

Campus Coders

Members:

Alex Cooper

Kadin Matotek

Perez Abhuilmen

Tyler Geiger

Alex M. Cooper Jr.

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Education

West Chester University of Pennsylvania

B.S. in Computer Science

West Chester, Pennsylvania

Expected Graduation: Spring 2026

- **Related Coursework:** Computer Science III, Calculus I, Discrete Mathematics, Statistics, Data Structures and Algorithms, Computer Security, Computer Systems
- Participated in the 7th and 10th Annual West Chester Programming Contest
- Spring 2024 Dean's List, Fall 2024 Dean's List

University of Delaware

Newark, Delaware

August 2022-May 2023

- **GPA:** 3.45/4.00
- Spring 2023 Dean's List

Projects/STEM Experience

Statistics Tutor

West Chester, Pennsylvania

Peer Tutor

August 2024-Current

- Assisted students in either one on one or small group (less than 4) settings to work through topics from the Statistics I course at the West Chester University Learning Assistance and Resource Center (LARC)
- Covered topics including probability, confidence intervals, tests of hypothesis, and regression
- Reviewed material and developed individualized plans to ensure each student was able learn effectively and communicated between faculty, students, and peers to ensure continuity.
- Participated in training with the College Reading and Learning Association to be certified.

Thermostat Project

Lancaster, Pennsylvania

July 2024

- Programmed an Arduino UNO to take in input from a thermistor and display the temperature onto an Liquid Crystal Display(LCD), change a Tri-color LED to a corresponding color based on range, and start a DC motor depending on the registered temperature.
- Utilized the Arduino IDE to write code for communication between the arduino and components.
- Designed the circuit and implemented the appropriate techniques and components to regulate current outputs for protection of all components.

Stock Price Analyzer

West Chester, Pennsylvania

Solo Developer

December 2023-February 2024

- Built a program using Python that can read comma separated value (CSV) files and uses the info to visualize the information provided and attempts to predict future prices using linear regression.
- Utilized the Pandas library to create DataFrames which store the values to be visualized in graphs and the terminal, these DataFrames are then manipulated to add more detail and to be accessed for different purposes.
- Used the Matplotlib library to create plots and subplots to help visualize the information into a variety of graphs.

- Applied the scikit-learn (sklearn) library to run a linear regression model based on training and testing sets to determine the information's trend.

Weather Website

West Chester, Pennsylvania

Solo Developer

January 2024

- Built a website that can tell the current temperature and weather for any city in the United States.
- Used HTML to build the user interface which has a designated area to enter a city name and used CSS to style the site.
- Utilized my skills and knowledge to integrate the fetching of information using an application programming interface (API) key.
- Used JavaScript to write the functions that locate the coordinates of a given city and then use those coordinates to determine the weather, updating the HTML to display a description, picture, and temperature converted to Fahrenheit.
- Implemented throwing exceptions to prevent errors when a city is misspelled or can not be located.

Encryption/Decryption Program

Newark, Delaware

Solo Developer

February 2023-April 2023

- Built a program using Python which can encrypt messages providing a unique hashkey for each combination of characters, the program can also decrypt messages made using said cypher and confirms the integrity of the messages by verifying the hashkey.
- Integrated my knowledge of the ASCII table for character rotation and manipulation functions.
- Supports user inputs and can be customized to support variations of haskeys in different bases.

Technical Skills

Languages: Python, Java, HTML, JavaScript, CSS, C, C++

Libraries: Pandas, Numpy, Matplotlib, scikit-learn, Java.util

Environments/Tools: Thonny, BlockPy, jGRASP, Visual Studio Code, GitHub, Arduino IDE

Non-Technical Work Experience

Valvoline Instant Oil Change

Lancaster, Pennsylvania

Senior Technician

May 2022-August

2024

- Supervised a team of employees to ensure speed of service, quality work, and safety.
- Interacted with suppliers to ensure supplies and resources were properly managed and available.
- Used a variety of new technologies, and industry standards to perform a number of roles during vehicle servicing.
- Kept track of and issued disciplinary files and ensured accountability for team members.

