NJIT
New Jersey Institute of Technology
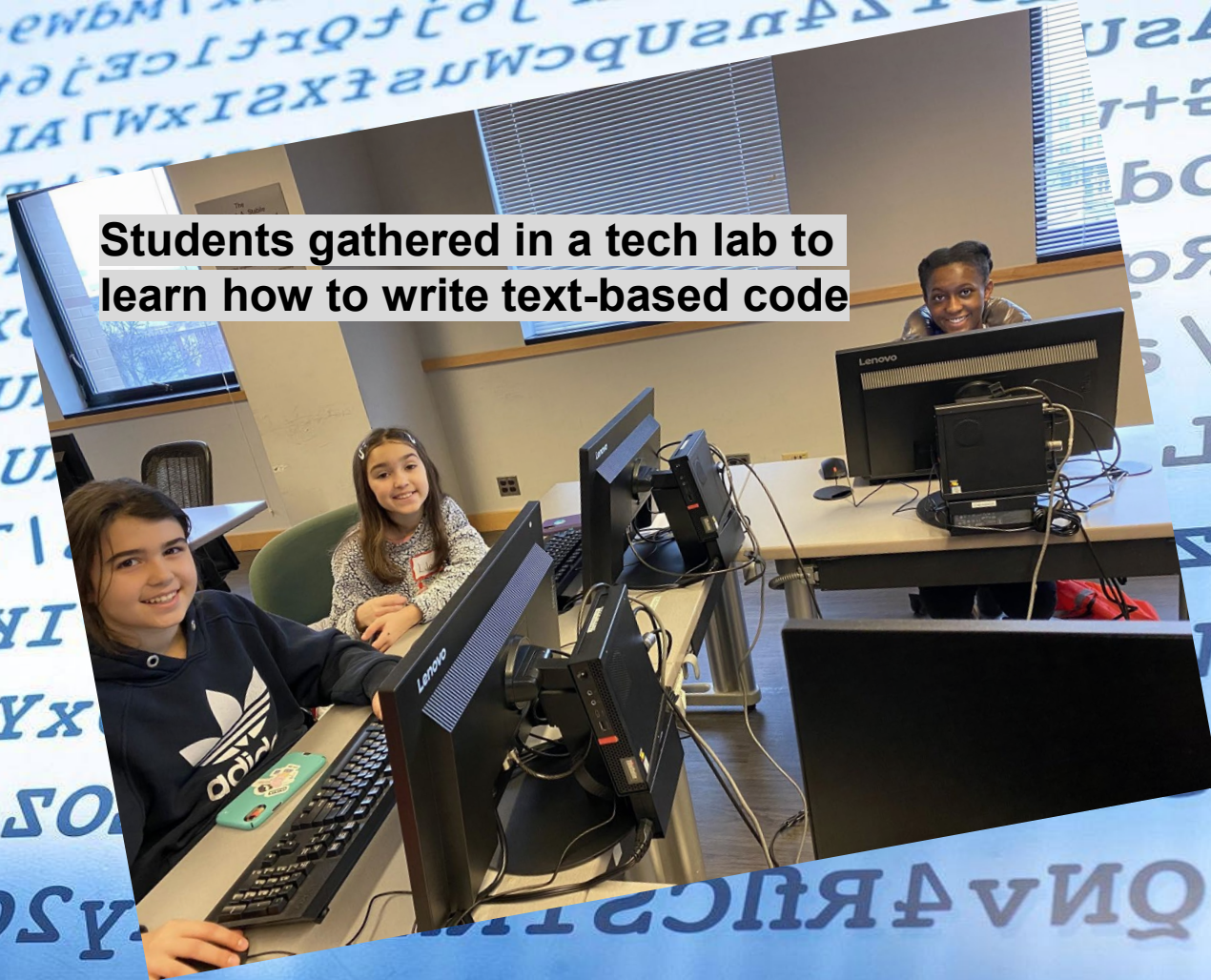
Center for Pre-College Programs

INSPIRING YOUNG MINDS FOR COLLEGE ACCESS AND SUCCESS IN SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM)

