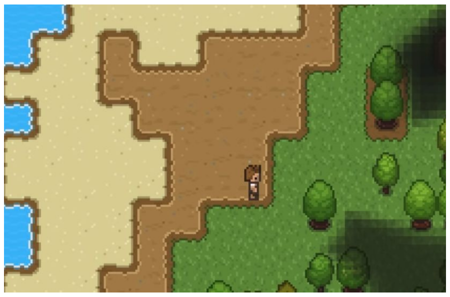


Plot Graph

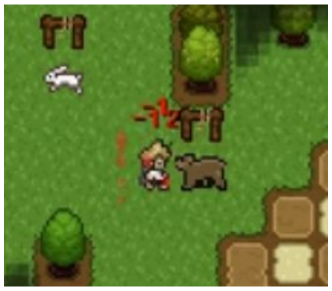

Player spawns
Player explores maps and eats
Player finds the escape pod
Win game
Meteor hit
Player loses all health or energy
Game over
Player encounters an enemy
Fight
Flee
Win battle
Lose battle

Art Direction

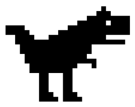
- Reference Art



  - Similar map/terrain art style
  - Pixelated style



  - Similar pixel-style characters
- Concept Art



  - First original art
  - Served as the guide for the art style in the game
- Font

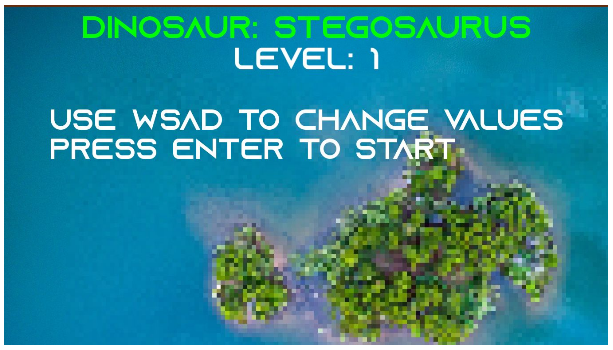
Azonix.otf

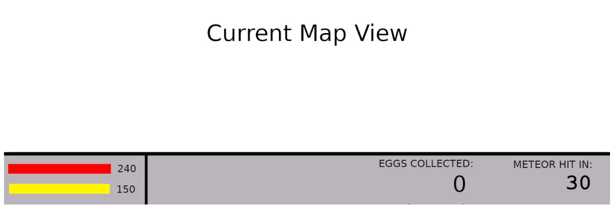
DINOTRACKS

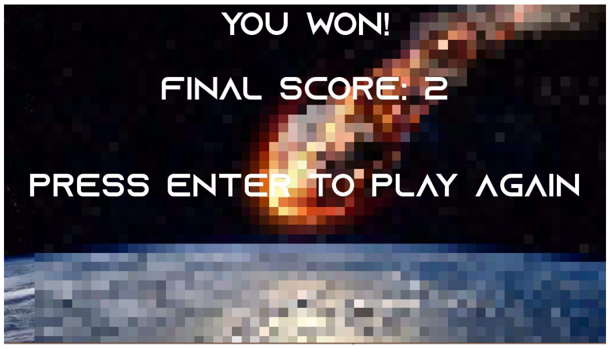
  - Font used in the game
  - Simple but kind of futuristic representative of the alien backstory

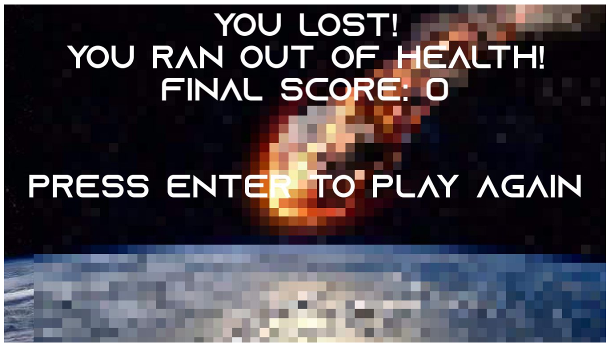
UI Storyboards

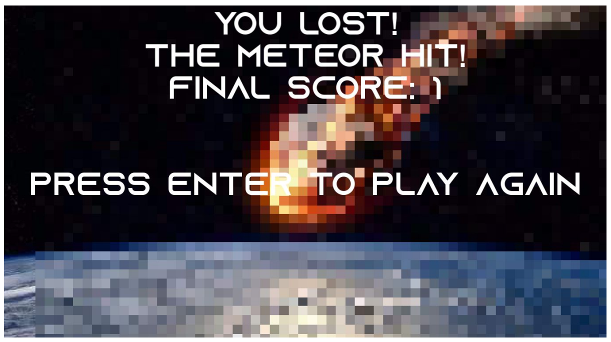
Player/Map Select -> Game - > Game Over (can exit or play again)

