Random Flag Generator

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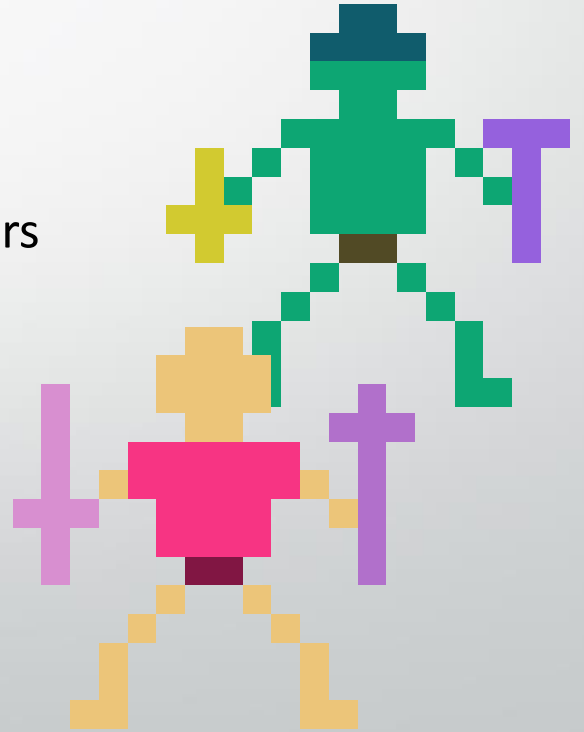
Final Presentation

Introduction

Original Open-Source Project

- https://github.com/daboth/pagan
- PAGAN (Python Avatar Generator for Absolute Nerds)
  - Uses input strings to randomly generate unique pixel art avatars
  - Runs input strings through (specified) hashing function to obtain hash digest in hexadecimal form
  - Grinds hash digest to select avatar colours, elements (i.e. weapons, shield, other equipment)
  - Saves pixel art avatars to working directory once generated



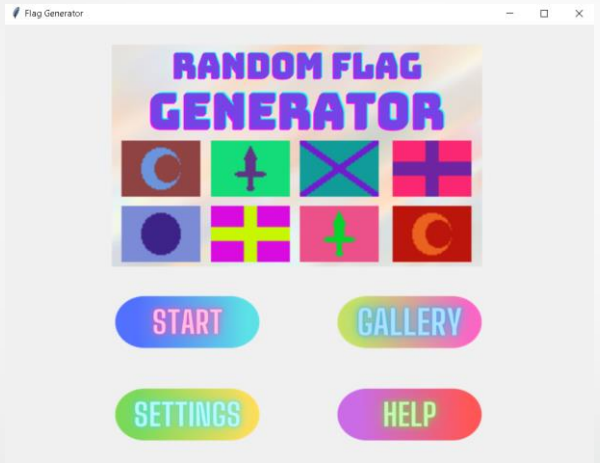
Our Project

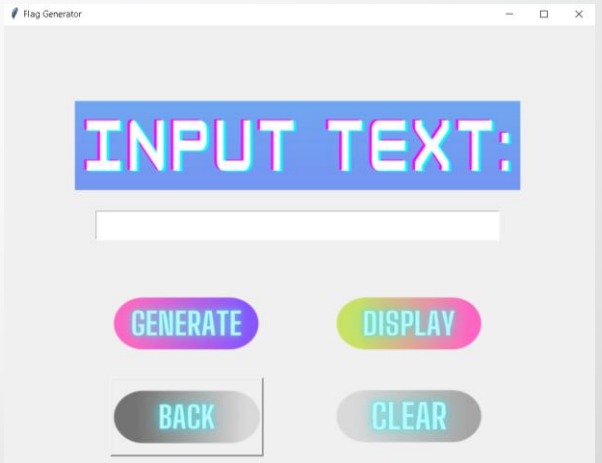
- Uses input strings to randomly generate unique pixel art flags
- User can specify hashing algorithm to be used
- Generated flags are saved as .png image files; can be displayed to users
- GUI, flag gallery, user control