Code Saves the World
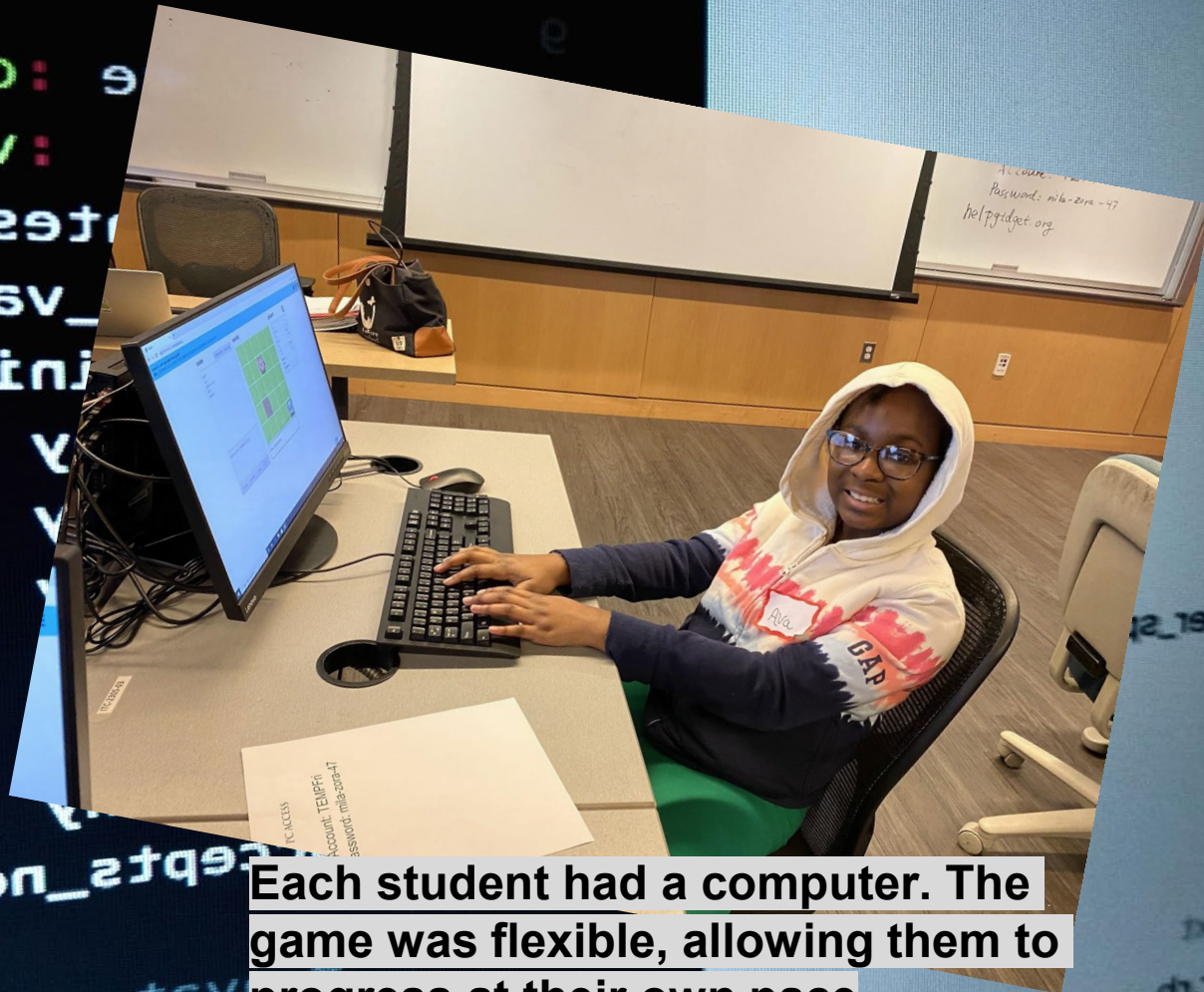February 1, 2020
STEM Family Workshop #1

