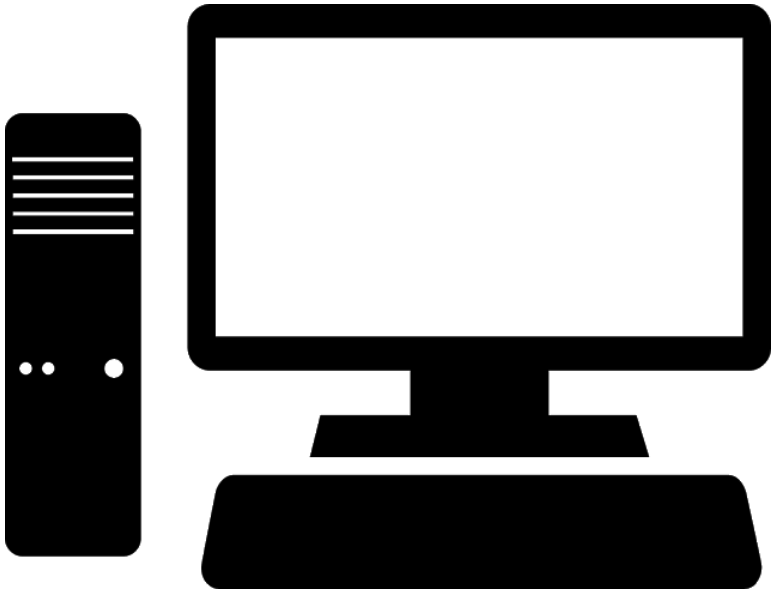
Map Maker's Guide to Hawai'i Technical Plan

– By Joey Clemente

Table Of Contents

Delivery Platform

- **Main Platform: Computer**



We don't have another choice about the platform, our game is built for pc with extremely little room to do anything else, as much as it would be extremely interesting to tackle another platform or controller scheme, it is almost impossible to get something working well without any crazy major bugs within 3 weeks of conception, prototyping, and then polishing. However, this platform allows us to get easy-to-use input up and running super quickly.

Development Environment

Unity

The main portion of the development is done in the Unity Game Engine. It is a powerful free engine that allows developers to make very well-made and designed games with very easy-to-use user interfaces and an easy-to-use scripting language in C#. It is a powerful combination of systems that allows the developers to save a lot of time with all the nitty gritty and focus on what matters most, actually creating systems and art for the game itself.