Resident Assistant Internship and Leadership Exploration(RAILE)

Newark, Delaware

Intern/Mentee

February 2023-May 2023

- Attended a variety of professional workshops that addressed issues commonly seen in work places and resident halls.
- Received on-site training and met with a mentor to build and develop characteristics of a leader.
- Helped coordinate and host events to engage with members of the community.

Kadin Matotek

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EDUCATION

Strath Haven High School

High School Diploma

- Clubs and Organizations: Ice Hockey, Track and Field, and Soccer.
- Relevant Coursework: Computer Science Principles

Wallingford, PA

Graduation: 5/2022

West Chester University of Pennsylvania

B.S. in Computer Science

- Minor: Mathematics
- GPA: 3.94/4.0
- Clubs and Organizations: Omicron Delta Kappa, Computer Science Club, and Club Ice Hockey.
- Relevant Coursework: Discrete Mathematics, Computer Systems, Computer Security, Data Structures and Algorithms, AI, Software Engineering, Data Communications and Networking, Cloud Computing, Calculus I and II, Linear Algebra and Applied Statistics.

West Chester, PA

Expected Graduation: 5/2026

PROJECTS

Email Classifier | *Java*

Oct 2023

- Achieved 89% prediction accuracy in distinguishing legitimate emails from spam across a dataset of 5,000 emails by calculating distances between individual emails and clusters.
- Implemented Java GUI enabling users to assess email authenticity and calculate distances between individual emails and/or email groups.
- Integrated a range of classification techniques, including nearest neighbors and Euclidean distance calculations, to improve adaptability and strengthen analytical precision.

Happy Programming Language | *Java*

Nov 2024

- Designed and developed “Happy”, a custom programming language featuring support for variable assignments, conditional expressions, loops, functions, list operations, and string formatting, aimed at providing a clean and concise syntax compared to other common programming languages.
- Documented the development and syntax through knowledge base documentation, allowing for anyone to learn the syntax, built in functions, and everything needed to know to start developing with this language.

2D Unity Game | *C#, Unity*

Oct 2023

- Developed a 2D video game inspired by *The World’s Hardest Game*, incorporating challenging level design and precise player controls.
- Designed and implemented multiple levels with increasing difficulty to test players’ reflexes and problem-solving skills.
- Conducted play-testing to refine game mechanics and enhance user experience based on feedback.

3D Unity Game | *C#, Unity*

Nov 2023

- Developed a 3D game incorporating custom graphics, custom player scripts, and realistic physics simulations in outer space.
- Developed multiple levels, presenting players progressively challenging obstacles to overcome, ensuring continuous skill progression.
- Conducted user testing to get feedback and implemented improvements through updates.

Facial Recognition | *Python*

Feb 2024

- Engineered a real-time face recognition program achieving over 90% accuracy on a structured dataset, providing efficient visual identification.
- Integrated advanced facial detection and recognition algorithms, utilizing libraries to detect and recognize faces in diverse environments.

EXPERIENCE

D.P. Dough West Chester

Mar - Aug 2023

Delivery Driver

West Chester, PA

- Executed over 1,000 customer deliveries with a strong focus on optimizing delivery routes, resolving logistical challenges, and ensuring timely, accurate order fulfillment through advanced problem-solving techniques.
- Utilized problem-solving skills to streamline order management processes and provide customer service.
- Took orders, served customers, addressed inquiries, resolved any issues to ensure the best customer experience.

Vicky's Place

Jun - Jul 2021

Dish Washer

Swarthmore, PA

- Assisted kitchen staff by ensuring a steady supply of clean cookware and dishware during peak hours.
- Maintained a fast-paced and organized dishwashing station to support smooth kitchen operations.
- Trained new employees on proper dishwashing procedures, safety protocols, and kitchen cleanliness standards to ensure consistency and efficiency.