Families worked on campus to learn and teach coding and its uses

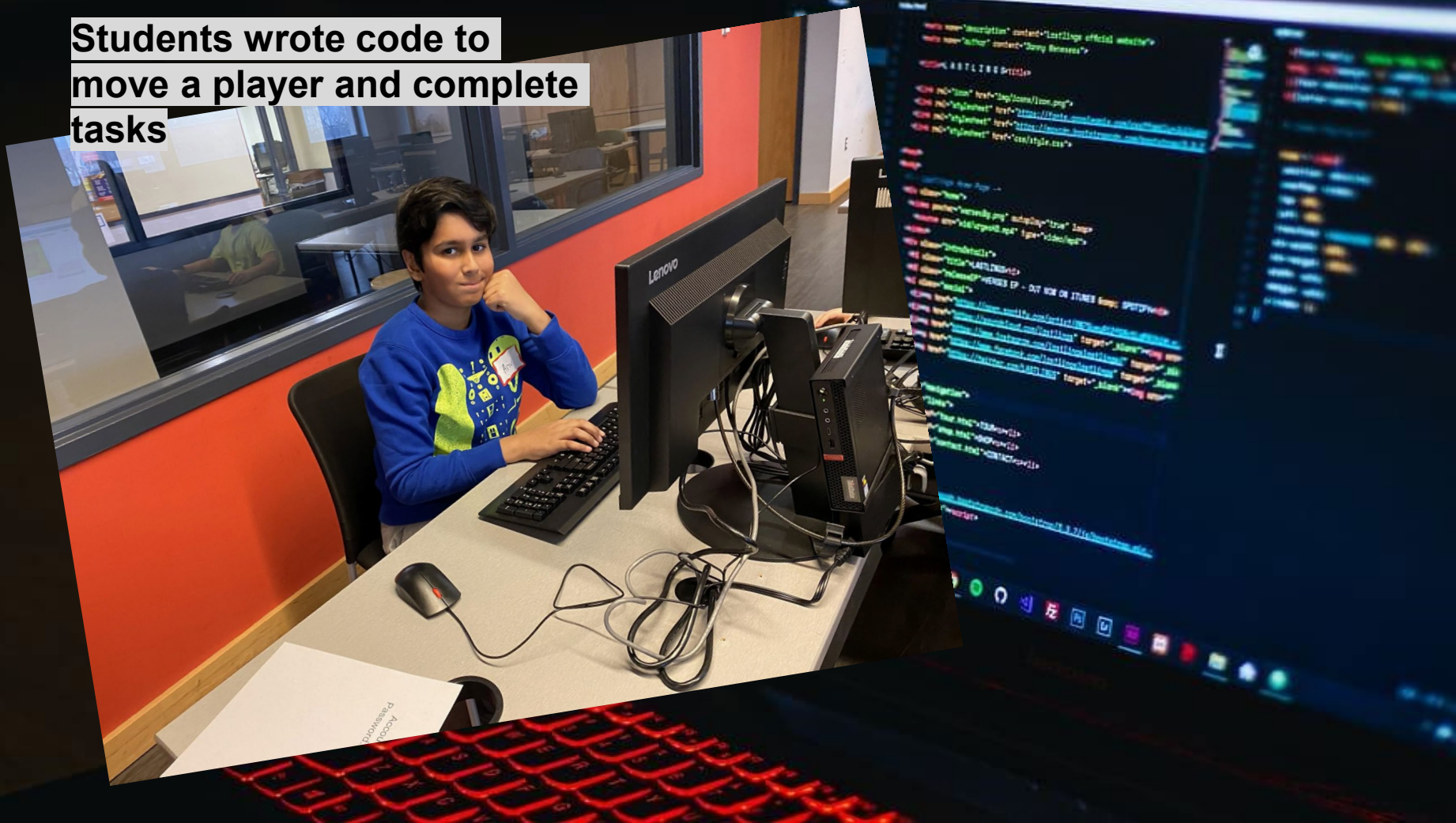Students gathered in a tech lab to learn how to write text-based code