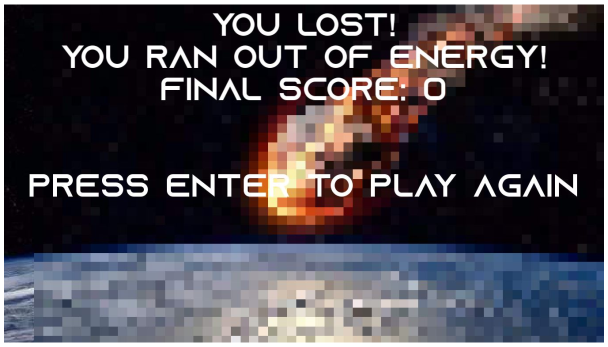












Tags and Dialogs

Tags:

- Key input
    - RUN_UP
    - RUN_DOWN
    - RUN_LEFT
    - RUN_RIGHT
    - WALK_UP
    - WALK_DOWN
    - WALK_LEFT
    - WALK_RIGHT
- Combined input
    - NEXT_STATE
    - CHOOSE_UP
    - CHOOSE_DOWN
    - CHOOSE_LEFT
    - CHOOSE_RIGHT
- Resources
    - TERRAIN
    - MAIN_FONT
    - EGG
    - ESCAPE_TEX
    - MEAT
    - FRUIT
    - BACKGROUND_START
    - BACKGROUND_END
- Dinosaurs
    - STEGOSAURUS
    - TYRANNOSAURUS
    - VELOCIRAPTOR
    - SPINOSAURUS
    - ALLOSAURUS
    - PACHYCEPHALOSAURUS
    - PROTOCERATOPS
    - PARASAUROLOPHUS
    - NUM_TYPES
- Components
    - POSITION
    - VELOCITY
    - HEALTH
    - ENERGY

    - FOOD
    - VISUAL
    - SCORE
    - ATTRIBUTES
- Tiles
    - WATER
    - GRASS
    - GRASS_BOTTOM_LEFT
    - GRASS_BOTTOM_RIGHT
    - GRASS_TOP_RIGHT
    - GRASS_TOP_LEFT
    - MOUNTAIN
    - FOREST
- Map
    - MAP_HEIGHT
    - MAP_WIDTH
- Entity ranges
    - MAX_ENTITIES
    - PLAYER
    - ESCAPE_POD
    - ENEMY_START
    - ENEMY_END
    - FOOD_HERB_START
    - FOOD_HERB_END
    - FOOD_CARN_START
    - FOOD_CARN_END
    - EGG_START
    - EGG_END
- Sounds and music
    - SOUND_WIN
    - SOUND_LOSE
    - SOUND_EAT_HERB
    - SOUND_EAT_CARN
    - SOUND_COMBAT
    - SOUND_TER_COLLISION
    - MUSIC_COMBAT
    - MUSIC_GAMEPLAY
    - MUSIC_LOSE
    - MUSIC_WIN
    - MUSIC_MENU
- Other
    - MAX_ENERGY

