Girls Code Club
Functions & DEIB

REVIEW

Like last session, we'll start off by reviewing what we've learned so far.

What were the rubber duckies for?

What is debugging?

How did debugging get its name?

What's a variable, and how do I write it?

What is a data type (hint: it's in the name!)?

What kinds of data types have we used so far?

My array is called **fruits**. What is **fruits[3]**?

How do I get the **blueberries**?

What is an example of personal information you should not put online?
Why did we create usernames?

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?

What's a function?

What are you most looking forward to this December?

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.

{{ JavaScript Code }}
```javascript
function add(num1, num2) {
    return num1 + num2
}


var sum = add(10, 5)
console.log(sum)
```

{{ Python Code }}
```python
def add(num1, num2):
    return num1 + num2


sum = add(10, 5)
print(f`{sum}`)
```

How could you update the function to add more than 2 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 = _____

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

{{ JavaScript Code }}

```javascript
function subtract(num1, num2) {
    return num1 - num2
}


var difference = subtract(10, 5)
console.log(difference)
```

{{ Python Code }}

```python
def subtract(num1, num2):
    return num1 - num2


difference = subtract(10, 5)
print(f`{difference}`)
```

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

{{ JavaScript Code }}

```javascript
var sum = add(5, 10)
var difference = subtract(sum, 8)
console.log(difference)
```