We began programming by learning *Gidget,* a simple grid-based game developed by NJIT professor, Michael Lee, and his colleagues and students
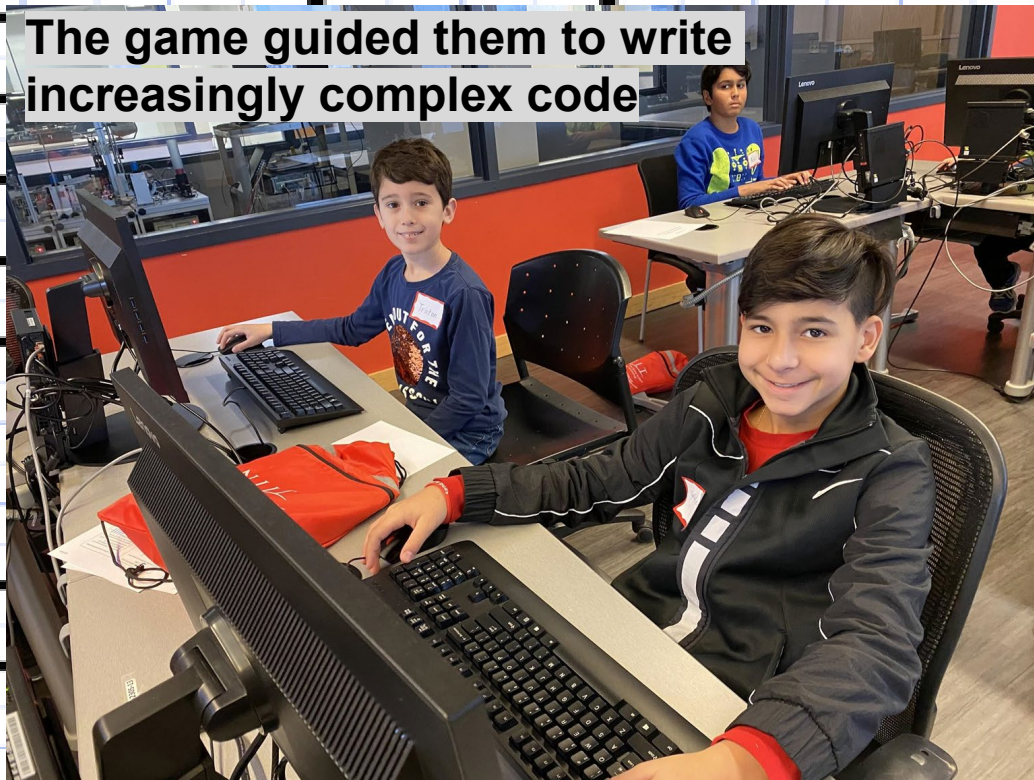
Each student had a computer. The game was flexible, allowing them to progress at their own pace
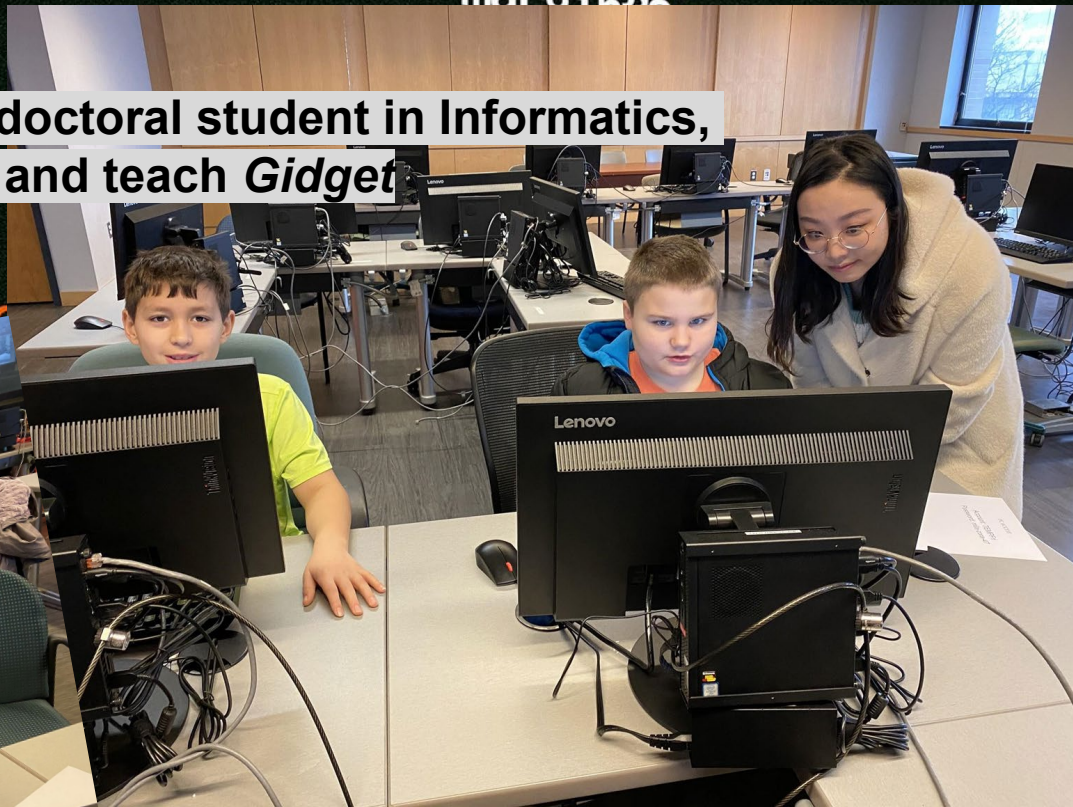
Students wrote code to move a player and complete tasks

The game guided them to write increasingly complex code

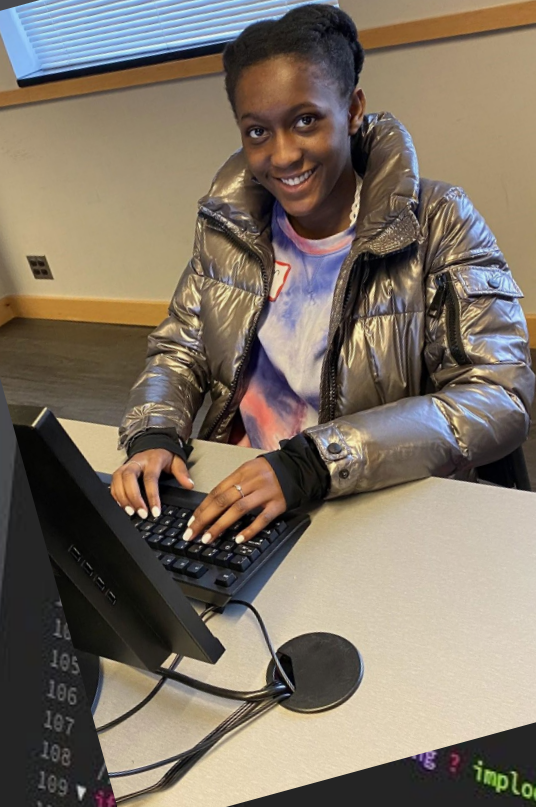Ruiqi Shenn, an NJIT doctoral student in Informatics, was on hand to guide and teach *Gidget*