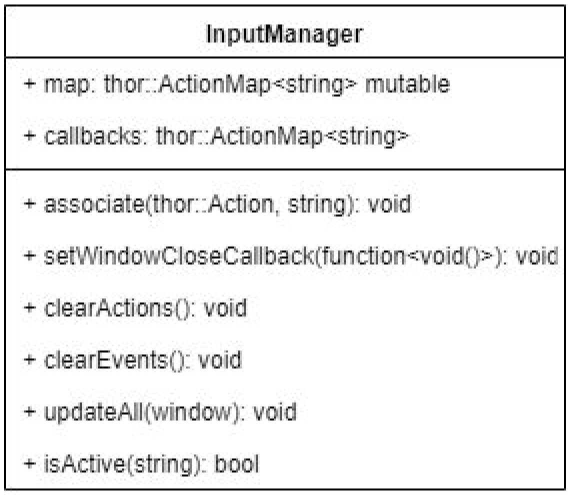
Software Architecture

- Application:
  - ResourceManager: load fonts, textures, sounds, and other things from filesystem to provide to part of logic and views that need them.
    - Resources loaded at beginning.
    - Accessed globally (but not a singleton).
    - String keys identify resources.
    - Dinosaur types are also a resource since they are loaded from files. This means the files don't have to be read each time a dinosaur is created.
  - Variable timestep.
- Logic:
  - Islands:
    - Terrain: movement modifier, type (water, passable, vegetation, mountain)
      - Instances, not subclasses, represent a type of terrain.
    - Map is a grid of ints representing terrain types. Movement cost will be fetched based on terrain type int.
  - Entity:
    - Components: position, velocity, health, attack, defense, energy, etc.
      - Each component has a string that identifies it.
      - Each component also has data associated with it that can be retrieved and set by systems.
        - Data will be a union for homogeneity between different types of components.
    - Entities contain maps of strings to components.
      - There are methods to add, get, and delete components from entities.
      - Entities can update/get data on components directly.
    - Enemies are same dinosaur types (will decide during later balancing whether to weaken them) as player.
    - Visual Component: stores string that the HumanView will use to decide appropriate texture for an entity.
    - Score Component: put on eggs to determine how much they increase your score.
  - Systems:
    - MovementSystem: moves entities (and calculates energy/health usage), checks collisions, determines if things are picked up, determines if combat happens.
    - HealthSystem: check for death, heal player, update health.
    - EnergySystem: check energy amount, update energy amount.
    - FoodSystem: restore energy.

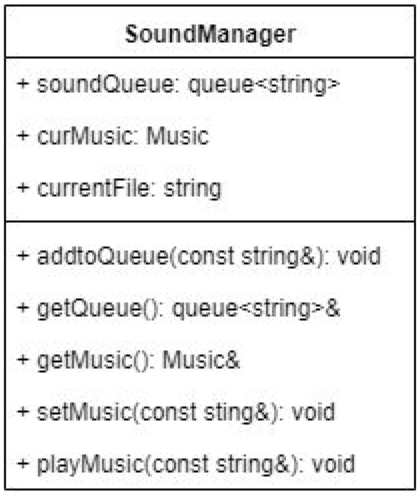
        - CombatSystem: calculates damage, fleeing, energy usage.
    - EntityBuilder: makes creating components on Entities easier.
        - Create an instance and pass it an entity.
        - Call addComponent() methods with data to add components to entity.
        - Avoids manual handling of unique_ptrs.
    - Update:
        - Go through entities and run appropriate systems.
    - Turn timer for meteor.
    - Collision Detection:
        - Based on moving entities.
        - Checks against terrain and other entities.
        - Checks all spaces ahead in movement range.
        - We will check collision for moving entities against other moving entities and static entities.
        - If AIs collide with each other, the first one gets the space and the second is stopped as if it hit an obstacle.
        - Collision system will have to know what two types of things are colliding.
        - Done in MovementSystem's update method.
    - Dinosaur Types:
        - Vary based on speed, attack, defense, and starting health.
        - Load from a file.
    - Entity Ranges: how the entity vector in Logic is defined. (57 total)
        - 0: player.
        - 1: escape pod.
        - 2-16: enemy dinosaurs.
        - 17-36: food (20 total).
            - 17-31 plant-based (15 total).
            - 32-36 for meat drops from enemy dinosaurs (5 total).
        - 37-56: eggs (20 total)).
    - Combat:
        - When player and enemy dinosaur collide.
        - Keep on separate tiles.
        - Calculate damage to each based on attack and defense.
        - Keep track of whether a player-enemy pair has fought in this turn to prevent calculating same combat twice.
        - Damage = enemy attack*(1 - (player defense/100))
- View:
    - HumanView.
        - InputManager: maps player inputs to game actions and allows this mapping to be changed for configurability.
            - Actions currently represented by strings.
            - Map actions to keys and to bools.
            - When a key is pressed, the appropriate bool is set to true so that the appropriate command can be sent to