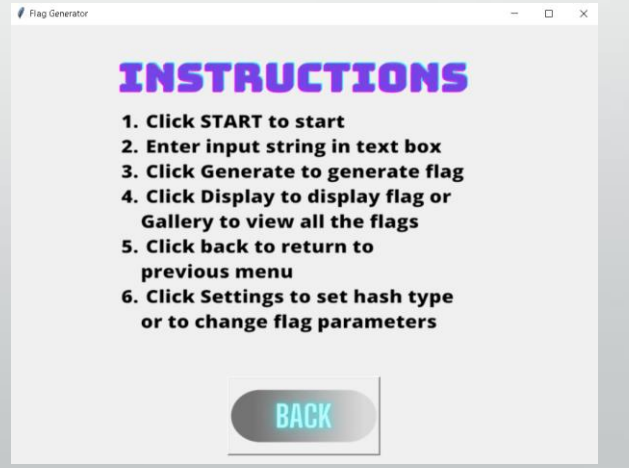
Improvements

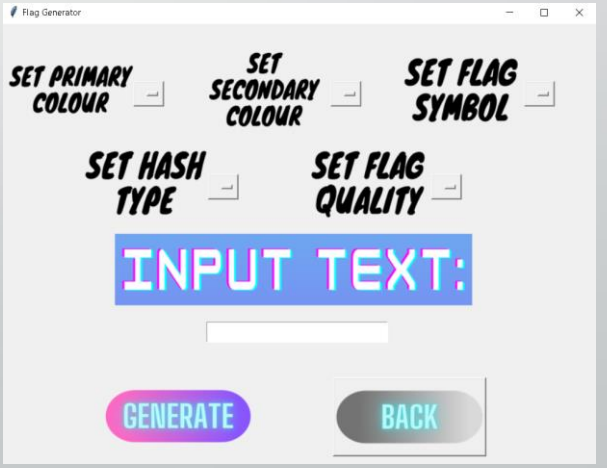
Improvements - GUI

- Implemented a GUI
  - PAGAN purely command line
  - Start, Settings, Gallery, Help



