# Art Studio App:

## Main Features Brainstorm:

1. Palette Generator

* Randomly generate 6 color swatches in shapes
  + Lock and Delete option (Coolors inspo)
* Show hex code
* Button to generate new palette
* Button to save palette as image

1. Art Prompt Generator

* Random Subject(option for 1 or more)/Style (Art period/Artists)/Mood
* Button to Generate Prompt
* Possible LLM API?

1. Random Image Picker

* Local because API expensive
* Display 1-3 images (give options)
* Button displays new image(s)
* Save images option

1. Upload Finished Art

* Tag option (via generated key value so it can populate the inspiration
* Simple Gallery View (maybe like IG?))

## Palette Generator Algorithm

### <https://www.jacobwsmith.xyz/stories/color_schemes.html>

### Color Theory

| **Color Scheme** | **How the Hue Shifts** |
| --- | --- |
| Analogous | ± 30° from base |
| Complementary | +180° from base |
| Triadic | +120°, +240° from base |
| Split-Complementary | +150°, +210° from base |
| Tetradic | Two complements, 90° apart |
| Monochromatic | Shifts saturation and value of one color |

Thus, HSL/HSV is the better option as it can wrap around 360°.

Still random, but narrower options (“Advanced Options” for user)

Tone Selection

1. Vibrant
2. Pastel
3. Muted
4. Dark

Hue Selection

1. Warm colors only
2. Cool colors only
3. No Filter

| **User Selection (Tone + Hue Bias)** | **Possible Palette mood** | **Math** |
| --- | --- | --- |
| Vibrant | Random Vibrant | Saturation: 80–100% Brightness: 60–100% Any hue |
| Pastel | Random Pastel | Saturation: 20–50% Brightness: 80–100% Any hue |
| Muted | Random Muted | Saturation: 20–50% Brightness: 40–70% Any hue |
| Dark | Random Dark | Saturation: 40–70% Brightness: 10–40% Any hue |
| Vibrant + Warm | Heat Map | Hue: Red–Yellow (~0–60°) Saturation: 80–100% Brightness: 60–100% |
| Vibrant + Cool | Neon Cool | Hue: Cyan–Violet (~180–300°) Saturation: 90–100% Brightness: 70–100% |
| Pastel + Warm | Cozy Sunny Day | Hue: Red–Yellow (~0–60°) Saturation: 20–40% Brightness: 80–100% |
| Pastel + Cool | Cozy Evening | Hue: Cyan–Violet (~180–300°) Saturation: 20–40% Brightness: 80–100% |
| Muted + Warm | Earthy | Hue: Red–Yellow (~0–60°) Saturation: 20–50% Brightness: 40–70% |
| Muted + Cool | Dusty Cool | Hue: Cyan–Violet (~180–300°) Saturation: 20–50% Brightness: 40–70% |
| Dark + Warm | Deep Warm | Hue: Red–Yellow (~0–60°) Saturation: 40–70% Brightness: 10–40% |
| Dark + Cool | Deep Cool | Hue: Cyan–Violet (~180–300°) Saturation: 40–70% Brightness: 10–40% |
| Dark + Vibrant | Jewel Tones | Saturation: 80–100% Brightness: 20–50% Hue: Full range (~0–360°) but richer colors |
| Dark + Muted | Stormy | Saturation: 20–50% Brightness: 10–40% Hue: Full range |

## Prompt Generation

Option 1: .JSON of words and just randomly generated in three separate categories -> straightforward application

Option 2: TinyLlama(or GPT2.0) for generation (lightweight llm) -> challenging application

1. Train TinyLlama
   * Use pretrain model
   * Finetune
2. REST API Backend
   * FastAPI server (?)
3. .NET MAUI Integration
   * HTTP client
   * Connect to FastAPI

* Word prompt:
  + Objects: <toggle 1-5 nouns> Generate random objects
  + Style: Generate random style (e.g Arcane (Netflix), Ghibli, Brutalism, Art Nouveu)
  + Setting/Mood: Generate random mood, physical settings, etc

Most likely going with option 1 due to time constraints.