Students then taught their parents the game and the step-by-step coding required

Gidget is designed to teach students to troubleshoot and correct their coding errors

The game emphasizes writing concise code that maximizes efficiency and brevity; mathematicians call this *elegance*

Because it is self-paced, some students and parents were able to complete many complex levels

All students and some parents used VR goggles to learn about the binary number system
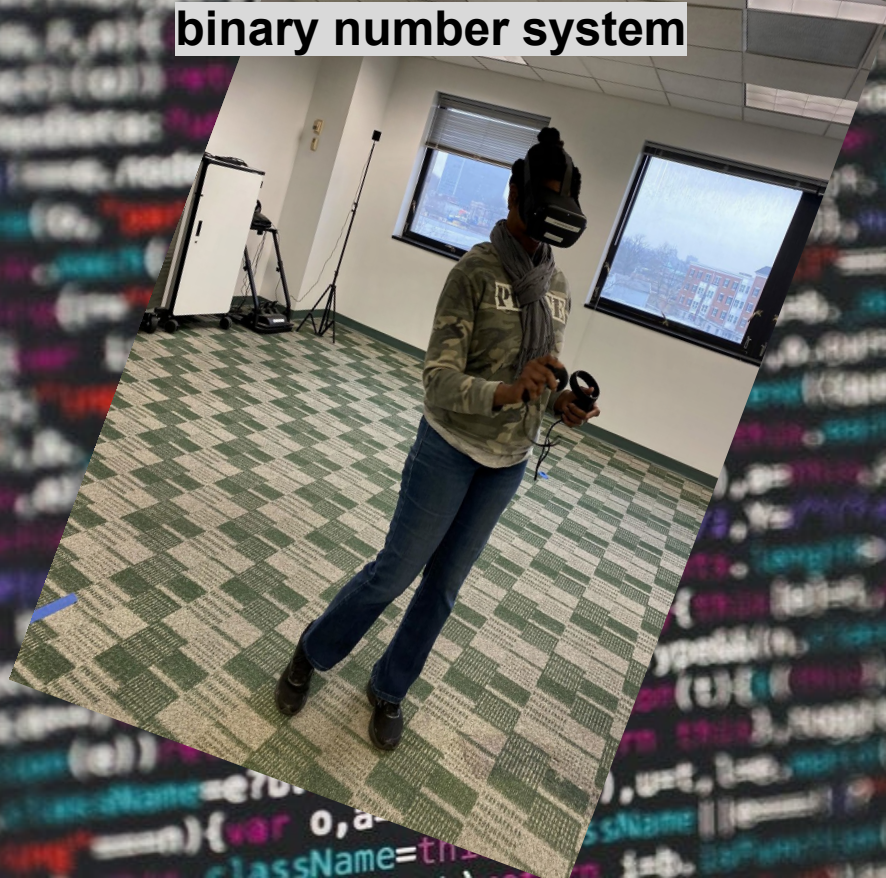
Doctoral student Eric Nersesian, who developed the Binary game, taught students that orientation in space is a key aspect of VR technology
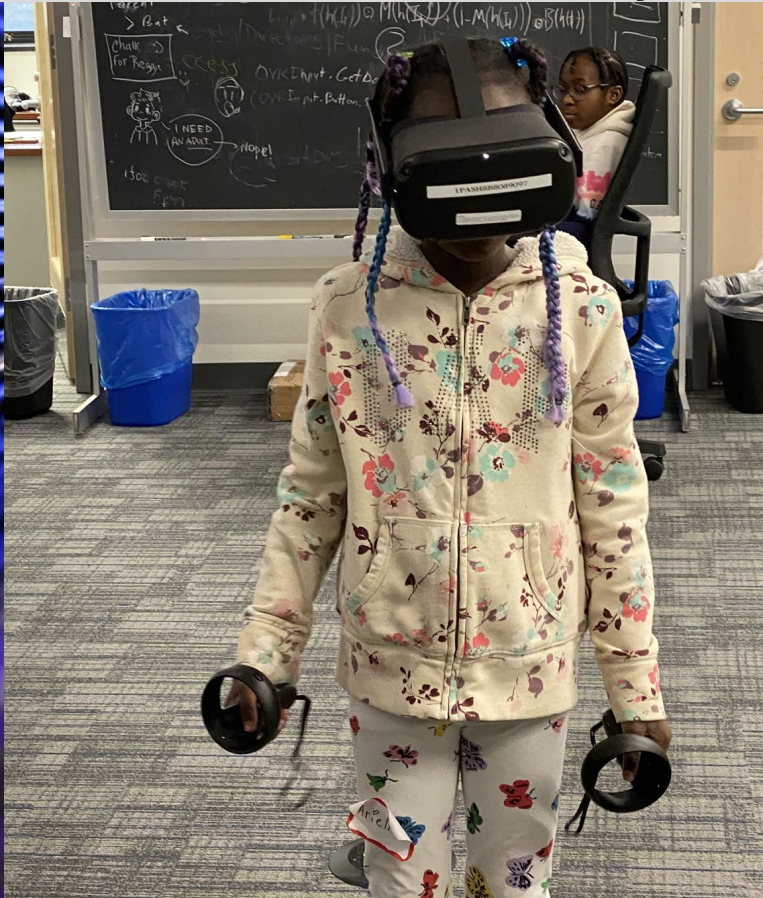