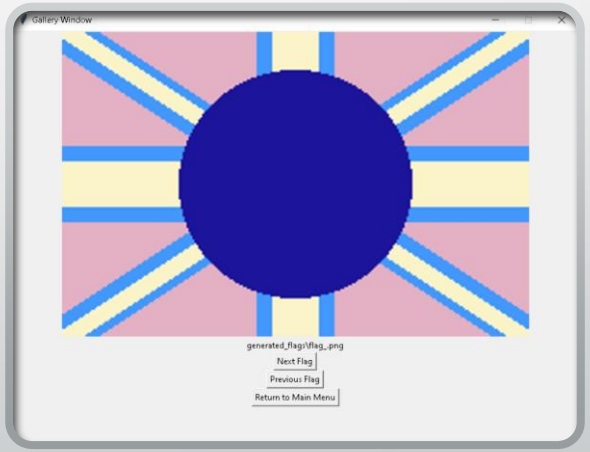


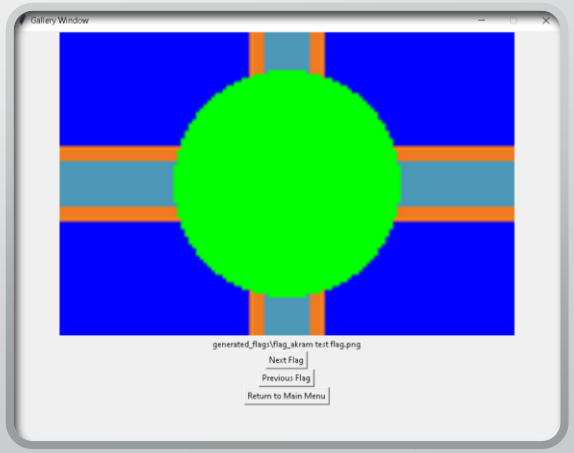




Improvements – Flag Gallery

- User flag gallery
  - See generated flags





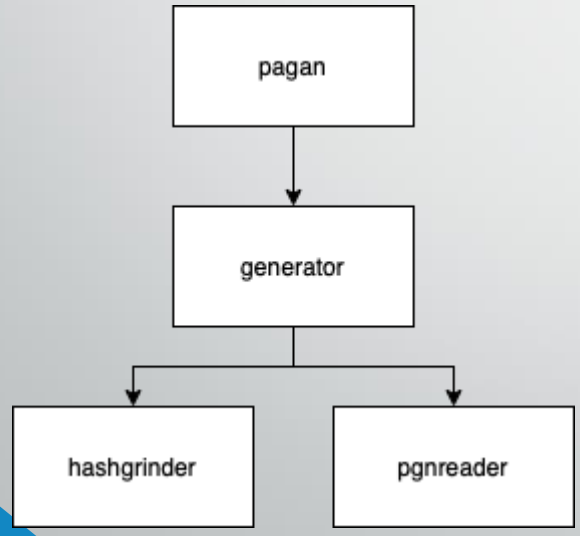
Improvements - Testing

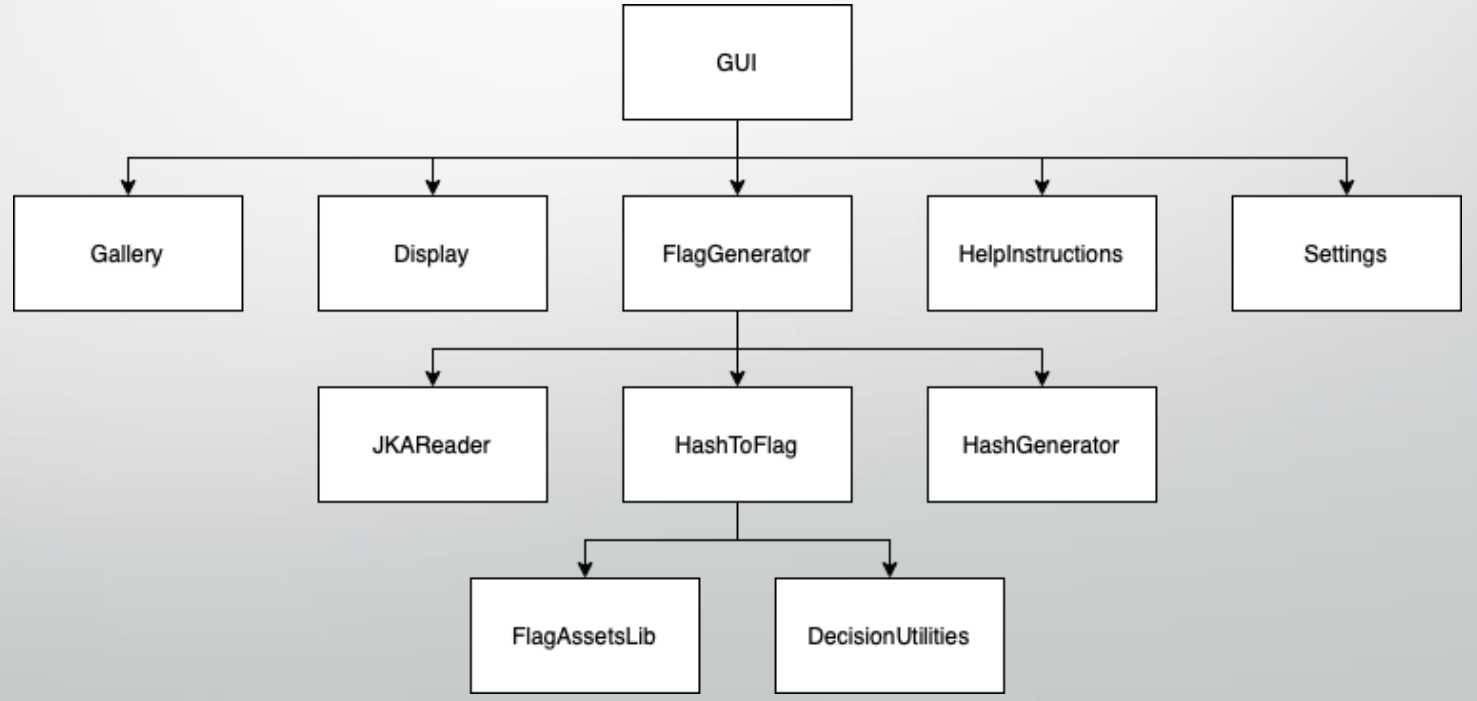
- **Source code: 11 test cases**

- **Implemented 65+ test cases**
- **Used the pytest framework to develop unit tests for all functional modules**
- **Performed manual and user validation testing on the GUI**