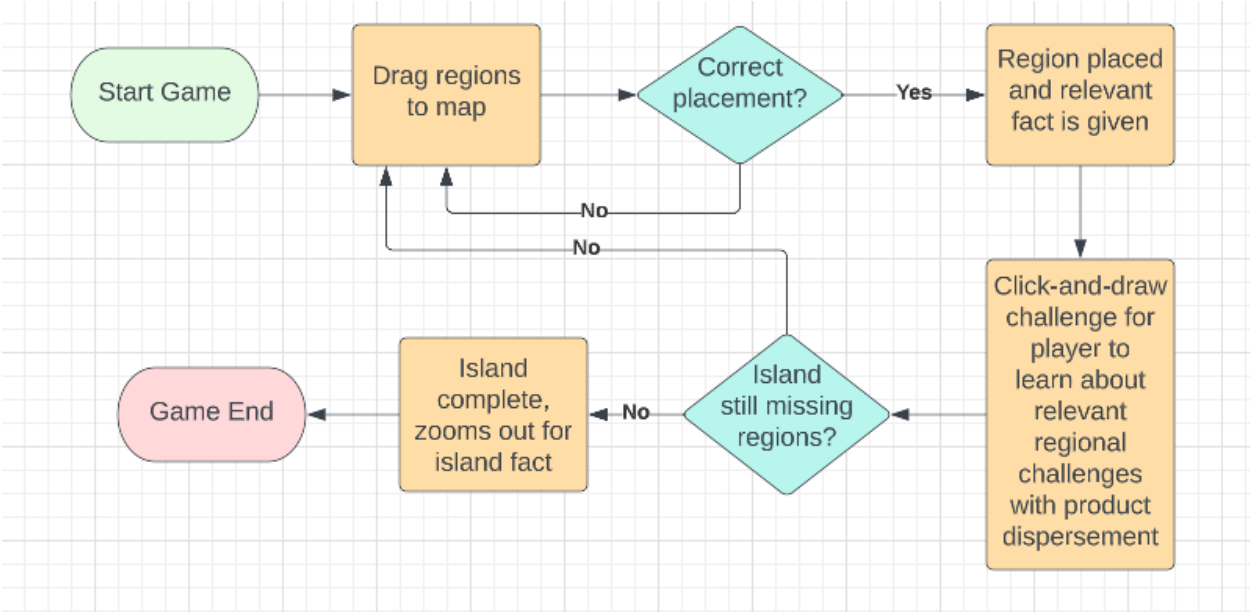
Photoshop

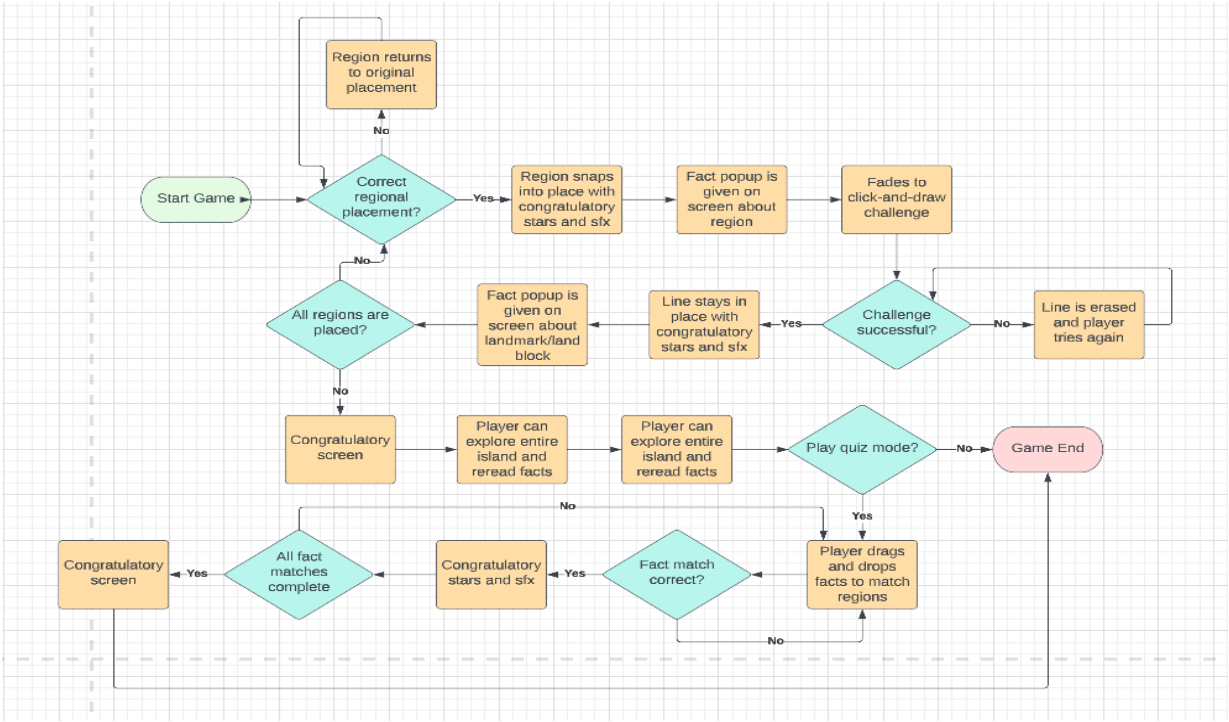
All of the art is being developed in the Adobe software, Adobe Photoshop. Photoshop is one of the most used programs in the world for graphics design and art. In this instance, we will be using it to make game assets and animations. It is an extremely powerful tool that really allows the artist to unlock their full potential and create some wonderful-looking art assets, just like Logan did (shoutout Logan Allen for the insanely talented art).

