Girls Who Build Cameras

IMAGE PROCESSING

Challenge: Instagram Filter

```
//SET UP
PImage img; //Declare variable of type PImage

void setup() {
  size(200,200); //Change size of image.
  img = loadImage("IMG_3294.JPG"); //Image in our library
}

// CREATE IMAGE
void draw(){
 image(img,0,0,width,height); //Resize the image image(file name, x_origin,
y_orgin, size x, size y)

// CREATE FILTER
  fill(255,255,0,60); //Fill shape with semi-transparent filter over image (R
value,G value,B value, alpha/transparency)
  noStroke(); //no border
  rect(0,0,width,height); //Define shape of filter

}
```

IMAGE PROCESSING

Challenge: Flip an Image on Click

```
//SET UP
PImage img, img_flip;
boolean flip;

void setup() {
  size(750, 750);
  img = loadImage("spaceship.png");
  img_flip = createImage(750, 750, RGB);

  img.loadPixels(); //  Loads the pixel data for the image into its pixels[] array. This function must
always be called before reading from or writing to pixels
  img_flip.loadPixels();

//DEFINE FLIPPED IMAGE
  for (int i = 0; i < img.width; i++) { //i++ is iterating through the pixels horizontally
    for (int j = 0; j < img.height; j++) {
      img_flip.set(i, img_flip.height-1-j, img.get(i, j));//Reads the color of the specified pixel
    }
  }

  img_flip.updatePixels();

  flip = false;
}
//DISPLAY IMAGE
void draw() {
  background(0);

  if (flip) {
    image(img_flip,0,0);
  }
  else {
    image(img,0,0);
  }
}

//CONDITION FOR MOUSE CLICK (USER INPUT)
void mouseClicked() {
  flip = !flip;
}
```

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IMAGE PROCESSING

Challenge: Single Color

```
PImage img;
boolean single_color;

void setup() {
  size(750, 500);
  img = loadImage("flowers.jpg");
  colorMode(HSB);
  single_color = false;
}

void draw() {
  background(0);
  image(img, 0, 0);
}

void mouseClicked() {
  single_color = !single_color;
  if (single_color) {
  float h = hue(get(mouseX, mouseY));
  img.loadPixels();

  for (int i = 0; i < img.width; i++) {
    for (int j = 0; j < img.height; j++) {
      color c = img.get(i,j);
      float ph = hue(c);
      if (abs(ph - h) > 10.) {
        img.set(i, j, color(hue(c),0, brightness(c)));
      }
    }
  }
  img.updatePixels();
  }
  else {
    img = loadImage("flowers.jpg");
  }
}
```

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IMAGE PROCESSING

Challenge: Create a Vignette

```
PImage img, msk;
boolean vignette;

void setup() {
  size(460, 460);
  img = loadImage("inky.png");
  msk = createImage(460, 460, RGB);

  msk.loadPixels();
  for (int i = 0; i < msk.width; i++) {
    for (int j = 0; j < msk.height; j++) {
        msk.set(i, j, color(255, 255, 255 - dist(i, j, width/2, height/2)));
    }
  }
  msk.updatePixels();

  vignette = false;
}

void draw() {
  background(0);
  image(img, 0, 0);
}

void mouseClicked() {
  vignette = !vignette;
  if (vignette) {
    img.mask(msk);
  }
  else {
    img = loadImage("inky.png");
  }
}
```