Improvements - Modularity

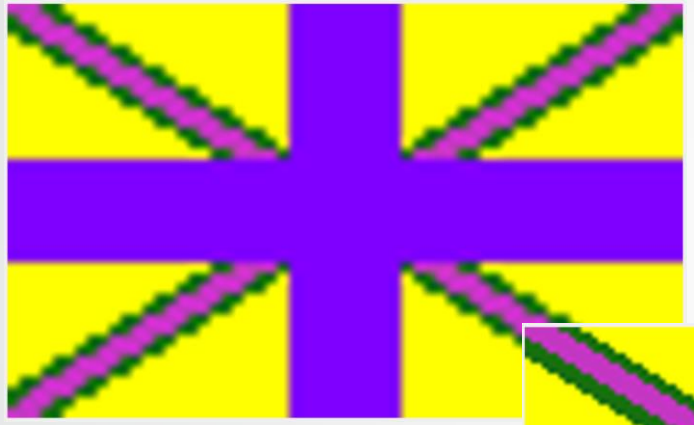
- Improved modularity
  - Improved readability, maintainability, low coupling, high cohesion



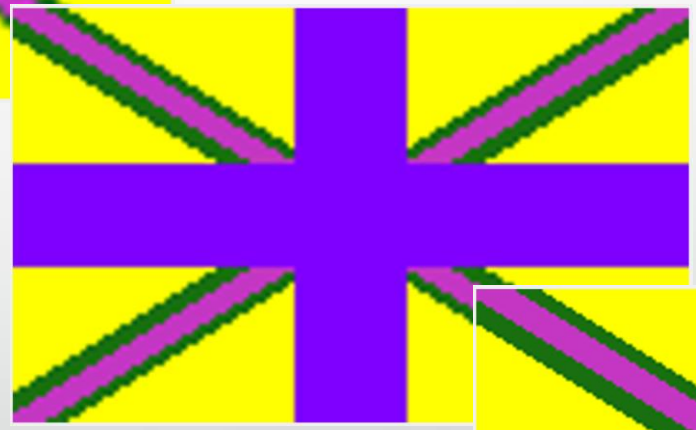


Improvements – Asset Options

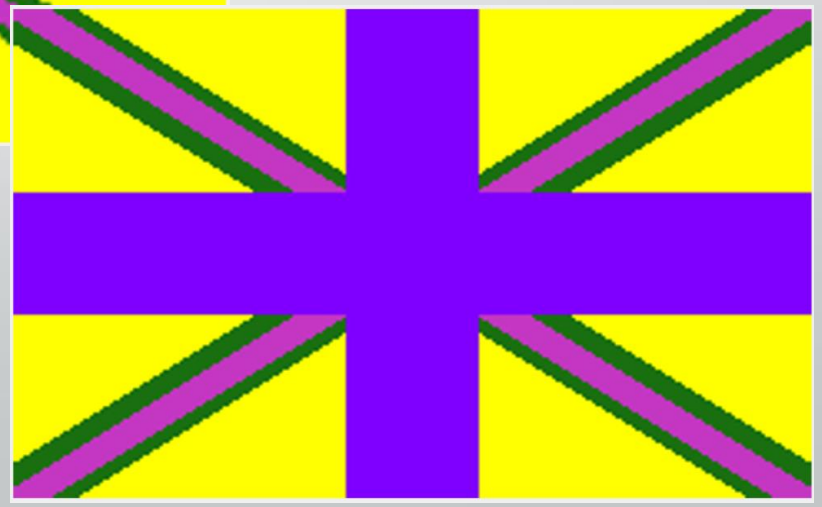
Low



Mid



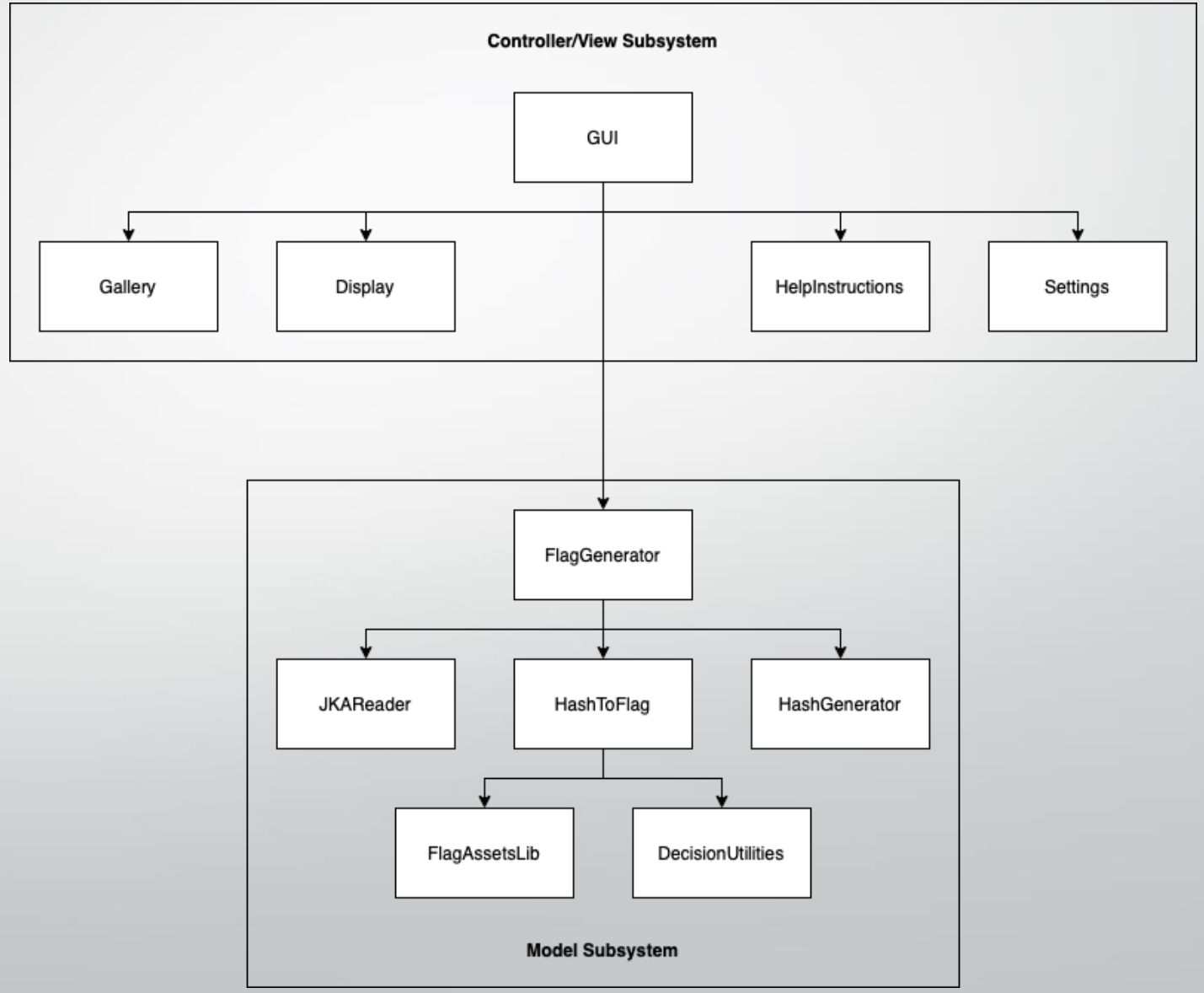