Fort Delco Gym

Jun - Jul 2020

Gym Custodian

Morton, PA

- Maintained cleanliness and sanitation of workout areas, locker rooms, and equipment to ensure a safe and hygienic environment for both members and staff.
- Conducted routine inspections to identify and address maintenance or cleanliness issues promptly.
- Collaborated with staff to uphold gym standards and provide a positive experience for members.

Open Sky Energy

Aug - Nov 2019

Social Media Manager

Swarthmore, PA

- Collaborated with the team to develop marketing strategies and improve social media outreach.
- Developed and scheduled posts to promote solar energy solutions, company updates, and customer success stories.
- Managed and created content for the company's social media platforms, increasing engagement and brand visibility.

VOLUNTEERING

Media Food Bank

Mar - Aug 2023

Volunteer

Media, PA

- Assisted customers by taking food orders and providing a welcoming, supportive environment.
- Retrieved and organized food items based on customer orders to ensure accuracy and efficiency.
- Worked collaboratively with volunteers and staff to maintain smooth food distribution operations.

TECHNICAL SKILLS

Proficient Languages: Java, Python

Familiar Languages: Haskell, C, R, C#, SQL, HTML, CSS, Swift, LaTeX

Developer Tools: R Studio, SPSS, Git, VS Code, Linux, Zshell, Windows, Mac OS, Stack Overflow

Other Familiar Tools: Microsoft Office Suite, Unity

TYLER GEIGER

Software Developer

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📍 West Chester, PA

🌐 linkedin.com/in/tyler-geiger

WORK EXPERIENCE

Copyright Office – Temporary Employee

ASTM International

📅 2022 - current

📍 Conshohocken, PA

- Successfully registered over 5000 of ASTM's published literary works with the U.S Copyright Office through the ECO system.
- Developed and proposed an automation to the IT Department for the process above using Node.js, the XLSX library, and a Copyright Public Records API.
- Developed numerous ease-of-use automations and shortcuts utilizing Excel Office scripts and Windows PowerShell, significantly improving workflow efficiency, and simplifying tasks for my supervisor.

IT Operations – Temporary Employee

ASTM International

📅 June 2023 - August 2023

📍 Conshohocken, PA

- Application Portfolio Management: Populated an APM (Application Portfolio Management) site by conducting interviews with IT team members to gather and document detailed metadata on applications, including application dependencies, subject matter experts, and infrastructure components (DEV, QA, Prod servers), among other details.

PROJECTS

Software Engineering, Chester County Association for the Blind and Visually Impaired (CCABVI) Website Rework

Team Lead

📅 Sept 2024 - Dec 2024

- Led a website enhancement project, implementing UI/UX improvements focused specifically for accessibility with blind users, including features designed to comply with 508/ADA standards and optimize screen reader navigation.
- Led requirements gathering sessions with a non-technical client, translating their needs into actionable development plans.

SUMMARY

I am a third-year Computer Science student at West Chester University with a passion for software development and problem-solving. I am seeking an internship or research opportunity to apply my technical skills, gain hands-on experience, and contribute to innovative solutions in the field.

SKILLS

- Javascript
- NodeJS, ExpressJS, & MongoDB
- React.js (Familiar, actively learning)
- HTML, CSS
- Git, Github, & Bitbucket
- Excel & MS Office Scripting
- Java
- Problem Solving
- Bash & Powershell
- Visual Studio Code
- SQL

EDUCATION

Diploma

Souderton Area High School

📅 2018 - 2022

📍 Souderton, PA

Bachelor of Sciences

Major in Computer Science, Minor in Applied Statistics

West Chester University

📅 Aug 2022 - current

- Resolved technical issues, including fixing a PayPal integration and identifying hosting configurations for the WordPress-based website.
- Collaborated with teammates, taking a leadership role in front-end development and team communication.

