



WorldBuilder

**WorldBuilder**

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# WorldBuilder



**WorldBuilder**

## High Level Goals

- Use procedural generation to generate world maps suitable for tabletop RPG settings
- Have an intuitive and informative GUI for letting the user view and interact with the map
- Display variable levels of map detail at different scales
- Allow for user customization of the world generation process
- Procedurally generate dungeon submaps
- Be able to display maps using different classification layers

# Sprint 1



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## – User Stories

- As a GM I would like to generate a world map (Large map generation)
- As a user I'd like to interact with the application without learning unix (GUI)

## – Spikes

- Determine what language(s) are best suited for procedural generation for both the front and back-end
- Understand the fundamentals of procedural generation
- Learn the methodology and types of procedural map generation
- Research similar products to understand the benefits and pitfalls of procedurally generated maps

## – Infrastructure tasks

- Acquire and study existing codebases for procedurally generated maps
- Design the underlying architecture of the program
- Download all necessary IDEs and visual development environments
- Acquire visual assets for large map generation

# Sprint 2



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## – User stories

- As a GM I would like to generate a fine scale map (Small map generation)
- As a GM I would like to zoom in for greater levels of detail (Map scaling)
- As a GM I would like to save the map in other formats (Map saving)
- As a GM I would like to author content (Map customization)

## – Spikes

- Understand mixed initiative procedural generation
- Research databases and user data storage on the cloud
- Study user-end art programs

## – Infrastructure tasks

- Acquire visual assets for small map generation
- Design architecture of mixed initiative subsystem

# Sprint 3



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## – User stories

- As a GM I would like to add my own content to the content database (Custom user assets)
- As a GM I would like to regenerate particular regions (Regional PCG)
- As a GM I would like to hide certain map details from my players (Asymmetric information hiding)
- As a GM I would like to generate dungeons (Dungeon generation)
- As a GM I would like to set waypoints in particular areas and return to them with ease (Quick waypoint navigation)

## – Spikes

- Research principles of good dungeon design
- Study applications which have implemented regional PCG
- Investigate uneven layer maps

## – Infrastructure tasks

- Design the architecture of a dungeon generator
- Prepare databases that allow for user-defined assets

# Sprint 4



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## – User stories

- As a user I would like to see a political map
- As a user I would like to see a topological map
- As a user I would like to see a biome based map
- As a user I would like to see an economic map

## – Spikes

- Research the historical distribution and movement of political borders
- Learn how PCG can be used to generate convincing topographic maps
- Learn basic economics
- Research the intersection between economics, political alliances, geography, and topography to convincingly generate all these together in a spatially believable manner

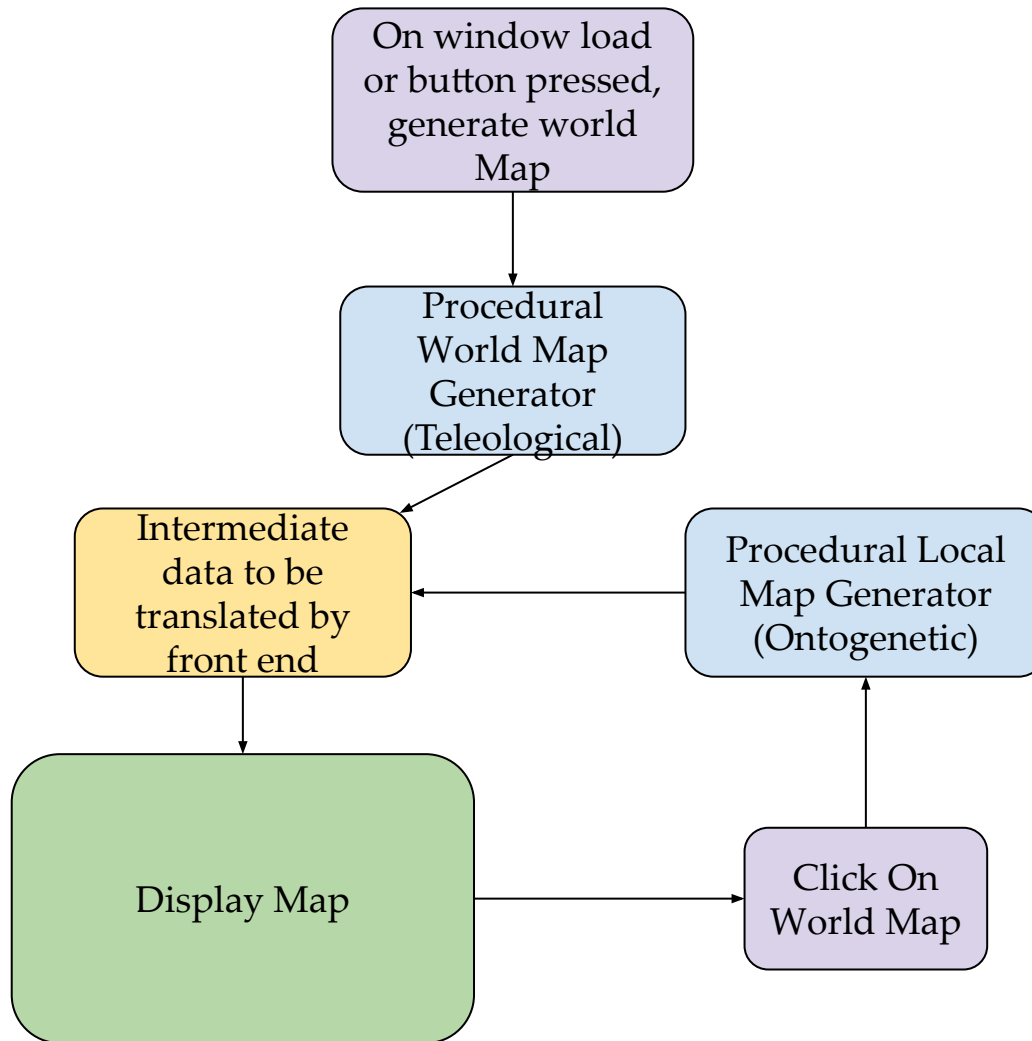
## – Infrastructure tasks

- Design generators capable of creating each of these layers
- Design a system in which the layers are combined in a believable way

# Architecture



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# Challenges/Risks



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Lack of experience with generative design

Making a product with both an extensive back-end and front-end

Scheduling regular meetings

Working with unfamiliar technology

Git version control and merge conflicts



# Technologies



**WorldBuilder**

Front-end: React.js

Back-end: Node.js with Express.js

Database: Firebase

Team Communication: Discord

Version Control: Github

Team Documentation: Google Drive

Scrum Project Management: KanbanFlow

# Minimum Viable Product



**WorldBuilder**

We hope to complete an early functional version of WorldBuild. This early build will include fundamental GM tools such as

- Large scale map generation which populates a world with interconnected biomes
- Extensive customization options for the user, including user-authored and customized content
- Varying levels of detail allowing for more versatility in the usage of the world
- Saving and seed generation for easy map reuse