

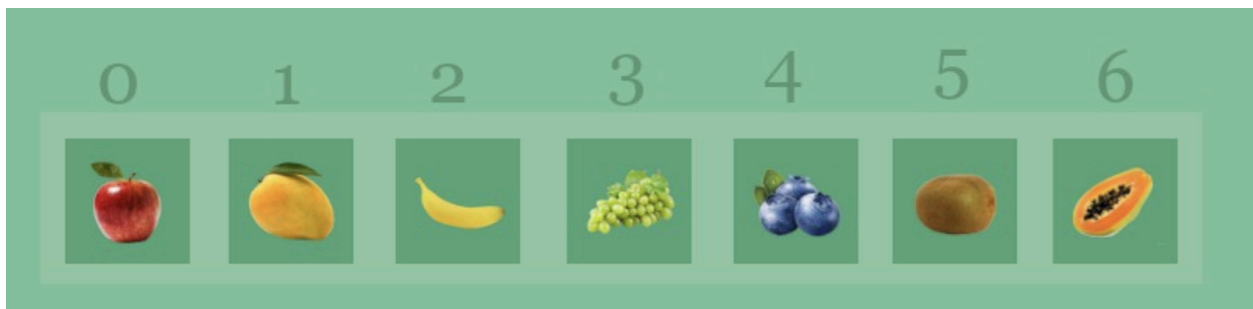
# Girls Code Club

## Functions & DEIB

### REVIEW

We normally start off our Girls Code Club sessions by reviewing some things learned throughout the year. It's helpful when we only meet once a month to make sure some of this is fresh in our memories! It would be helpful to go through these with your coder.

1. What were the rubber duckies for?
2. What is debugging?
3. How did debugging get its name?
4. What's a variable, and how do I write it?
5. What is a data type (hint: it's in the name!)?
6. What kinds of data types have we used so far?



7. My array is called **fruits**. What is **fruits[3]**?
8. How do I get the **blueberries**?
9. What is an example of personal information you should not put online?
10. Why did we create usernames?
11. Think of the expression **5 + 10 X 2**. A computer would think this is **30**, but we know it's **25**. Why are the answers different?
12. What's a function?
13. What are you most looking forward to this December?

## **REVIEW [ANSWERS]**

1. They are our rubber ducky debugging buddies! It's for processing problems in a different way by speaking.
2. Debugging is looking for problems in code and fixing them.
3. Grace Hopper came up with the name when she realized that actual bugs could get into gigantic computers that worked off of paper rolls with hole punches. The bugs could get squished in the paper or chew new holes.
4. A variable lets us store data to use later. We give it a name!

If 3 cats climb into a box, my variable might look like this:

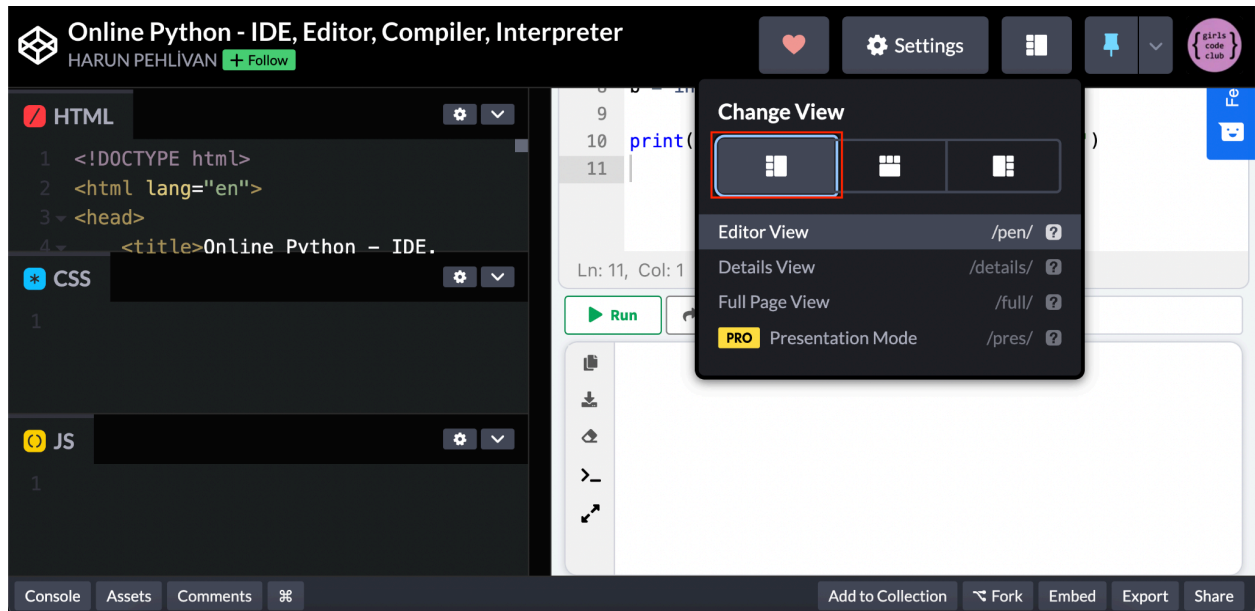
catsInBox = 3

5. A type of data!
6. Strings (double quotes, like someone talking in a book), numbers, and boolean (true/false or yes/no)
7. Grapes
8. fruits[4]
9. Anything that can tell a random person online who you are.
  - a. Your location
  - b. Any information about the school you go to
  - c. Your full name
  - d. Social security number
  - e. Passwords
  - f. Your address
  - g. Etc
10. To keep our identities safe!
11. Computers read left to right, but we understand the order of operations. You can fix it by putting parentheses around the multiplication. THEN the computer will understand.
12. A function is sort of like a variable, but bigger. It's a chunk of code that can help us organize what we write and also lets us write a set of actions ONE time to call as many times as we want. It's less typing!
13. This answer is different for everyone :)

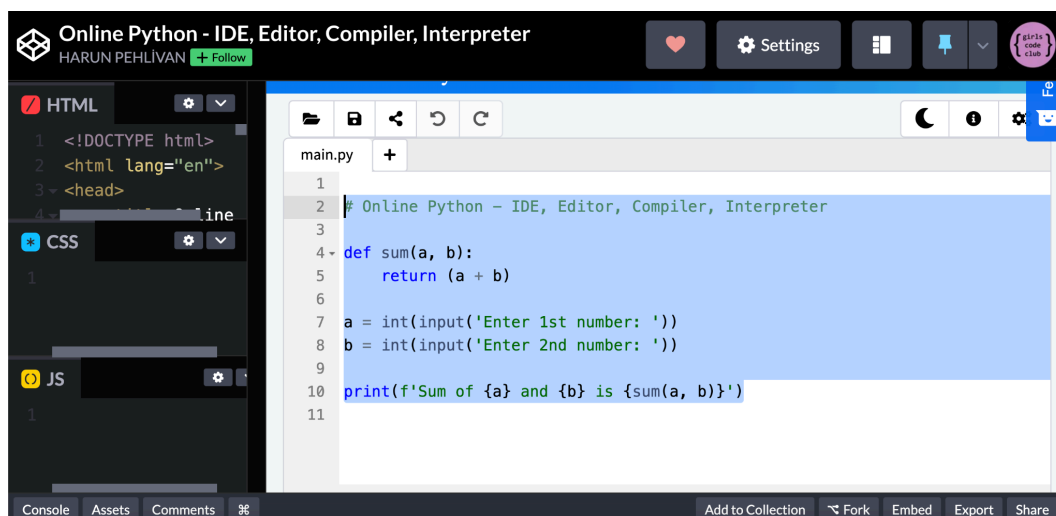
## GETTING READY TO CODE

Go here: <https://codepen.io/harunpehlivan/pen/qBNpGKr>

Change your view so that the HTML/CSS/JS editors are all on the left. You can use your cursor to drag this and make it smaller (we don't need this part).



Go ahead and delete all the code that's already in the Python editor (highlighted below).



This is where your coder will be typing! If you scroll down, there will be a “RUN” button. When their code is done, click this to see what it does! It will output below. If there’s a red error message, it should tell you exactly what’s wrong, but you can also compare their code with the code in the packet to see what’s different.

## **CALCULATOR**

Let’s start by writing code that will add for us. Write the code below that will accept two numbers and return the sum of those numbers.

```
def add(num1, num2):  
    return num1 + num2  
sum = add(10, 5)  
print(sum)
```

Important things to know:

- “def” is short for “define”, which tells our code we’re defining a function
- The stuff inside the parentheses are called PARAMETERS. These tell our function what it can accept/expect.
- Everything inside the function is indented. We tell our computer we’re done with the function by no longer indenting our code.
- The function name is bolded just to make it easier to see/notice.