        - State machine for menus.
            - Title, Playing, GameOver.
        - Scrolling:
            - Use sf::View class.
        - Distinctness Of Player:
            - Color.
            - Dinosaur textures need to be non-black in order for setting colors on sprites to have a visual effect.
        - Faster speed will be default with ctrl key to slow to precision speed.
        - Menus:
            - StartMenu
            - EndMenu
        - Sounds:
            - Plays music or sound based on tag from login (when playing).
                - Stop previous music when new one starts.
            - Plays music for start and game over screens.
            - SoundManager: global.
                - Allows for queueing of sound effects in logic.
                - HumanView gets queue each turn and plays appropriate sounds.
                - Queue is cleared once sounds are played.
    - AIView for enemies.
        - Check if player character is nearby. If so, pathfind to character.
        - If player no longer in range, stop pathfinding (including wall-following).
        - If the player has fled combat, wait before following again.
        - Pathfinding:
            - Move towards player as direct as possible.
            - If an obstacle is encountered, use wall-following until going in same direction again.
        - Have state for each enemy. On each turn, calculate state and then do appropriate action for that state.
- Class Hierarchy:
    - Components all inherit from Component.
    - Entities created through composition of components rather than inheritance.
    - Possible shared base class for HumanView and AIView for common behaviors and shared functionality, such as receiving events from the EventManager.
- Data Structures:
    - Maps: the map is a 1D vector that is accessed as 2D. The map represents the terrain. Vegetation is considered as its own type of terrain and acts as an obstacle to the player but is displayed on top of the base terrain for that map. Since the map sizes are constant throughout play, the map can have space reserved at loading time. The systems that access the map will use data from the map for things such as determining passability and movement cost.

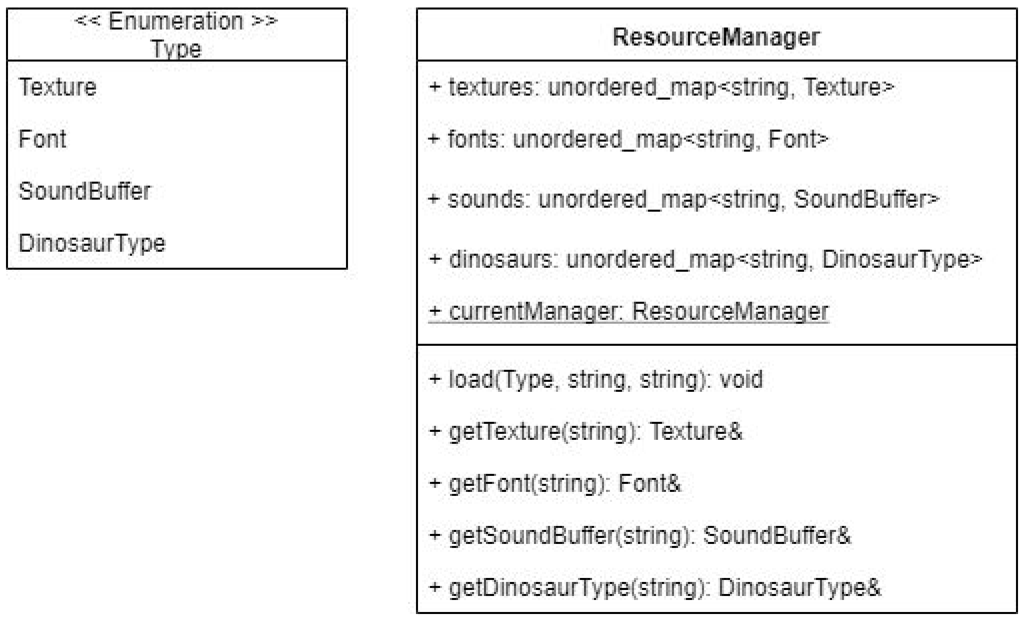
    - Entity Locations: since entities (player, enemies, food) are sparse, their locations are a Component that will be accessed by systems that deal with location and movement. This means that the entity locations are stored separately from the map. The player will be entity zero.
- File Formats:
    - Map Names: x.map (e.g. 1.map, 2.map, etc…). Stored in resources/maps.
    - Maps: a 2D grid of space-separated integers. Each integer represents one tile of the map, with the integer value corresponding to a terrain type. This allows us to easily create maps with a text editor while also being fairly simple to load.
        - Ex:
          ```
          0 0 0 0
          0 1 2 0
          0 1 1 0
          0 0 0 0
          ```
        - Vegetation/obstacles and entities are generated and thus don't need to be part of format.
    - Key Configuration: a list of key-value pairs where the key is a game action and the value is the key. Each pair is on its own line and are separated by an '='.
        - Use Thor to convert from string to key.
    - Dinosaurs: name followed by health, speed, attack, defense (separated by spaces).
        - E.g: Stegosaurus 100 20 30 70
- Event Flow: turn-based.
    - One turn: user inputs action, their dinosaur does that action, then all other objects in the world respond to what they player did.
    - Meteor timer ticks down for every turn after everything in the world has performed their actions.
- Tag Storage: want to avoid using magic strings.
    - Store all tags in central tag files.
    - Reference these strings when using the tag.
- External Libraries:
    - Thor: for actions, vector math, and maybe more.
- Diagrams (for visualizing more complex parts of architecture):



