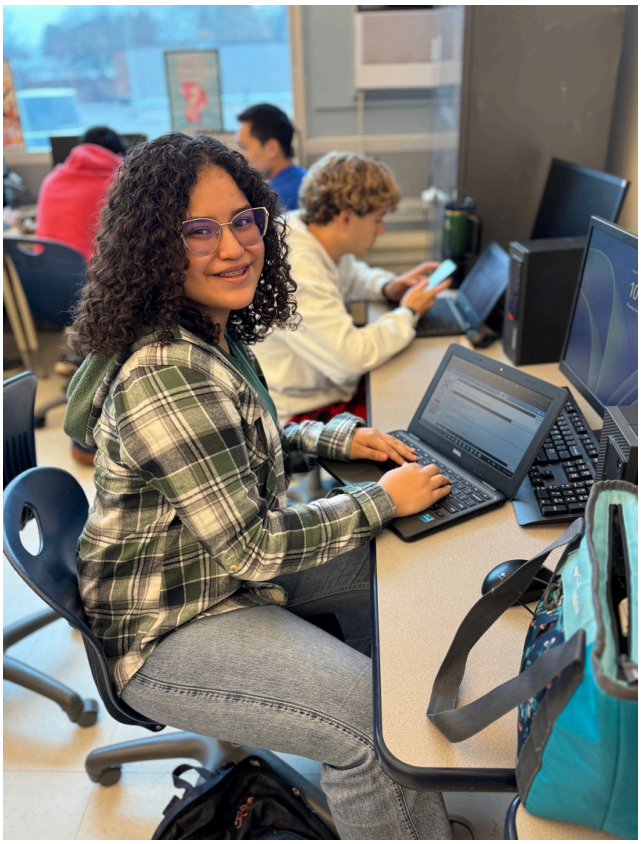
CSEdWeek 2024

Programming Them All in Cumberland

If you asked junior Mariana Gutierrez where her passion for technology and computer science lies, she would immediately answer that programming is her niche, specifically the math and statistics of it all.

“I feel like programming allows you to innovate more projects,” she said one rainy Thursday across the hall from her computer science classroom. “You’re allowed to innovate the future. I’ve always been intrigued [by] math and science, and I was able to do that through programming.”

And the future is what she wants to shape - making her own high aspirations become reality, as well as the aspirations of those around her. Mariana tends to favor the back-end of tech, but that hasn’t prevented her from gaining top-notch experiences to get her foot in the door. An ambassador for the Information Technology (IT) career and technical education (CTE) pathway at Cumberland High School (CHS), she spends time visiting the district’s two middle schools to breakdown how the courses work and what to expect for soon-to-be incoming high school students. She is also a tutor at North



Cumberland High School Junior Mariana Gutierrez is proud of her latest project in her AP Computer Science Principles class one Thursday morning, where she has coded a Pokémon-themed quiz app.

Cumberland Middle School.

The IT CTE program is one of six RIDE-approved CTE pathways at CHS, made possible by the U.S. Department of Education and RIDE’s $2.5 million CS4RI High School Grant awarded to 20 high schools in 2019, plus an additional $1 million continuation award in 2022. The innovative grant allows recipient schools to offer students up to 16 college credits at no cost and receive Work-Based Learning (WBL) experience. In addition to programmatic support, the grant provided professional development opportunities to educators.

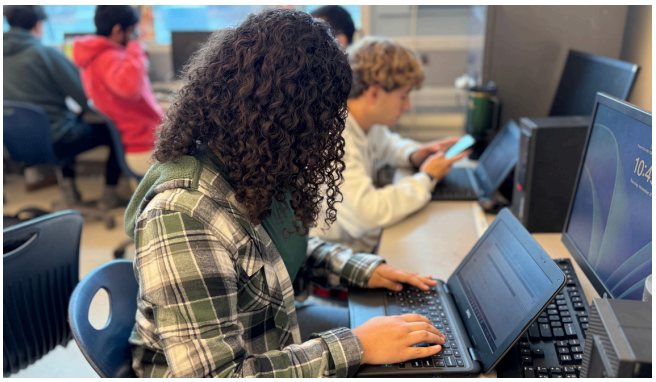
Mariana is currently taking Advanced Placement (AP) Computer Science Principles (CSP) while balancing a

courseload of AP Pre-Calculus and AP European History. In previous years, she took the basic Computer Engineering class and Intro to Computing Concepts. Her favorite subjects are, to no surprise, mathematics and history.

“Now with technology, with programming, they set up things where you can look into the past,” she said.

Thanks to the pathway, she is able to blend her skills with her own hobbies and interests. In her current AP CSP class, she is developing an intricate Pokémon-themed quiz app. According to her AP CSP teacher, Shawn Sellers, the focus of the project is to move from linear to object-oriented programming.

“Instead of a program that just functions from top to bottom, this one is only going to be based on input from