### **Breaking it down:**

```
sum = add(10, 5)
```

This is calling the function “add” which we already wrote. It’s giving it the number 10 and 5, and assigning whatever the function returns (gives us back) to the variable sum. This will let us do something with “sum” later.

```
def add(num1, num2):  
    return num1 + num2
```

This was our function. Remember we gave “add” 10 and 5? Because “num1” is our first parameter, “num1” is given 10. “num2” was given 5. Sort of like this:

```
def add(10, 5):  
    return 10 + 5
```

10 + 5 is 15, so “add” will return 15. That means that “sum” now equals 15!

How could you update the function to add more than 2 numbers? **Add a third parameter to your function and get it to return the sum of all 3 numbers.**

**Use your function** to solve the following math problems. We know you can do this all on your own, but write it in CODE! Write the answer next to each problem:

39 + 132 + 17 = \_\_\_\_\_

54 + 1039 = \_\_\_\_\_

113 + 374 + 25 = \_\_\_\_\_

Please take a screenshot of our code with one of these problems solved! When you click “RUN” the answer should be output below. You can send it to the Girls Code Club email to let Miss Emma know you did this part.

Let's subtract! This time, the function will return the difference of 2 numbers.

```
def subtract(num1, num2):  
    return num1 - num2  
  
difference = subtract(10, 5)  
print(difference)
```

What if we want to find the answer to this? **5 + 10 - 8**

```
sum = add(5, 10)  
difference = subtract(sum, 8)  
print(difference)
```

Use your function to solve the following math problems. Write the answer next to each problem:

39 + 132 - 17 = \_\_\_\_\_

54 - 82 = \_\_\_\_\_

113 - 25 - 13 = \_\_\_\_\_

Please take a screenshot of our code with one of these problems solved! When you click "RUN" the answer should be output below. You can send it to the Girls Code Club email to let Miss Emma know you did this part.

## **BONUS / OPTIONAL**

How could you write a new function to multiply?

Can you write a function that does this?  $3 + (2 \times 5) - 5$

HINT: The answer should be **8**.

What if you want to divide?  $(2 \times 5) / 2$

HINT: The  $/$  symbol means to “divide”.

What does your code do with this equation?  $(2 \times 4) / 3$

Create your own equation! Write it out as math below, and make sure you know the answer. Write it in code next, and see if you get the same answer.

## **DE&I IN TECHNOLOGY**

**D** - diversity

**E** - equity

**I** - inclusion

**B** - belonging (newly added)

Let's break down each word. **In class, we ask the coders what they think each word means before defining it.**

What does diversity mean?

**di-ver-si-ty**

*Noun*

The practice or quality of including or involving people from a range of different social and ethnic backgrounds, and of different genders, orientations, etc.

Why do you think diversity is important in technology?

Different backgrounds and biological chemistries bring different things to the table in any industry. I don't think the same way my husband does. I don't have the same background or experiences that [Sarah / Lindsay] has had. We all see the world differently and approach problems in different ways, or consider different things when we're solving a problem. For example, when I'm coding, I pay special attention to accessibility on a website, because I have siblings with special needs.

What does equity mean?

