Project Proposal

Project Description

Name: Maparoni-n-cheese

Description: Maparoni-n-cheese is a basic 2D map-maker. Maps can be made custom, random, or a combination.

Competitive Analysis

Other map editors have many features, and most similar to mine. For example, Inkarnate has map editing (forest, mountain, path brushes) as well as random *land* generation. My map will have map editing, random land generation, *and* random map object generation. I will not be implementing paths (but plan on rivers) however. Something like Wonderdraft has very similar specifications as well, but it also has naming (of oceans, mountain ranges, etc.). Inkarnate has this as well, and I do not plan on adding this feature at the moment, but may consider it if time allows.

Structural Plan

Main class: map_maker

event methods:

on_mouse_scroll → change size of cursor (for size of objects mainly)

on_mouse_press → carry out cursor action

on_mouse_motion → for updating cursor position

on_mouse_drag → for carrying out multiple cursor actions

on_draw → for drawing everything on the screen

on_resize → for updating everything on a resize event

utility methods:

make_map_object → for creating specific map objects based on args

change_cursor_type → for changing the action of the cursor

make_random_map → using Voronoi to create random regions

Map object classes (tree; mountain; river; etc):

most-useful methods:

make_components (generalized) → making geometric shapes of object

intersects → to test if intersects with another map object

draw → if individual object needs to be drawn

GUI:

Notable attributes:

buttons → list of Button instances to hold a function for calling

Layer:

Notable attributes:

regions → list of Regions to hold map objects

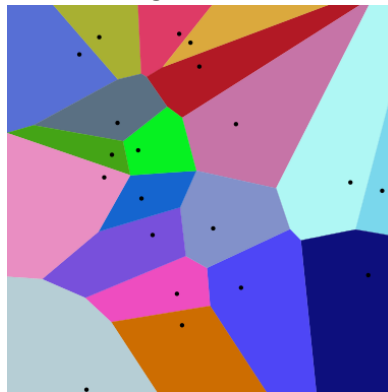Notable Methods:

add → add a map object to region

add_if_not_intersecting → add if not intersecting any objects on map

update → updates regions list if resized

Algorithmic Plan

Voronoi Diagrams:

Voronoi diagram looks like this:

From *[Wikipedia](#)*

It's use in this project is to split the map into regions (biomes, essentially) for random map generation. The regions will define things like forest, mountain ranges, etc.; and rivers may appear on the borders of these regions or sometimes inside them.

This is by far the most algorithmically-complex part of the project, as it may involve something like [Fortune's algorithm](#) to compute these areas.

Timeline Plan

April 18: GUI complete with buttons/help

April 21: Voronoi (or similar/variant of) working

April 23: Random map generation working (and consequently manual map making)

Version Control Plan

I am using a GitHub repository to back up my code. I use Git to interface with GitHub so that I can work on multiple devices as well as back it up.

Module List

pyglet

TP2 Update

No changes

TP3 Update

No major changes. File IO was added, and rivers/fancy lakes were foregone.