High



- More asset options
  - Resolution options

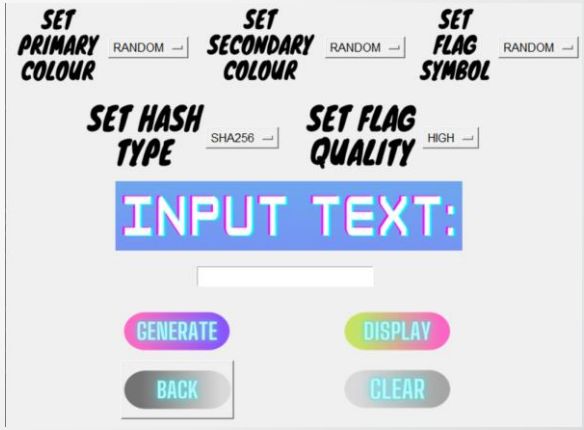
Architecture

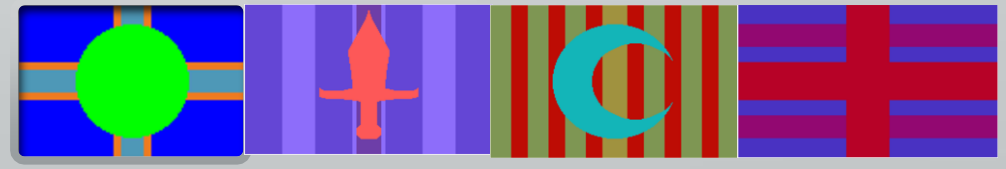
- The Random Flag Generator uses the MVC-I architecture
  - Controller/View Subsystem
  - Model Subsystem
- Low Coupling and High Cohesion between modules