Students and their parents learned coding in an engaging and thought-provoking way
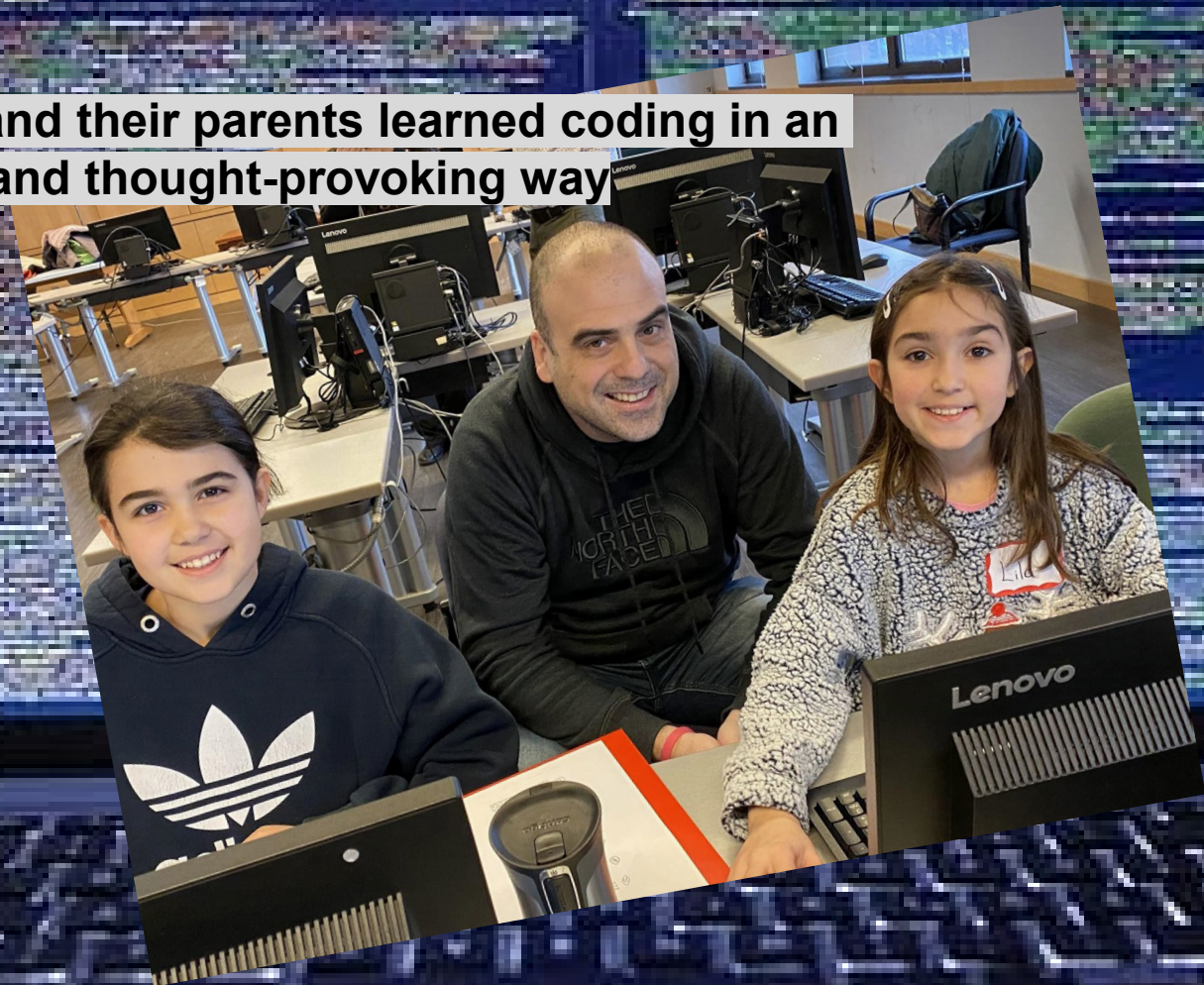
Doctoral student Ruiqi Shenn explained the game's objectives to parents and students together
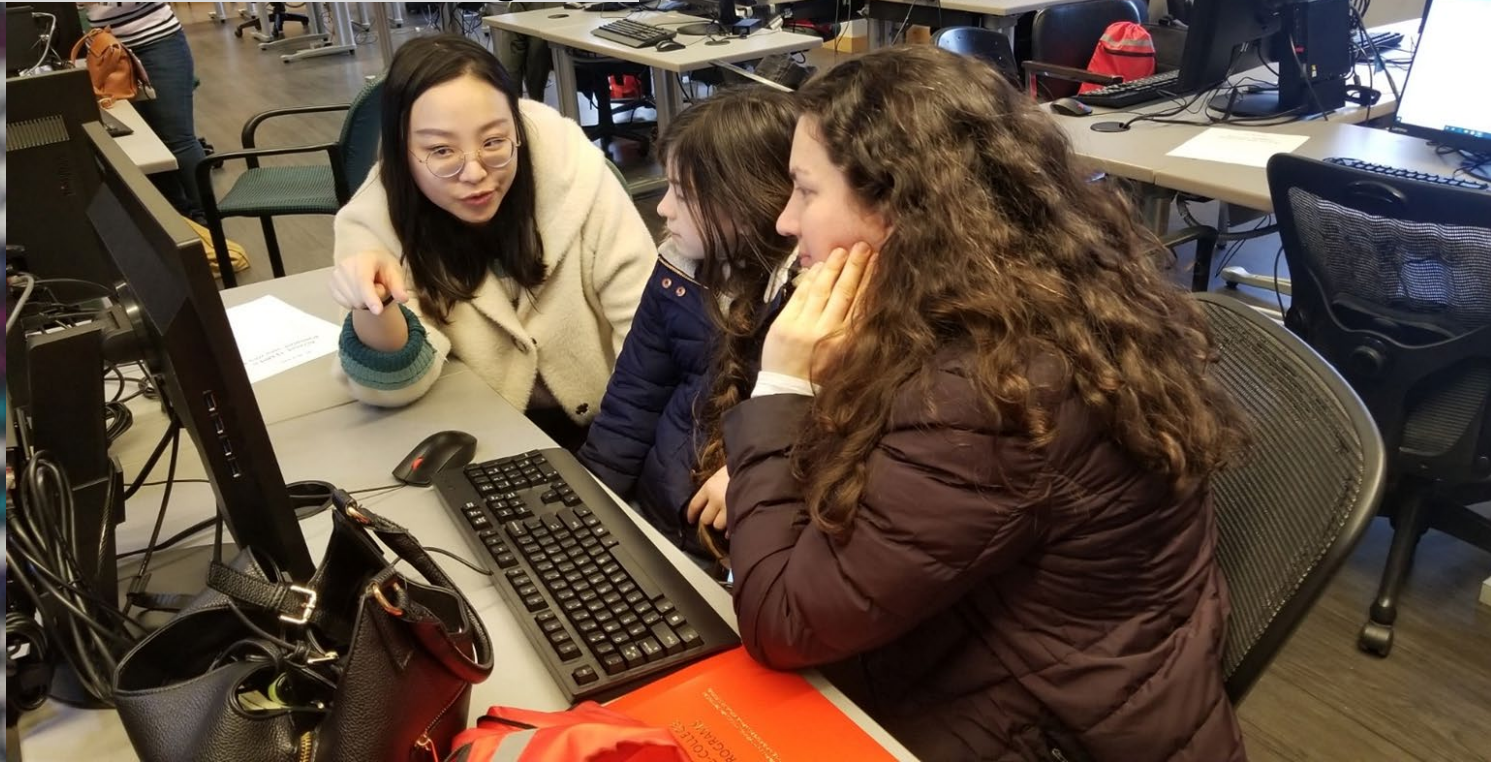
Everyone was intent on completing as many levels of *Gidget* as possible