Version Control

A majority of version control is either handled in gitbash or gitkraken. Both programs revolve around the popular git software that makes version control, especially in game development relatively simple and straightforward. We have the occasional merge conflict here and there, but the simplicity and easily accessible gitkraken allow us to stay on track and not have to worry that much about git and it's limitations and functionality.

Logical Flow Diagram





Game Mechanics and Systems

Systems

Island Mode

At the start of the game, the player is presented with an outline of the island they're trying to complete and a collection of map regions to fill the outline in with.

- Map regions can be dragged and dropped into the outline (see: "Region Dragging and Dropping" in mechanics)
- When a region has been placed in the correct spot, the player will be put into the path-making mode for that region.
- When the entire map is complete, it will fill with color and the player will have the choice to enter either exploration mode or quiz mode.
    - The player can always go to quiz mode from exploration mode, and after finishing quiz mode may return to exploration mode.

Path-Making Mode

Each region has its own path-making mode, based on the people that live there and the things they need to collect.

- There will be resources around the region that the player must guide the people to (see "Path-Making" in mechanics)
- There are obstacles around the area that the player cannot draw a path through.
- The player has a limited amount of length to draw the path with, indicated in the UI.
- Once a player finishes the path-making mode for a region, they will be returned to Island mode.

Exploration Mode

After finishing the map, the player can explore the information they've gained freely.

- Players can click around the map to view the information they've learned (see "Information Reviewing" in mechanics)
- The player can enter quiz mode from exploration mode at any time.

Quiz Mode

After learning about an entire island, the player can enter quiz mode to test themself on what they learned.

- A number of facts will show up in the box, which players will have to place in the region that they apply to (see "Question Answering" in mechanics).
- Some of the questions will be taken directly from the information pop-ups, while others must be inferred from the path-making mode.
- At the end, the player will see how many questions they got correctly.
    - After they finish, the player will be returned to exploration mode.

Information Pop-Ups

As part of the UI, whenever the player completes a region information will appear on the screen about the people that live there.

- These can be closed by clicking outside of them.
- The information will be written at a 3rd grade reading level.
- The information will be about the culture of the indigenous people in the area and some of the hardships they face.

Screens and Transitions

The game takes place in a cartographer's atlas, so all of the screens and transitions are book themed.

- The start screen will be the front page of the book.

    - There will be options to go to the credits screen, the help screen, and the main game.
- Screen transitions will look like a page turning.

User Feedback Animations & Sounds

Whenever the player completes an area and while they are playing, there will be many animations and sound effects to show feedback for what they've done.

- After a region is placed correctly, a fun animation will play and a zoom animation will transition the game to path-making mode.
- After completing a region's path-making mode, a fun animation will play.
    - These two will have the same sound effect.
- There will be an animation for the informational pop-ups as they appear to draw attention to them.
    - These will have a unique sound effect.
- When the map is complete, there will be an animation as it fills with color.
    - This will have music playing as it happens.

UI Elements

The game will have many UI elements to indicate parts of the gameplay.

- In Island and Quiz mode, there will be a UI panel where the region map pieces are stored and the quiz information popups appear.
    - In Quiz mode there will also be a text box indicating how many questions the player has answered correctly.
- In path-making mode there will be a bar to indicate how much length the player has left for their path.
- In exploration mode and island mode, there will be UI popups to show information about areas and resources.

Mechanics

Region Dragging and Dropping

While in island mode, the player can drag and drop regions of the island map from a small box at an edge of the screen into the map outline.

- If the region is in the wrong location when the mouse button is released, the piece will return to the box
- If the region is in the right place, it will snap to the location.
    - After this point, the region can no longer be dragged and dropped or moved in any way.
    - After a region has been placed correctly, the player will enter that region's path-making mode.

Path-Making

While in path-making mode, the player can click on a starting area representing a group of indigenous people and must draw a path from them through all of the resources they need to gather.

- The player must draw the path through all the resources to succeed.
    - Some of these can be physical, like fresh water or food, and some can be more abstract, like access to religious sites.
- The player has a limited amount of length to draw the path with. If they run out of length, they must restart the path.
- If the player releases the mouse button before finishing, they must restart the path.

