



BEFORE



AFTER

JACK VU '25

**W**ith the Turk-Adrogué El-Hakam Fellowship in Science, and donations from the St. John's Technology department and various community members, I constructed two computer labs in Houston's East End and ran consistent programming in both labs. Each site uses high-quality personal computers with standard computer software.

The first computer lab is located at Denver Harbor Multi-Service Center in Baker-Ripley's Senior Health & Wellness facility. I, along with the leaders at Baker-Ripley, decided on this location due to the need for digital literacy among their clients. In this facility, I provided ten computers, a printer, a projector, and an internet hotspot so that these seniors could have computer access and education. Initially a storage closet without any possibility of public use, this computer lab now provides 30 hours per week of public computer access. On the left above is a picture of the space before the transformation, and on the right is a picture after.

**To build the curriculum for computer literacy classes in this facility, I researched the background of our target students. This research involved on-site analysis and online investigation. Here were the main takeaways from this research:**

- Students would be primarily Spanish-speaking (just three of 145 regular visitors speak English)
- Students would be almost exclusively immigrants of Mexican origin
- Students would lack formal education (6% of Denver Harbor residents have a bachelor degree or higher)
- Almost all students would have a cell phone with cell service

With these takeaways in mind, I decided to teach only the most practical subjects that provide immediate value to the lives of my students. I developed a curriculum that features a series of one-off classes to provide a new tool each week to the students. Some of the teachings include Google Maps, Google Calendar, simple web surfing, and creating birthday cards with Canva. On top of the two hours per week that I teach this curriculum, the computer lab is open 30 hours per week for the visitors of the senior center to have computer, internet, and printing access.

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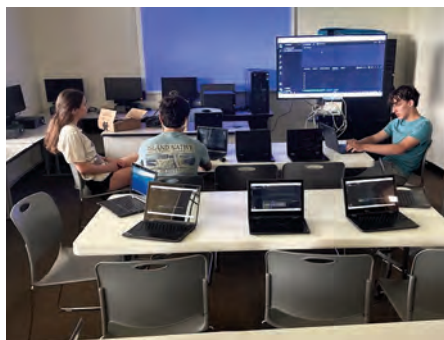
*Story continued —*



I also spend an hour after each class managing the computer lab so that seniors can come in and simply ask questions and learn new skills. One such senior came in and asked about how to design 3D roofing models for his business, so I showed him a CAD website where he could do this. The project is ongoing, and seniors show up each and every week excited to learn more. I'm looking forward to continuing to make an impact and work with these seniors.



The second computer lab is located at the Mission Milby Community Center in the East End's Pecan Park neighborhood. During the summer, the site hosts the Mission Milby Summer Day Camp in partnership with the YMCA of Greater Houston. I brought coding classes to this summer camp to give these children (around 60-80 per week) an opportunity to have fun with computer programming. Though an organization called Technology for All previously provided Mission Milby with a computer lab, the computer lab featured an aging set of desktop computers incapable of running simple Python programs. The St. John's Technology department donated 20 computers to the program to alleviate this issue, which was a huge boon for us.



Along with my team, I led the development of a customized curriculum with a series of lessons adaptable to the different age groups. These lessons aim to instill coding skills through the creation of concrete projects without each class relying on attendance of prior classes. For example, one project was the "Bank Vault Project." This project involved initializing variables for items stored in a bank vault that each student uniquely chose. The student would then come up with a dollar amount for that item and run a calculation at the very end to tally up the total value of the bank vault.

The students were ages 5 to 13 and almost exclusively lived in the surrounding Pecan Park neighborhood. In our five weeks of classes, every single student we taught was brand new to coding. As such, we made an effort to engage the students deeply in the material and strongly encouraged the students to continue to engage in the subject. At the end of the final class, we spent a significant amount of time talking about the career possibilities in coding and the benefits of continuing education. On top of simply giving students a mental exercise for them to enjoy, I hope to have instilled in them a love for programming that can benefit them long-term as it has for me.

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To better organize the classes, I recruited and led a team of nine volunteers to delegate tasks and provide some more individual teaching to kids. Together, we installed a linux virtual machine on all 20 computers and the coding environment VSCode. I hosted a training session to inform these volunteers on their expectations as teachers for these students and to walk them through the coding curriculum. Though not every volunteer could come every week, each session had 4-5 total teachers to ensure that students could receive individual help when necessary. The volunteers worked diligently from 8:30 am to 2:30 pm, with an hour-long lunch break for us to rest, eat, and discuss possible adjustments for the remaining classes.

I thoroughly enjoyed this opportunity, and I learned a little bit more about the world from each and every kid that walked into the lab. I am in discussions with Mission Milby about future uses of the computer lab, including continuing coding instruction throughout the school year with their afterschool programs.



Altogether, the fellowship allowed us to reach around 90 active students per week, while providing internet, computer, and printing access to around 145 seniors per day at Denver Harbor.