A collaborative atmosphere prevailed as all teams worked to solve as many *Gidget* challenges as possible

Students create the code that tells Gidget, the character in the center of the game board, how to complete a variety of tasks

A Not secure | helpgidget.org

's move around more efficiently to specific spots on the map!

code

Original Code   Clear Code

```
goto /bird/
grab /bird/
up 3
left 2
goto /dog/
grab /goop/
left 4
down
drop /goop/
goto /basket/
left
up 2
drop /dog/
drop /rock/
```
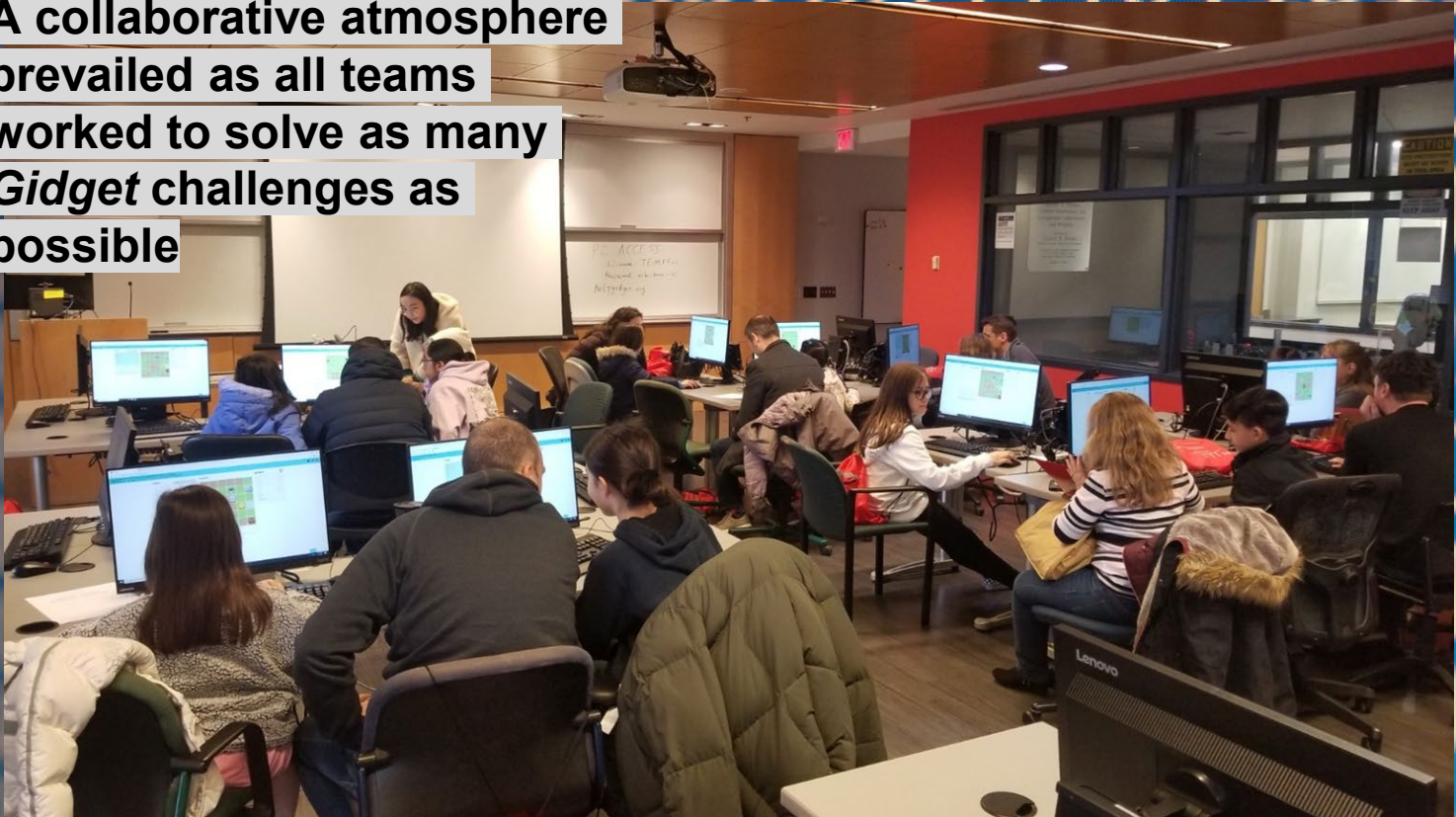
```
ensure /basket/:position = [1,5]
ensure /bucket/:position = [3,5]
ensure /dog/:position = /basket/:position
ensure /bird/:position = /basket/:position
ensure /goop/:position = /bucket/:position
ensure /rock/:position = /bucket/:position
```

One step   One line   To end

world

0   1   2   3   4   5

bucket   rock

gidget

goop   bird

dog

basket

Make sure to check my goals before starting the level. It looks like I have to move certain things to specific spots before running out of energy!

← Prev

gidget

energy	100
grabbed	[ ]
image	"default"
labeled	true
layer	1
name	"gidget"
position	[2, 3]
rotation	0
scale	1
transparency	1

Everyone felt the satisfaction of a job completed well! Our families can continue the game at www.helpgidget.org