Question Answering

In Quiz/Review mode, the player will need to answer questions by associating information with the people in different regions. They will be shown a number of pieces of information, and must put them in the right place.

- This is done by dragging the information from the same box that once held the region maps, and dropping them onto the completed map over the right region.
- Each correct answer will increase the player's quiz score
- After a wrong answer the player will be shown where the information was supposed to go.
    - They may not retry after they have been shown the correct answer.

Information Reviewing

The player can always go back and look at the information that they've learned from a region or island.

- Single clicking on an already complete region while in island or exploration mode will show that region's information pop-up
    - Double-clicking on an already complete region while in island or exploration mode will send the player into that region's path-making mode.
- Clicking on a resource present in a region's map will show the player that resource's information pop-up
- Clicking anywhere else on the screen will close the pop-up

Art Pipeline

Assets are going to be made in Photoshop. When completed the assets will be exported as a transparent png and uploaded to the assets folder in Google Drive.
Assets are created in 72 PPI, for an intended screen resolution of 16:9 (1920x1080px or Full HD).
Assets will be named in Camelcase based off their asset type, name, and sprint (ie. MapOahuSprint3, UIFactSprint4, etc.)

After completion assets will be brought into Unity and placed in their respective folder within the assets folder. The folder matches the asset type listed in their name.

Example Asset Path: “Assets/Map/Regions” for each of the map regions

Audio Pipeline

Audio is either found online or using a software such as SFXR to create sound effects or create music for our project.

All music and/or SFX are in the .wav format and are to be put in the designated audio folder for use.

Example Asset Path: “Assets/Audio/Sound Effects” for specific sound effects such as the drag and drop ones.

Design Pipeline

1. Initial brainstorming at meetings
2. Scope check with Artists and Programmers
3. Concept Presented to peers for feedback
4. Check in with professor for scope check
5. Meeting to discuss any changes based on peer and professor feedback
6. Feedback used in design changes
7. Research done to erase potential cultural appropriation
    a. No cultures are left out or ignored. If there are too many for a single region, the most common informations shared between all cultures is included
8. Updated concept added to backlogs
9. Stories assigned to sprint plan
10. Story priority assigned
11. Decide on any changes to concept before in-engine work
12. Git collaboration discussed
13. Work pushed in branches to avoid conflicts
    a. Culturally appropriate art/music/information is added
14. Polishes made before final meeting

Milestone 1

Deliverables:

- Pick a Game Concept
    - Pick a concept we are interested in prototyping.
- One Page Visual Design Document
    - Guide for core design.
- Systems and Mechanics List
    - Shows all initial major mechanics and their functions.
- Art Concept Documents
    - Start developing art direction and aesthetic.

Goals for Next Milestone:

- Create a fully-functioning prototype that has the ability to demonstrate the core mechanics, which will set the base for our design and testing in the future.

Milestone 2

Deliverables:

- Fully Functional Prototype
    - Prototype with the game's mechanics implemented.
- Art Direction + Initial Concepts
    - Art Direction picked + some initial color palette and art concepts (if applicable).
- System Development
    - Talk about and outline new systems and how to create them for the prototype in place as well as start working on them if time is available.

Goals for Next Milestone:

- Polish the core mechanics as well as start implementing core art ideas and new systems to expand the game's scope and increase user engagement.

Milestone 3

Deliverables:

- Art Implementation
    - Implement the game's initial art and integrate it with the core mechanics properly.
- Implementation of Secondary Systems
    - Implement the new systems that were discussed and designed in the previous meeting.
- Core Mechanic Polish
    - Polish main mechanic functionality.

Goals for Next Milestone:

- Polish the game as a whole to get ready for product launch.

Milestone 4

Deliverables:

- Polished Prototype
    - Playable prototype with the extra systems and polish
- Art Implementation
    - Art has been fully implemented and integrated properly in prototype
- Documentation Polish
    - Polish documentation for feedback and end of the project.

Goals for Next Milestone:

- NA