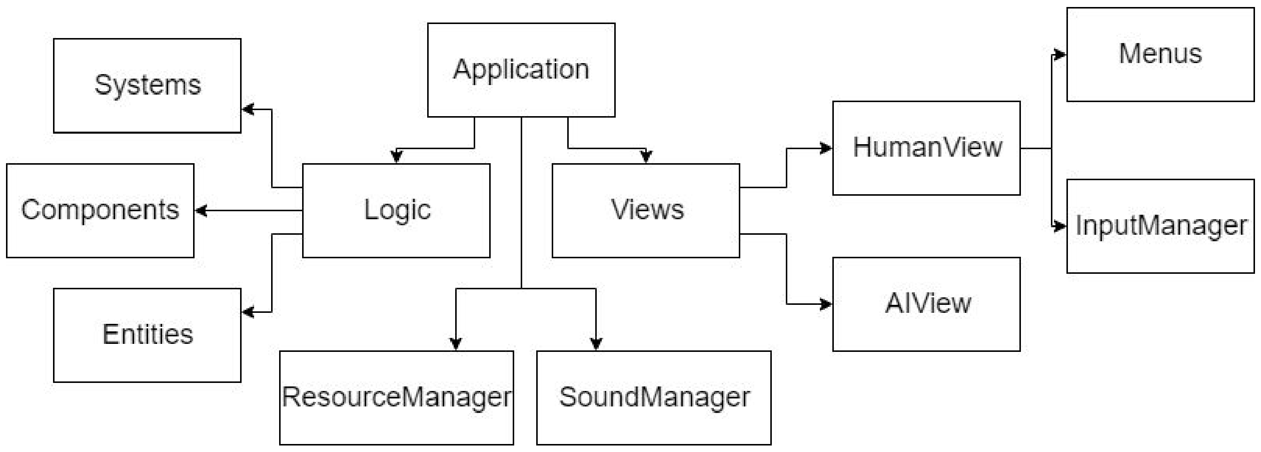
```
InputManager
+ map: thor::ActionMap<string> mutable
+ callbacks: thor::ActionMap<string>
+ associate(thor::Action, string): void
+ setWindowCloseCallback(function<void()>): void
+ clearActions(): void
+ clearEvents(): void
+ updateAll(window): void
+ isActive(string): bool
```



