# 1.12 Personal Favicon Project

**Objectives**

* Encode a 16 x 16 or 32 x 32 image with at least 12 bits per pixel.
* Create and encode a color image of your own design.
* Describe image metadata and be able to use & manipulate binary numbers when describing colors.

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| **Overview**  A favicon is a small image that is typically shown in a web browser’s address bar next to the title of the page, in the tab of a web browser, or as an icon on a handheld device. A favicon for Code.org is shown to the right.  Favicons are designed by artists and programmed into web pages by web designers. Below are some examples of favicons—you might recognize some! |  |

## Directions

1. Create a personal favicon and encode it using the Pixelation Widget on Code.org, note we are hacking a little so [jumping to CSP 2019](https://studio.code.org/s/csp2-2019/lessons/4/levels/9).
2. The image you make should represent your personality in some distinctive way.
3. Your image should be original and respect copyright.
4. Your image must be encoded with either 12 or 24 bits per pixel
5. Your image must be either 16 x 16 or 32 x 32 pixels.
   1. Here are some [past examples](https://photos.app.goo.gl/rQoxbCqpx5beDbNy6)

### Things to think about

* A simple design is probably the best solution, but several colors.
* This will be a very tiny image when you are done. Tiny details and slight variations in color probably won’t be noticeable. Use the “actual size” option to see what it really looks like.
* Plan ahead by sketching your design (preferably on a sheet of graph paper if you can) before starting to encode the bits.

Answer the questions below as part of your favicon project submission.

# Favicon & reflection question

1. Paste a screen snip of your completed favicon in the space below.

<answer here>

1. Copy-and-paste **all** your favicon bit data in the space below.

|  |
| --- |
| <answer here> |

1. Explain the image in your favicon. Why did you choose this image? How is it a reflection of you?

<answer here>

1. What copyright would you like your image to have? Are you willing to use [creative commons](https://creativecommons.org/choose/) copyright? Why?

<answer here>

## Color Analysis

This might helpful: [Flippy Do](https://studio.code.org/projects/applab/r-aHbkCvg6oOQUh1X6P1g7a5Y8R8rp-uG-fy75KiDus)

1. How many bits per pixel did you use? <answer here>
   1. What was the range of possible red values? <answer here>
   2. What was a benefit of using this many bits/pixel? <answer here>
   3. What made this many bits/pixel challenging? <answer here>
2. How many total **bytes** does your data contain? Explain/show the work that leads to this answer.

<answer here>

1. Pick one color that appears in your favicon that does NOT have all 1s or all 0s in **any** of its three RGB channels.
   1. Description/name of color: <answer here>
   2. Binary representation of color: <answer here>
   3. Binary representation of just red in 5b: <answer here>
   4. Decimal representation of just red in 5b: <answer here>

### Rubric

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| --- | --- | --- | --- | --- |
| Standard | Exceeding | Meet | Approaching | Beginning |
| **DAT-1.A - Represent with bits**  Explain how data can be represented using bits. | A complete image that is 16x16 or 32x32 5 or more non-white/black colors used | A complete image that is 16x16 or 32x32 3 or more non-white/black colors used | A complete image that is at least 12 wide and 12 tall 3 or more non-white/black colors used | A partial image that is at least 8 wide and 8 tall 3 or more non-white/black colors used |
| **DAT-1.C - Converting with Binary**  For binary numbers: a. Calculate the binary (base 2) equivalent of a positive integer (base 10) and vice versa. b. Compare and order binary numbers. | Complete color analysis -All questions accurately answered with precision -Details used as appropriate to support work | Complete color analysis -Nearly all questions accurately answered with precision -Details used generally appropriate to support work | Mostly complete color analysis -Several questions accurately answered with precision -Details occasionally used to support work | Partial color analysis -Some questions accurately answered -Details occasionally used to support work |
| **IOC-1.F - Legal and Ethical Concerns**  Explain how the use of computing could raise legal and ethical concerns. | Image or theme is clear, and not from a copyright source. Creative Commons license is applied with reasoning | Image or theme is clear, and not from a copyright source. Creative Commons license is applied | Image or theme is vague, and not from a copyright source. Creative Commons license is applied | Image or theme is vague --OR-- Creative Commons license is not applied |