Debugging

Women’s History Month

Women's History Month is an annual month that highlights the contributions of women to events in history. It’s very much like how we highlight and celebrate amazing women who contribute to Computer Science every month!

We’ve learned about Ada Lovelace, Grace Hopper, Margaret Hamilton, Hedy Lamarr, Carol Shaw, and Anita Borg. Today, we’ll be reviewing a little more about Anita Borg and meeting the ENIAC Women. In honor of Women’s History month, our SHEro of the month is actually a whole group of women.

(Review of Anita Borg in the slides.)

What is Debugging?

Every month, you are asked to write code. Sometimes, the code doesn’t work - so myself and the other coaches read through your code and try to find the mistakes. What we are doing is called DEBUGGING!

Debugging is looking at code and trying to figure out what’s wrong. Sometimes, you do this by reading the code and looking for syntax errors. Syntax is HOW the code is supposed to be written. Things like using a lowercase l instead of a capital I, forgetting to close HTML that you opened, or typing a variable name wrong. If you’re working with data, you can also ask the code to tell you what the data looks like before and after you do things to it - allowing you to trace through a problem step by step.

Women’s History Month Activity

Now we know debugging is looking at code to find the problem. To begin practicing debugging AND celebrating women’s history month, we’re going to do a word search! Like debugging, we will be looking at the word search to find certain words.

(Word search is on the next page.)

S	T	R	X	V	Y	W	V	R	H	C	Z	G	Q
A	N	S	C	A	S	T	H	T	A	K	G	O	U
C	E	R	H	R	X	S	J	M	M	T	O	I	L
J	S	A	R	I	R	H	A	L	I	H	H	U	U
F	H	S	H	A	Y	O	V	A	L	C	T	D	I
U	E	M	L	B	S	P	A	M	T	E	Z	M	Y
N	L	N	V	L	H	P	S	A	O	K	O	I	L
C	W	O	I	E	A	E	C	R	N	R	S	A	B
T	O	J	V	A	W	R	R	R	Q	O	C	I	O
I	M	A	N	E	C	W	I	F	T	B	I	D	R
O	E	J	K	E	L	S	P	J	Q	O	E	L	G
N	N	I	X	E	J	A	T	W	M	T	N	O	H
D	W	L	T	P	H	K	C	R	M	S	C	O	G
V	M	V	A	Z	X	L	J	E	Q	E	E	P	M

ENIAC
LOVELACE
HOPPER
HAMILTON
LAMARR
SHAW
BORG
HTML
CSS
JAVASCRIPT
FUNCTION
VARIABLE
ROBOTS
LOOP
WOMEN

Rubber Duck Method

What's the Rubber Duck method?

It's when you talk to a rubber duck about the problem that you're having with your code. Talking about a problem out loud helps you think about a problem in a different way. Sometimes, a bug in the code will jump right out and be more obvious. It's also helpful because the rubber ducky cannot judge you, or make you feel like you're asking the wrong question - because NO question is wrong, but also, it's a rubber duck!

When you're talking to your rubber duck, do the following steps:

1. Mention the code that isn't working, what it's doing, and what is SHOULD be doing.
2. Explain your code - line by line. What is it doing?
3. Spell words out loud, your duck wants to learn too!

Debugging Practice

In the following exercise, we'll explain what we think the code is doing to our rubber duck and why we think it doesn't work. Then we'll run the code and see if that changes anything. We'll talk to our rubber duck about how we can fix the problem, and test our fix to see how it goes!

https://studio.code.org/s/course1/lessons/5/levels/1

ENIAC Women

Source: https://kidscodecs.com/the-first-computors/

Six women were hired based on their math skills to program the ENIAC computer. ENIAC stands for Electronic Numerical Integrator and Computer. This was the first successful electronic and digital computer designed to figure out the trajectories of missiles (where they would land) during World War 2. These six women called themselves The First Programmers Club. What is *really cool* is that the majority of these women are from Philadelphia, PA!

Betty Holberton - On her first day of college, one of her professors asked if she'd be better off raising kids instead of being in school. She switched to journalism, but later got a job calculating where missiles would land with the military.

Kathleen Antonelli - Born in Ireland, her family moved to Philly when she was a young girl. She took every math course available to her before also landing a job with the military.

Jean Bartik - She graduated from Northwest Missouri State Teachers College as the only math major in 1945. Immediately after graduation, she applied for a job with the military and became an ENIAC developer.

Frances Spence - After earning her Bachelor's of Science in Math, she was hired to work with Antonelli at the University of PA. This later lead to her continuing to work with Antolli on the ENIAC.

Ruth Tietelbaum - She earned a degree from a college in New York City and was later hired to work with Antonelli, Bartik, and others. She later trained the next generation of ENIAC programmers.

Marilyn Meltzer - After graduating from Temple University in Philly, she was hired to make weather predictions for the military. She later moved on to also calculating ballistic trajectories before being hired to work on the ENIAC.

Adele Goldstine - Wrote the first complete technical description of the ENIAC machine. Her husband was involved in the construction of the ENIAC, so she had the intel to document the ins and outs of how the machine worked. She taught math and trained the original six ENIAC developers.

Jean Bartik talking about the ENIAC women! - Video Here

More Practice!

If you open your laptops, you'll see a CodePen that you can edit. This code has a couple bugs! The presentation will show you what the website is supposed to look like. Your job is to talk through each issue with your rubber duck, and figure out how to fix it.

Issue Hints:

- The header on the website has a spelling error.
- The text is the wrong color. (look at your conditional)
- The image is broken.
- Remember that when you OPEN an HTML element, you must also CLOSE it.