**eq-ui-ty**

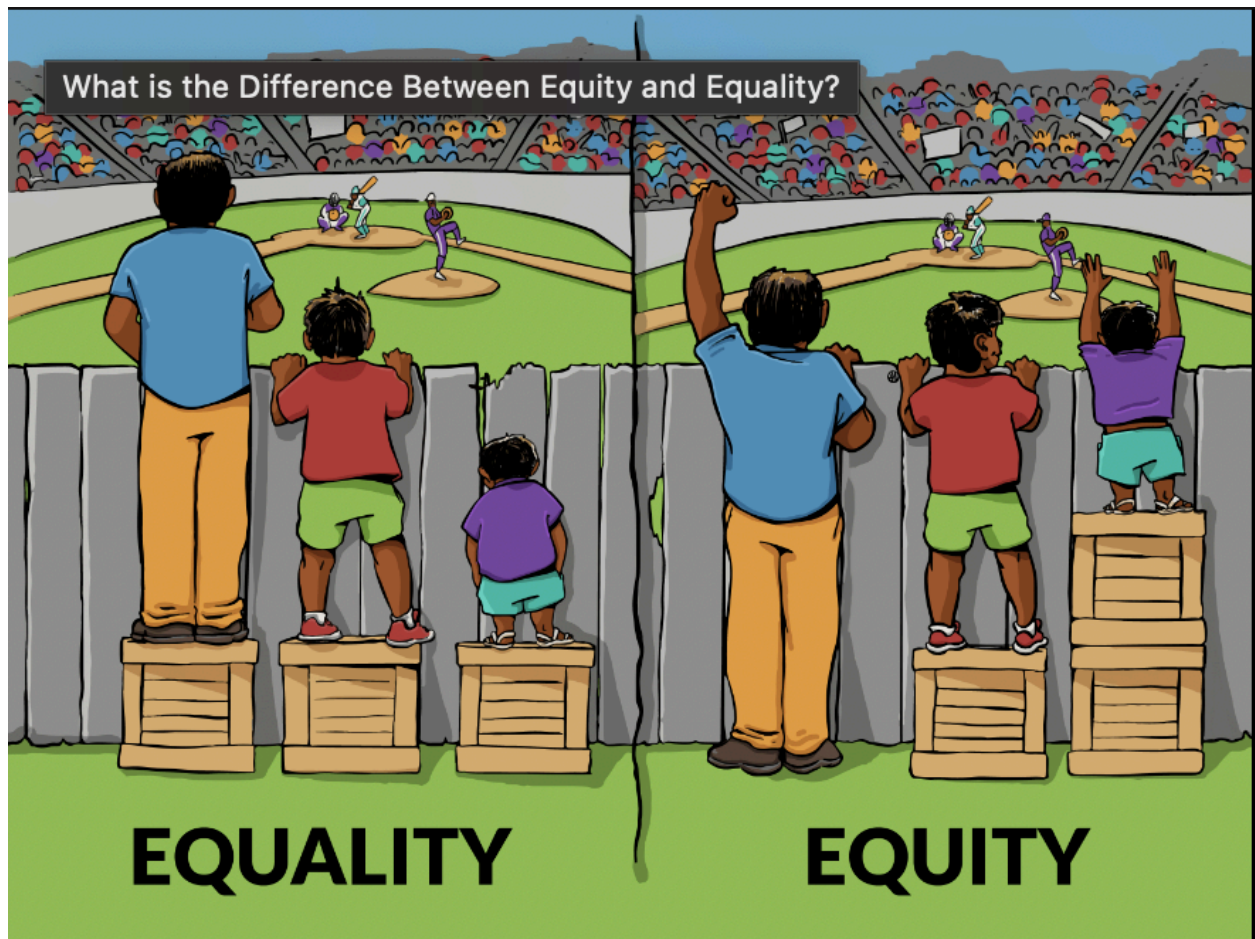
*noun*

The quality of being fair and impartial.

Discuss!



What's the difference between equity and equality? Both are very important! But in some situations, one is definitely better than the other.



How could a teacher bring equity into their classroom?

What does inclusion mean?

### **in-clu-sion**

*noun*

[ ... ] providing equal access to opportunities and resources for people who might otherwise be excluded or marginalized [...]

What does belonging mean?

**belonging**

*noun*

An affinity for a place or situation.

In other words... feeling like you are a part of something.

How can you help to make someone feel like they belong?

## **SHERO: CHOOSE YOUR OWN!**

As a class, we went around the Hall of Heroes and picked our own role model for the month (rather than Miss Emma choosing and presenting one). When doing this activity from home, research whoever you'd like! Coders were allowed to choose any woman in science (not just computers).

**Who is your SHERo this month?** \_\_\_\_\_

**When is/was she alive?** \_\_\_\_\_

**What do you like about her?** \_\_\_\_\_

Please email the Girls Code Club email to let Miss Emma know who you picked and what you liked about her!

If you don't know who to look up, here are some women that are on plaques in the science factory:

- Carol Shaw
- Margaret Hamilton
- Ada Lovelace
- Grace Hopper
- Gladys West
- Amelia EarHart
- Any of the women from "Hidden Figures"
- Hedy Lamarr