Electronic Copyright Office Registration Automation

Creator

- Automated the registration process on the Copyright Office's Electronic Copyright Office (ECO) system using PuppeteerJS and Node.js.
- Designed and implemented workflows to extract data from Excel spreadsheets, format it for automation, and retrieve prior registration numbers by querying the Copyright Public Records API.
- Designed additional scripts using PuppeteerJS to automate the upload of PDFs from a shared network drive to the ECO system.
- Reduced a previously week-long, sometimes multi-week manual process into an automation that can be configured and executed in a single day, significantly improving efficiency.

📍 West Chester, PA

Awards

- Dean's List, Fall 2024
- Dean's List, Spring 2024

Relevant courses

- Computer Science I, II, & III
- Foundations of CSC
- Data Structures & Algorithms
- Computer Security & Ethics
- Programming Lang Concepts & Paradigms
- Software Engineering
- Database Mgt Systems
- Modern Web Apps Using Server-Side Technologies
- Computer Science Principles
- Data communications & Networking

Perez Abhulimen

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WORK EXPERIENCE

PJM Interconnection L.L.C.

Audubon, PA

Cyber Security / Platforms and Client Operations

May 2023 - Aug 2023

- Spearheaded the implementation of advanced security protocols, reducing vulnerabilities and enhancing overall system resilience.
- Assisted the Platforms and Client Operations team in deployment refreshes, flash drive encryption, and Image Processing.
- Assisted a cross-functional team to conduct comprehensive security audits of several Intrusion Detection Systems.
- Followed processes accurately with attention to detail while being responsible for monitoring IP address traffic coming in and out of the network.
- Created simulated phishing emails for Critical Infrastructure Protection (CIP) audits, enhancing organizational resilience against social engineering and deepening knowledge of cybersecurity awareness and compliance.

West Chester University

West Chester, PA

Resident Assistant

Aug 2023 - Present

- Implementing and enforcing all College and Campus Living policies, promoting academic excellence, addressing student needs, and encouraging involvement.
- Promoting the interaction and construction of social networks between the community and residents.
- Create, market, and lead student-centered hall programs to promote social, education, diversity, health, emotional, understanding, and growth.
- Communicating a budget, allocating money for residence hall and floor events, and collaborating with on- and off-campus offices such as counseling, student activities, maintenance, etc.
- Collaborating with orientation staff on first year and transfer student opening week activities.
- Budgeting and allocating money used for residence hall and floor events.
- Developed a positive living environment for residents, often resolving conflicts.

Top Golf

King of Prussia, PA

Bay Host

Oct 2023 - Present

- Facilitated a welcoming atmosphere for over 50 guests daily, enhancing overall guest satisfaction ratings by 50% through attentive service and efficient operations.
- Coordinated with kitchen and bar staff to streamline food and beverage service, resulting in a 10% reduction in wait times and a significant boost in customer retention.
- Trained and mentored new team members on best practices and service standards, leading to an improvement in team performance ratings by 15% within the first 6 months.
- Analyzed guest feedback to identify trends and areas for improvement, successfully addressing concerns that led to an increase in positive online reviews.