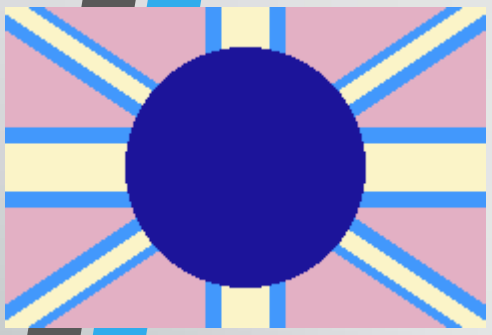
Software Qualities

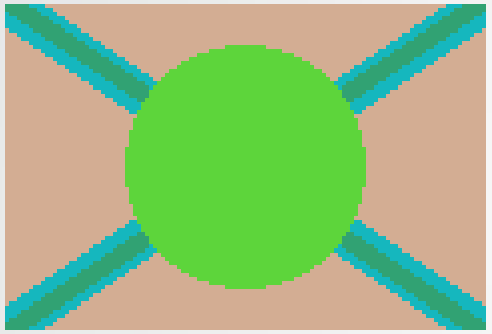
- Maintainability
  - Enhanced modularity --> Easy addition of new assets/qualities
- Portability
  - Python runnable on most platforms
- User-friendliness
  - UI for easier generation, settings, gallery
  - Avoids purely command line interaction
  - Help page





Example Flags





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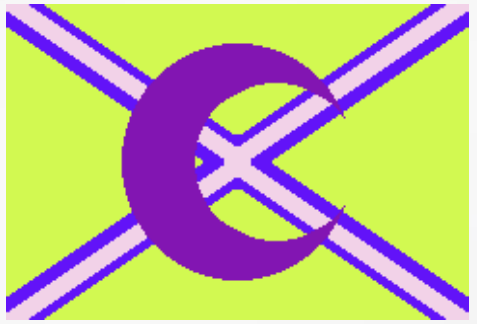

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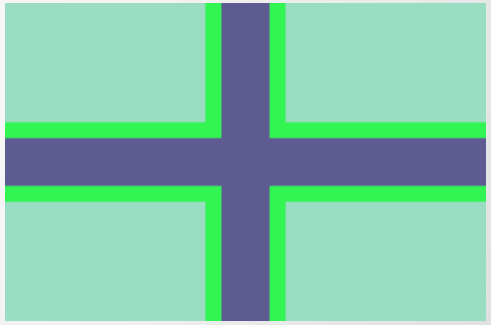

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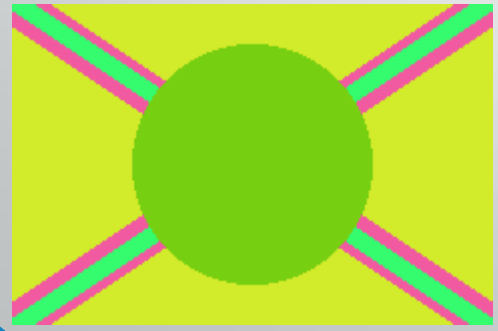

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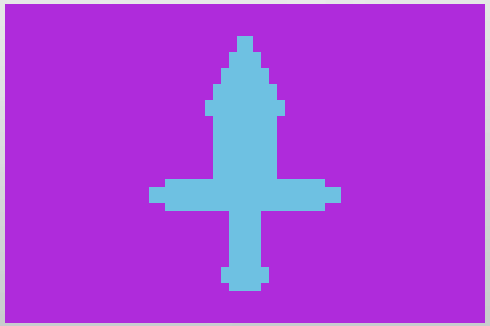

sample

3XA3 is a fun course

Demo

Future Improvements

- Online version
- Select file save location and file type (png, jpeg, psd, pdf, tiff)
- Wider array of assets (more symbols, colours, sizes)
- More hashing algorithms
- More user control over output (within reason)
- Allow for different inputs (keyboard: enter, esc)
- Revamp GUI (better visuals, effects, animations)

Conclusion