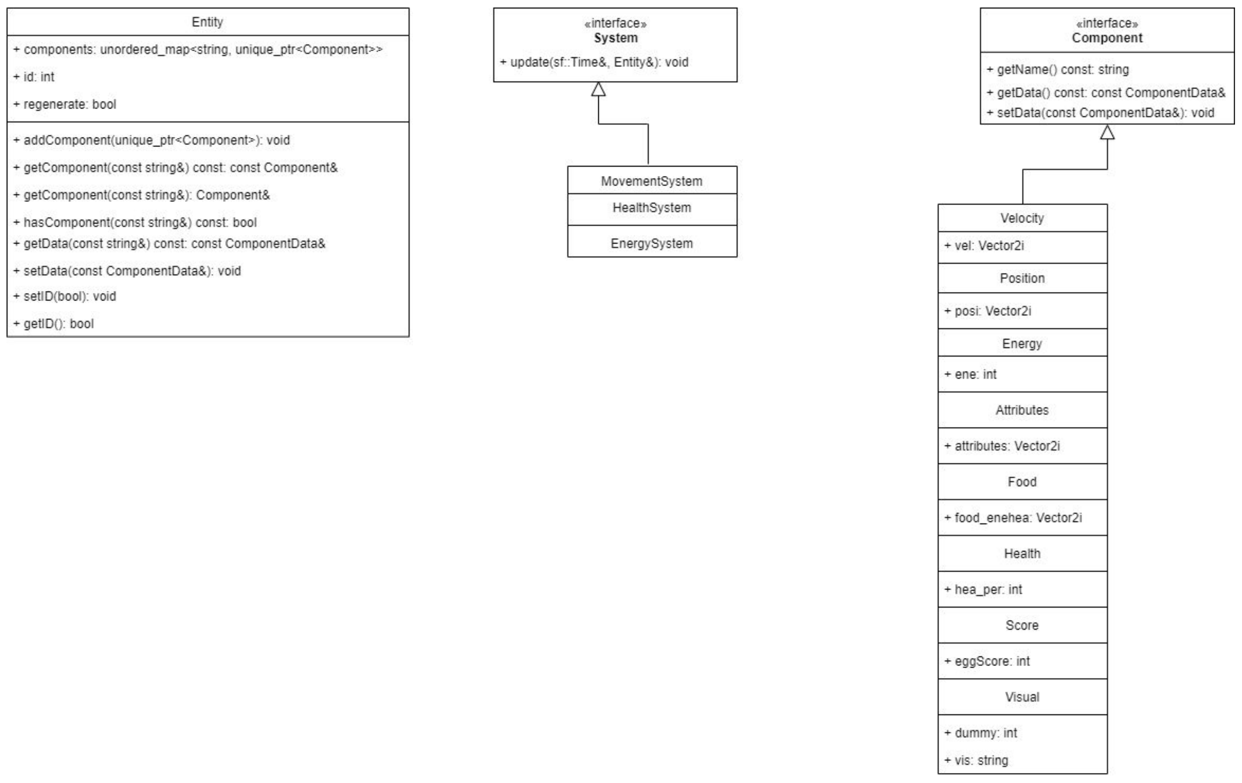
```
SoundManager
+ soundQueue: queue<string>
+ curMusic: Music
+ currentFile: string
+ addtoQueue(const string&): void
+ getQueue(): queue<string>&
+ getMusic(): Music&
+ setMusic(const sting&): void
+ playMusic(const string&): void
```



<< Enumeration >>
Type
Texture
Font
SoundBuffer
DinosaurType
ResourceManager
+ textures: unordered_map<string, Texture>
+ fonts: unordered_map<string, Font>
+ sounds: unordered_map<string, SoundBuffer>
+ dinosaurs: unordered_map<string, DinosaurType>
+ currentManager: ResourceManager
+ load(Type, string, string): void
+ getTexture(string): Texture&
+ getFont(string): Font&
+ getSoundBuffer(string): SoundBuffer&
+ getDinosaurType(string): DinosaurType&



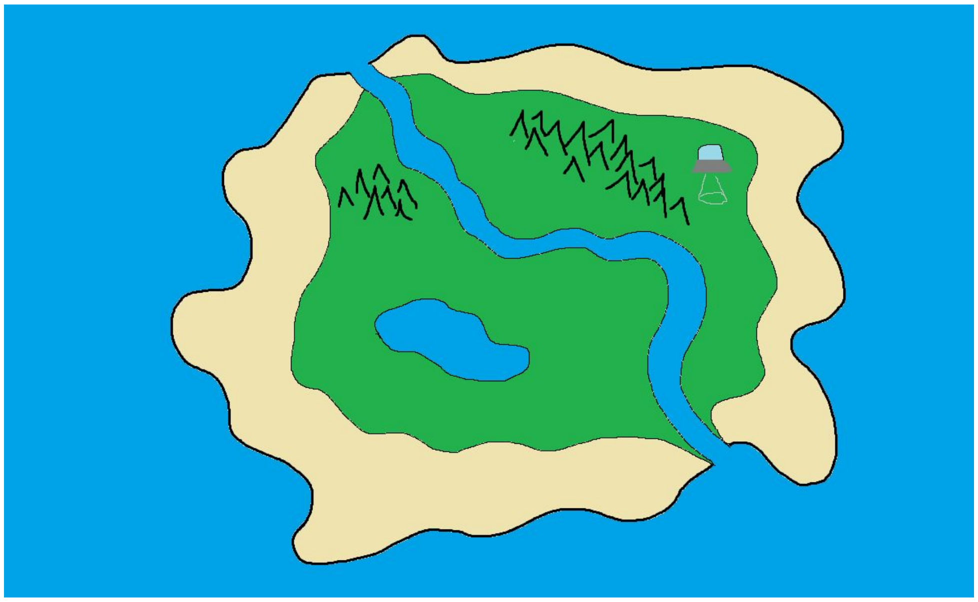
Application
Systems
Components
Logic
Entities
Views
HumanView
AIView
Menus
InputManager
ResourceManager
SoundManager