EDUCATION

West Chester University

West Chester, PA

Bachelor of Computer Science: Cybersecurity

Graduation Date: Date

LEADERSHIP EXPERIENCE

Dowdy Multicultural Center

West Chester, PA

Peer Mentor

Aug 2023 - Present

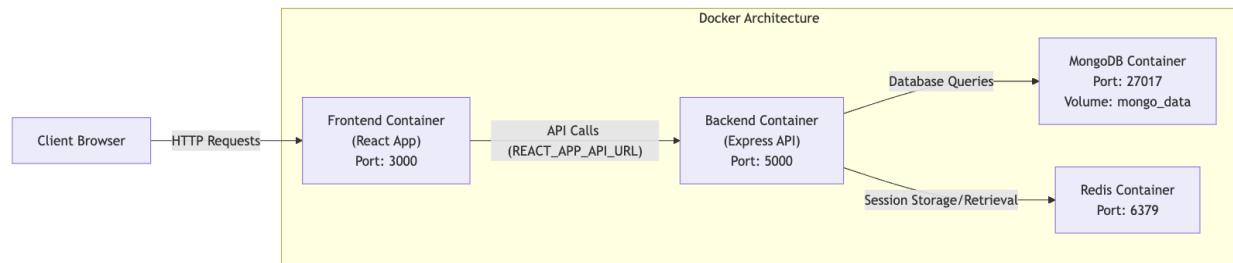
- Mentored and provided guidance to at least 6 students in the Educational Opportunity Program, resulting in an increase in program completion rates.
- Developed and implemented tailored academic plans for students, leading to several improvements in GPA averages.
- Collaborated with academic advisors to identify at-risk students and successfully implemented interventions that improved student retention.
- Organized and facilitated weekly study groups for students, resulting in a 20% increase in exam scores.

- Assisted in the planning and execution of EOP events and workshops, contributing to an increase in student participation and engagement.

SKILLS & INTERESTS

VMWare, Computer Security, Windows, Network Security, Java, Big Data Analytics, HTML, CSS, JavaScript,
Skills: CI/CD and Docker, Communication, Crisis Management, Event Planning, Software Engineering, Data Structures
and Algorithms, Team Collaboration, Critical Thinking, Leadership, Community Building,

Our vision is to create an application tailored for university students that enables them to connect, collaborate on projects, share notes, and study together. This app will be similar to Discord, but focused on academic and campus collaboration.



Our architecture follows a containerized approach using docker to deploy a web application. The system contains four total containers. The Frontend container will run a React application, which will handle the HTTP requests from the client browser. The frontend makes API calls via an environment-configured URL to a backend container, which is an Express.js API running on port 5000. The backend processes requests and interacts with two different database containers. The first is a MongoDB Container on port 27017 used for persistent storage. The second is a Redis Container on port 6379 for session storage and retrieval, ensuring efficient data caching and fast response times.

To implement our architecture, we will use the following technologies:

- **Frontend:** React.js (served via a Docker container on port 3000)
- **Backend:** Node.js with Express.js (running on port 5000)
- **Database:** MongoDB (containerized, port 27017, with persistent storage)
- **Session Management:** Redis (containerized, port 6379)
- **Containerization & Orchestration:** Docker and Docker Compose for managing multi-container deployment

Containerized Deployment Strategy

Each component of the system will be containerized to ensure ease of deployment. The deployment plan follows these steps:

1. Frontend Implementation (React App)

- Develop the user interface using React.js.
- Configure API requests to use REACT_APP_API_URL, pointing to the backend container.

- Use Docker to containerize the React app and expose it on port 3000.
- 2. **Backend Implementation (Express API)**
 - Develop an Express.js backend that handles API requests.
 - Implement routes for data retrieval and session management.
 - Use environment variables for database and Redis connections.
 - Containerize the backend, exposing it on port 5000.
- 3. **Database Management (MongoDB)**
 - Deploy MongoDB in a container, exposing port 27017.
 - Mount a volume (mongo_data) for persistent storage.
 - Ensure data integrity by configuring authentication and access control.
- 4. **Session Storage (Redis)**
 - Deploy Redis as a container on port 6379.
 - Use Redis for caching session data to improve performance.
 - Integrate Redis with the backend for session management.

Communication & Networking

We will use Docker's bridge network for communication between containers. The frontend will communicate with the backend via HTTP requests, while the backend interacts with MongoDB and Redis using their respective ports.

Environment Configuration & Deployment

- Docker Compose will be used to define and run multi-container applications.
- A .env file will manage sensitive credentials and configuration variables.

Scalability Considerations

- Use Docker Swarm or Kubernetes for container orchestration in future iterations.
- Optimize API endpoints for efficiency.

By implementing the proposed architecture, we ensure modularity, maintainability, and scalability.