{{ Python Code }}

```python
sum = add(5, 10)
difference = subtract(sum, 8)
print(f`{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 = _____

How could you write a new function to multiply?

BONUS: Can you write a function that does this? **3 + (2 X 5) - 5**
HINT: The answer should be **8**.

BONUS: What if you want to divide? **(2 X 5) / 2**
HINT: The **/** symbol means to "divide".

BONUS: What does your code do with this equation? **(2 X 4) / 3**

BONUS: 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

What does DE&I stand for?

D - diversity
E - equity
I - inclusion
B - belonging (newly added)

Let's break down each word.

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.
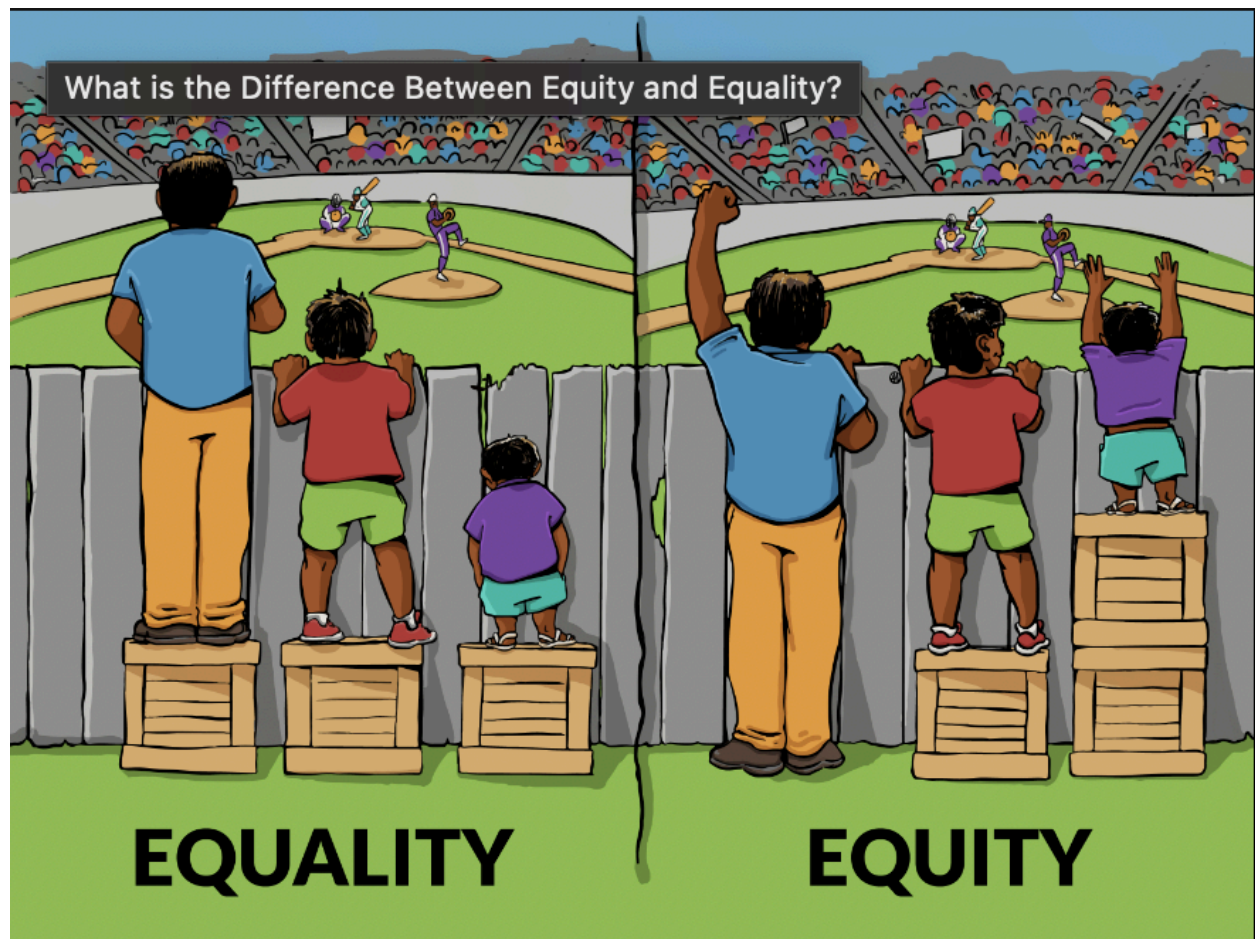
What does equity mean?

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.

What is the Difference Between Equity and Equality?

EQUALITY   EQUITY

How could a boss at a job make sure there's equity when looking for a new employee?

Recruiting in areas where marginalized people live, or at schools that are really diverse. Removing all identifying information from a resume. Think back to personal information you wouldn't put online - when I applied for my job, I was asked to remove my name, address, email, any contact information, etc. so they couldn't accidentally just me based on my gender, age, location, etc. It allowed them to make a judgement based purely on my experience.

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?

When we focus on all of these things in the workplace environment, and especially in computer science, we bring unique ideas and perspectives to the table that didn't exist before. Think of some of our SHEros:

- Grace Hopper - a woman who initially wasn't taken seriously in the military (back when women weren't really in the military), had huge contributions to technology and coined "debugging"
- Hedy Lamarr - an actress who laid the groundwork for GPS
- Margaret Hamilton - is the reason we landed safely on the moon
- Katherine Johnson - is the reason space ships can orbit the Earth
- Radia Joy Perlman - gave us the internet

If women had continued to be excluded and marginalized in those jobs, some of their contributions may not be where they are today.

SHERO: CHOOSE YOUR OWN!

We're going to tour the Hall of Heroes as part of class today. YOU get to choose your favorite woman in science (it doesn't have to do with computers). Read the plaques and pick your favorite female. Answer the following questions:

Who is your SHEro this month? _____

When is/was she alive? _____

What do you like about her? _____

We'll share it with the class when we come back!

NOTE: We are touring the Hall of Heroes. **We are NOT playing with the exhibits at this time.** If there are ones you want to try out, see if your parents will let you come early or stay late to one of our sessions!

We'll be in groups for this and the next activity. Each group will have a coach or volunteer - this is just so it's easier for us to keep track of you! Groups can hang out with each other, but you must stay with your coach/volunteer. **If you need a break from this activity, you can come back to the Maker's Space**.

HALL OF HEROES ACTIVITY

Review the different plaques and answer these questions!

What did Carol Shaw do in Computer Science?

_____

What award did Carol Shaw win in 2017?

_____

What is your favorite video game?

_____

What term did Margaret Hamilton create (coin)?

_____

What did Margaret Hamilton contribute to Computer Science?

_____

When was the first moon landing?

_____

What advice did Margaret Hamilton give?

_____

When was Ada Lovelace born?

_____

What did Ada Lovelace do for Computer Science?

_____

Who's plaque is next to Ada Lovelace (there can be multiple different, correct answers)?

_____

For the plaque you chose (above), what did they do?

_____

What did Grace Hopper do for Computer Science?

_____

What is debugging?

_____

What did Gladys West do?

_____

BONUS: HALL OF HEROES

A pioneer in aviation, she achieved many world records in flight before disappearing near the completion of a "round-the-world" flight. WHO?

_____

As the pioneer of laser cataract surgery, she has helped restore sight to people worldwide. WHO?

_____

She helped build the nation's first electromechanical computer and coined the term "computing bug". Hint: You've already looked at her plaque. WHO?

_____

These 3 women and their contributions at NASA in mathematics, physics, and engineering were brought to the big screen in the film "Hidden Figures". WHO?

_____

She developed the mathematical model that is the basis of GPS, which she is credited for inventing. WHO?

_____

On September 12, 1992, she became the first African American woman to travel in space as she entered orbit aboard Space Shuttle Endeavour. WHO?

_____

Known as the "Lady with the Lamp", she was a pioneer of modern nursing helping reform hospital sanitation methods. WHO?

_____

She was the first Black woman to earn a doctorate from MIT and the leading developer of caller ID and call waiting technology. WHO?

_____

She was the first Hispanic woman in the world to go into space and holds three patents on optical systems. WHO?

_____

At just 14 year old, she built and flew her own single-engine airplane. WHO?

_____

Her software code developed for NASA was responsible for making the 1969 Apollo Moon Landing a successful mission. Hint: You've already looked at her plaque. WHO?

_____

As a cancer researcher and surgeon, she tested the effects of drugs on tumors and made chemotherapy accessible for everyone. WHO?

_____