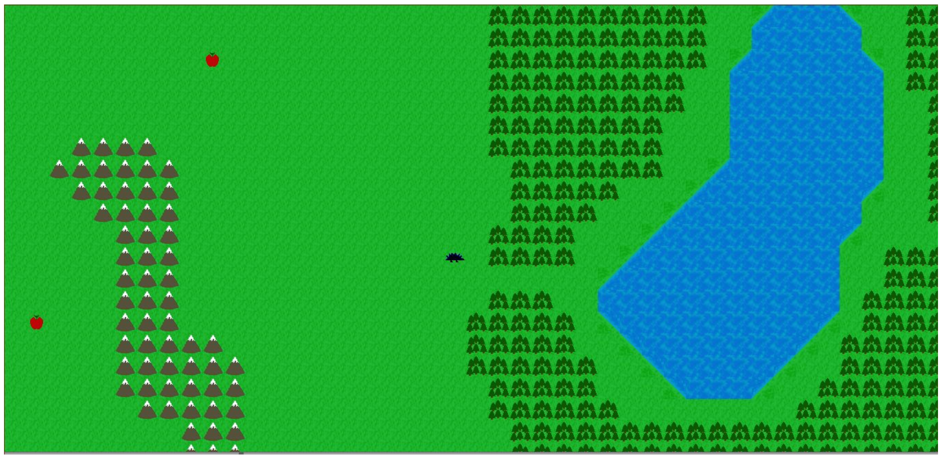


Entity
+ components: unordered_map<string, unique_ptr<Component>>
+ id: int
+ regenerate: bool
+ addComponent(unique_ptr<Component>): void
+ getComponent(const string&) const: const Component&
+ getComponent(const string&): Component&
+ hasComponent(const string&) const: bool
+ getData(const string&) const: const ComponentData&
+ setData(const ComponentData&): void
+ setID(bool): void
+ getID(): bool
«interface»
System
+ update(sf::Time&, Entity&): void
MovementSystem
HealthSystem
EnergySystem
«interface»
Component
+ getName() const: string
+ getData() const: const ComponentData&
+ setData(const ComponentData&): void
Velocity
+ vel: Vector2i
Position
+ posi: Vector2i
Energy
+ ene: int
Attributes
+ attributes: Vector2i
Food
+ food_enehea: Vector2i
Health
+ hea_per: int
Score
+ eggScore: int
Visual
+ dummy: int
+ vis: string

Level Maps

- Island outlines.
- Water as an obstacle
- Mountains and vegetation that are impassable





Mechanics Analysis

- Moving: player moves x number of spaces at a time when they choose to move. Players can move either one tile at a time for minimal energy cost and max precision or move at a higher, max speed that takes more energy and is less precise. Moving into food eats it, moving into enemies calculates combat. Running into obstacles ends movement and forfeits remaining movement spaces for turn.
    - Scrolling:
        - Centered on player.
        - Have enough water around the island so that player can't see past the edge of the map.
- Combat: Damage to each combatant will be calculated based on attack and defense. If a combatant dies, it is removed and leaves behind a meat item.
    - Player can flee by away from enemy. Count as moving more spaces than usual to use more energy.
    - Dinosaur wait to chase player down after fleeing.
- Energy: all dinosaurs start off with the same amount. Moving uses set energy amount, so faster dinosaurs use more energy by virtue of moving more. Can be refilled by eating. If energy runs out, game over.
- Health: starting health based on dinosaur. Damage comes from combat. Health can be restored by eating food. If health runs out, game over.
- Spawning: certain amount of plants, herbivores, and carnivores generated at start. The escape pod will also be placed when the map is first populated. The player's starting location is randomized. Spawn a new dinosaur when one dies.
- Only one combat allowed at a time.
- AI dinosaurs only interact with player.
- End: death, finding escape pod, meteor.
- What counts as levels of success?
    - Death/Meteor: failure, no success.
    - Escape Pod: success
- Meteor Timer: ticks down every turn. Turns left until meteor strike will be displayed in the lower left of the screen.
- Scoring: egg collection.
    - Eggs are placed like food.
    - Display on UI next to meteor timer

