Hackathon 2021

Our creative coding journey

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The Product

Quality Education:

- Grade 1 math review
- 2 randomly generated numbers with either a ‘+’ or ‘-’ operation

No Poverty:

- Correct answer → 2 cents donated towards ending poverty
- Money is generated through ads

The Technologies

- JavaScript
- HTML
- Glitch
- GitHub
- Khan Academy
- *p5

* we started using p5, but found some challenges (discussed later)

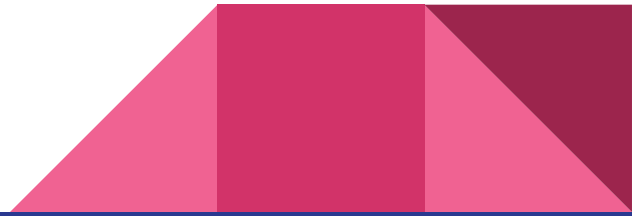
Some Helpful Resources

Coding Train (User Input):

- https://www.youtube.com/watch?v=uNQSVU0IKec

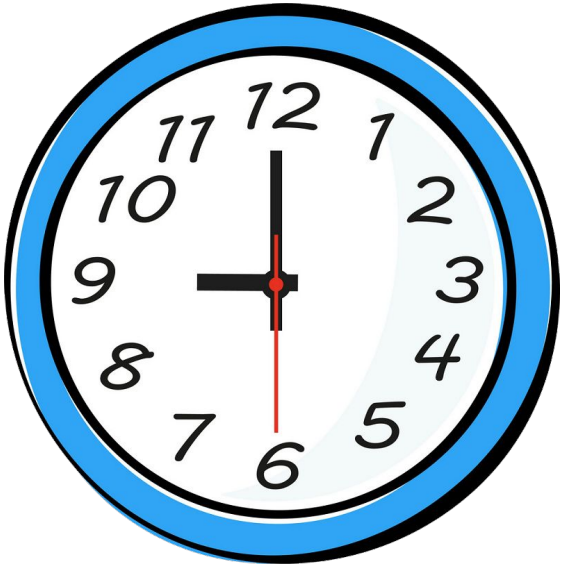
p5 reference (User Input and Buttons):

- https://p5js.org/reference/#/p5/createButton
- https://p5js.org/examples/dom-input-and-button.html



What was your time commitment “really”?

- Class time
- Brainstorming
- Tutorials
- Planning
- Small edits



Rachael

Computer Science & Math Concept

```
var input;
var check;
var ans;

// initialize grade1 variable
var grade1;

function setup() { ↔ }

function draw() { ↔ }

// check if mouse is clicked
var mouseClicked = function () {
  // if the current scene is the title screen, advance to game scene
  if (scene === 0 && mouseX < 300 && mouseX > 100 && mouseY < 350 && mouseY > 300) {
    // set the variable input to be an input box
    input = createInput();
    // position it at (x, y)
    input.position(200, 225);
    // set the variable check to be a button that says "Check"
    check = createButton('Check');
    // position it at (x, y)
    check.position(325, 225);
    // establish that if the button is pressed, call the checkAnswer function
    check.mousePressed(checkAnswer);
    // then, advance to the next scene to show the questions
    scene++;
  }

  // if the showAnswer scene is being displayed
  if (scene === 2 && mouseX < 200) { ↔ }

};

// set the ans variable to be the value of the user's input
var textInput = function () {
  ans = input.value();
};

// called when the 'check' button is pressed
var checkAnswer = function () {
  // move the position of the input box and check button to be off of the canvas so that it
  input.position(-500, -500);
  check.position(-500, -500);
  // advance the scene to 2 so that it displays the answer screen
  scene = 2;
};
```

New

Format This File

```
// function to display questions
this.display = function () {
  background(0, 0, 0);
  fill(255, 255, 255);
  // display the grade
  text("Grade " + this.grade, 10, 30);
  textSize(15);
  // provide instructions
  text("Type your answer to the following question in the space \nprovided.", 10, 75);
  // display piggy bank
  document.getElementById("mydiv").style.visibility="visible";


  rect(15, 125, 370, 250);
  fill(0, 0, 0);
  textSize(30);
  // display the question
  text(this.num1 + " " + this.operation + " " + this.num2 + " = ", 100, 200);
  textSize(16);

  // if the input value has changed, call the textInput function
  input.changed(textInput);

  fill(255, 255, 255);
  // use Math.round(_ * 100) / 100 to round to 2 decimal places
  text("Total: " + Math.round(moneyDonated * 100)/100, 237, 40);

};
```

Rachael

Computer Science & Math Concept (cont'd)

```
    // if the operation is a +, then add the two numbers and display the ar
    if (this.operation === '+') {
      fill(0, 255, 0);
      text(this.num1 + this.num2, 330, 150);
      if (ans === this.num1 + this.num2) {
        fill(0, 255, 0);
        text("Correct! \nYou donated 2 cents!", 205, 225);

        // display a coin on top of piggy bank
        fill(222,192,0);
        ellipse(335,20,15,15);


        donate = true;
        //text(this.num1 + this.num2, 250, 200);
      } else if (ans != this.num1 + this.num2) {
        fill(222, 20, 27);
        text("Incorrect.", 250, 225);
        donate = false;
      }
    }

    // if the operation is a -, then subtract the two numbers and display t
    if (this.operation === '-') {
      fill(0, 255, 0);
      text(this.num1 - this.num2, 330, 150);
      if (ans === this.num1 - this.num2) {
        fill(0, 255, 0);
        text("Correct! \nYou donated 2 cents!", 205, 225);

        // display a coin on top of piggy bank
        fill(222,192,0);
        ellipse(335,20,15,15);


        donate = true;
      } else if (ans != this.num1 - this.num2) {
        fill(222, 20, 27);
        text("Incorrect.", 250, 225);
        donate = false;
      }
    }

  };
```

New

What challenges did you overcome?

-Collaboration

-User input

-Piggy bank

-Random numbers

What did you learn?

-Input

-Images

-Project and time management

-Collaboration

Where can we go?

Incorporate more levels:

- Grades 1-8 (or even 1-12)

Animations:

- Animate the coin falling into the piggy bank

Save results:

- Save user results to a database so that the amount of money donated doesn't reset when the user reloads the program