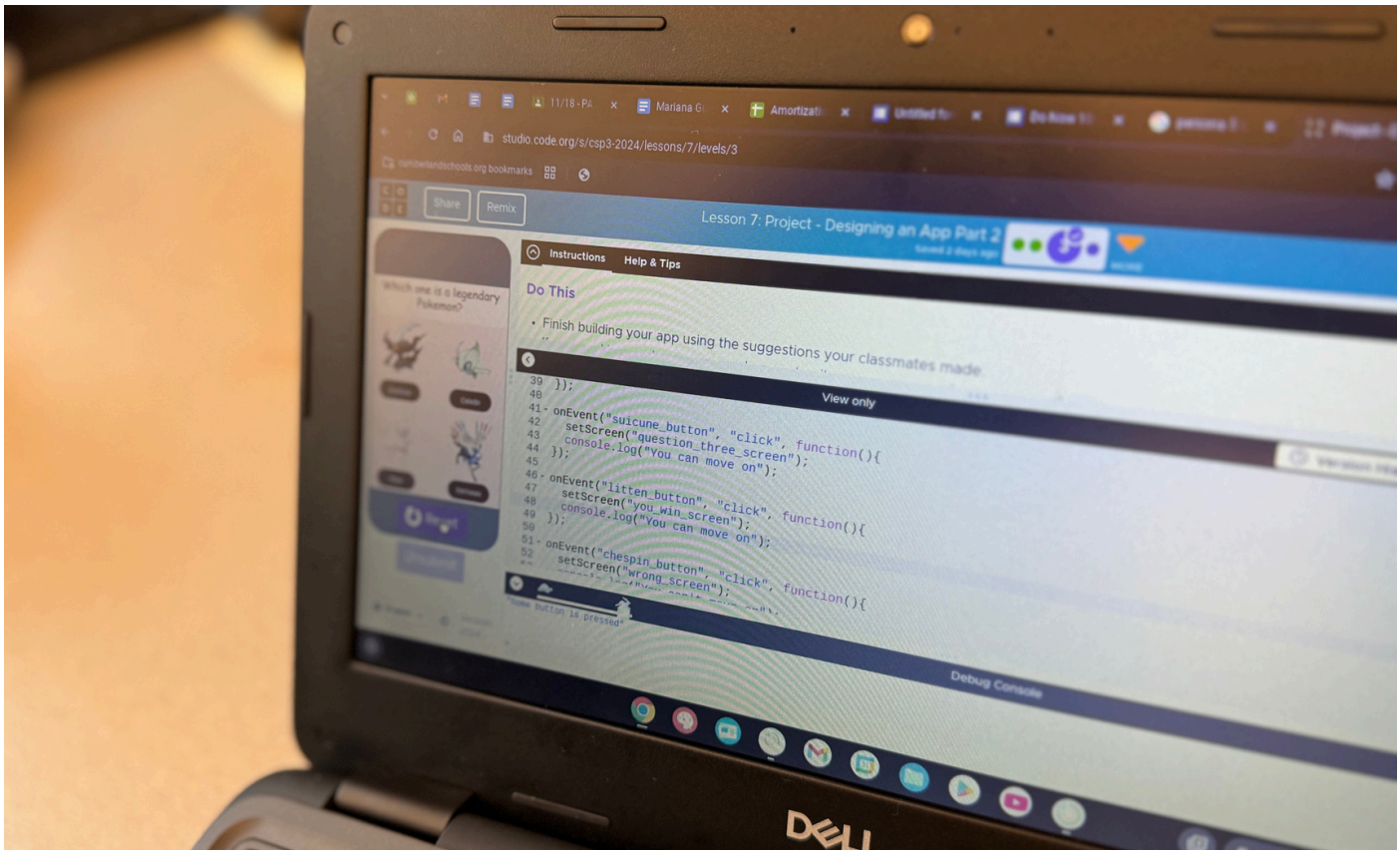
Mariana studiously works on her latest project.

the user,” he explained. “We’re trying to do it based on ‘hey, if user does X, what’s the result? What’s the output of it?’ We’re trying to introduce them to not just press a button and it’ll do everything and you’re done.”

He added that most professional careers utilize object-oriented programming (OOP), which includes programs like Java. Students in the pathway use Java during their senior year. Either way, Mariana is thoroughly excited for a career in programming, with the goal of becoming a data scientist - whether in the U.S. or overseas - as she wishes to study abroad and then possibly join the Navy. She currently works as a developer on a team in Quincy, Mass., outside of school, where she gets hands-on experience in making a server, and most recently, assisting company leadership in creating their own programming language. Finding new methods of making ideas a reality is perhaps her favorite aspect of the experience, and she hopes she is able to hone in on that passion during her postsecondary journey, whether it be in the Navy or at an institute for higher education, such as Rensselaer Polytechnic Institute (one of her most intriguing schools).

“What I find upsetting about programming is that a lot of people like only using assets that they can find and just copy and paste everything,” Mariana said. “Like yeah, it’s there, but I like making my own thing and adding onto it and knowing what I’m doing instead...you know?”

Aside from serving as an ambassador for the pathway, tutoring her younger peers, and working on a development team, she is also a lead programmer for CHS’ game design club. In this role, she guides fellow students in developing mini games after school.



The Pokémon-themed quiz app, coding and all, created by Mariana herself.

She credits Sellers for pushing her to learn new concepts, be ambitious and be a strong leader.

"I was never involved too much before he came to Cumberland, so now that he's here, I have a club that I can say I'm a [leader] of. I have so many things under my belt. It's great," she added.

Sellers is currently in his first year at CHS. Previously, he taught in Barrington and Woonsocket, and comes from the tech industry as a server engineer in Boston. He tries to put himself in the mind of a student and asks questions like "why is what is being taught relevant and how will it help their skills?"

The summary of the IT pathway on the CHS website reads as follows: "Today's job market requires individuals who are alert and clever problem-solvers that can think outside the box." Mariana all but exemplifies this definition and is excited to continue her education on CHS' computer science pathway and subsequently bring the skills she has learned to her career after graduation.

*Computer science proficiency is a graduation requirement within **RIDE's Readiness-Based Graduation Requirements for the graduating class of 2028**. CS4RI is led by RIDE and aims to strengthen industry partnerships and 21st-century learning for RI students. For more information, visit **cs4ri.org**. **Remember**, students cannot take advantage of these opportunities if they aren't in school; it's critical they are present every day.*
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