Scheduling

- Milestones:
    - *System stuff: 10/22 (Dan)*
    - *ResourceManager: 10/22 (Dan)*
    - *InputManager: 10/22 (Dan)*
    - *Map loading and Drawing: 10/22 (Ben) (Kevin: tile art)*
    - *UI Placeholder: 10/22 (Ben)*
    - *Entities, Components, and Systems: 10/22 (Cindy)*
        - *System base class and array in Logic.*
        - *Components: position and velocity.*
        - *Entity with component unordered_map. Also accessors for components.*
    - *Moving and Turn system: 10/22 (Kevin)*
    - Meteor countdown: 11/12 (Cindy)
    - *ECS Updates: 11/12 (Dan)*
    - *Scrolling: 11/12 (Ben)*
    - *Dinosaur types and stats: 11/12 (Ben)*
    - *Placement (Enemies, Escape Pod): 11/12 (Cindy)*
    - *Energy and health systems: 11/12 (Kevin)*
    - *Food component and eating: 11/12 (Kevin)*
    - *Visual component: 11/12 (Cindy)*
    - *Tags in file: 11/21 (Cindy)*
    - *Dual speeds: 11/21 (Ben)*
        - *Changes to InputManger to handle modifiers: 11/21 (Dan)*
    - *Terrain movement cost: 11/21 (Kevin)*
    - *Better textures: 11/21 (Kevin)*
    - *Collision Detection: 11/26 (Dan)*
    - Eggs: 11/26 (Cindy)
    - *Configurable Keys: 11/26 (Ben)*
    - *Add health to food: 11/26 (Kevin)*
    - AI: 12/*3 (Ben)*
    - *Pathfinding: 12/3 (Ben)*
    - *Combat: 12/3 (Kevin)*
        - *Generate new dinosaur/food/egg to replace old. (Dan)*
    - *Sounds (including radar): 12/3*
    - *Menus: 12/3 (Dan)*
    - *Balancing: 12/5*
- Project Dates:
    - Design Presentation: October 3rd
    - Design Document + Report: October 10th
    - Intermediate Presentation & Report: October 22nd
    - Intermediate Presentation & Report: November 12th

- Demo: December 3rd Final Presentations: December 5th
- Final Report: December 6th

Changelog

- Revision 1: initial version of all pages.
- Revision 2:
  - Add Entities, Components, Systems to schedule.
  - Move dinosaur types, energy + health systems, and meteor countdown to 11/12 milestone.
  - Removed EventManager from architecture and switch to direct logic-view communication.
  - Make map data one layer.
  - Added InputManager to schedule.
  - Clarified what running into obstacles does.
  - Decided on how collision will work.
  - Assigned first presentation tasks.
  - Added configurable keys to schedule.
  - Add tags for movement actions
  - Added diagrams for software architecture.
  - Added more details to related games.
  - Added Overview section.
  - Added diagrams for Software Architecture.
- Revision 3:
  - Define how scrolling will work mechanically.
  - Schedule scrolling.
  - Move path finding back to final presentation.
  - Add Thor as an external library.
  - Change spawn-death condition (spawn new when one dies, rather than occasionally spawning new ones based on a threshold).
  - Added EntityBuilder to architecture.
  - Defined specific systems in architecture.
  - Defined new update process in architecture.
  - Specified what visual effect special abilities have.
  - Added egg component.
  - Decided dinosaur components and file format.
  - Adjusted combat mechanics (changed flee decision, removed dodging).
  - Scheduled for second intermediate presentation.
  - Clarify dinosaur types as resources.
  - Add and update diagrams.
  - Move AI and combat back to final presentation.
  - Decide entity ranges.
  - Schedule visual component.
- Revision 4:

- Decided to make the player character visually distinct by setting its color.
- Decided to do collision detection in MovementSystem.
- Decided to have movement cost calculated based on terrain type rather than also stored in a grid.
- Moving no longer uses acceleration. Instead, there is a one-tile precision speed and then a faster speed determined by dino type.
- Store tags in central file.
- Remove special abilities and powerups. Regaining health is now done by eating food, just like food restores energy.
- Determine architecture for combat, pathfinding, and AI.
- Remove parts that have been decided against.