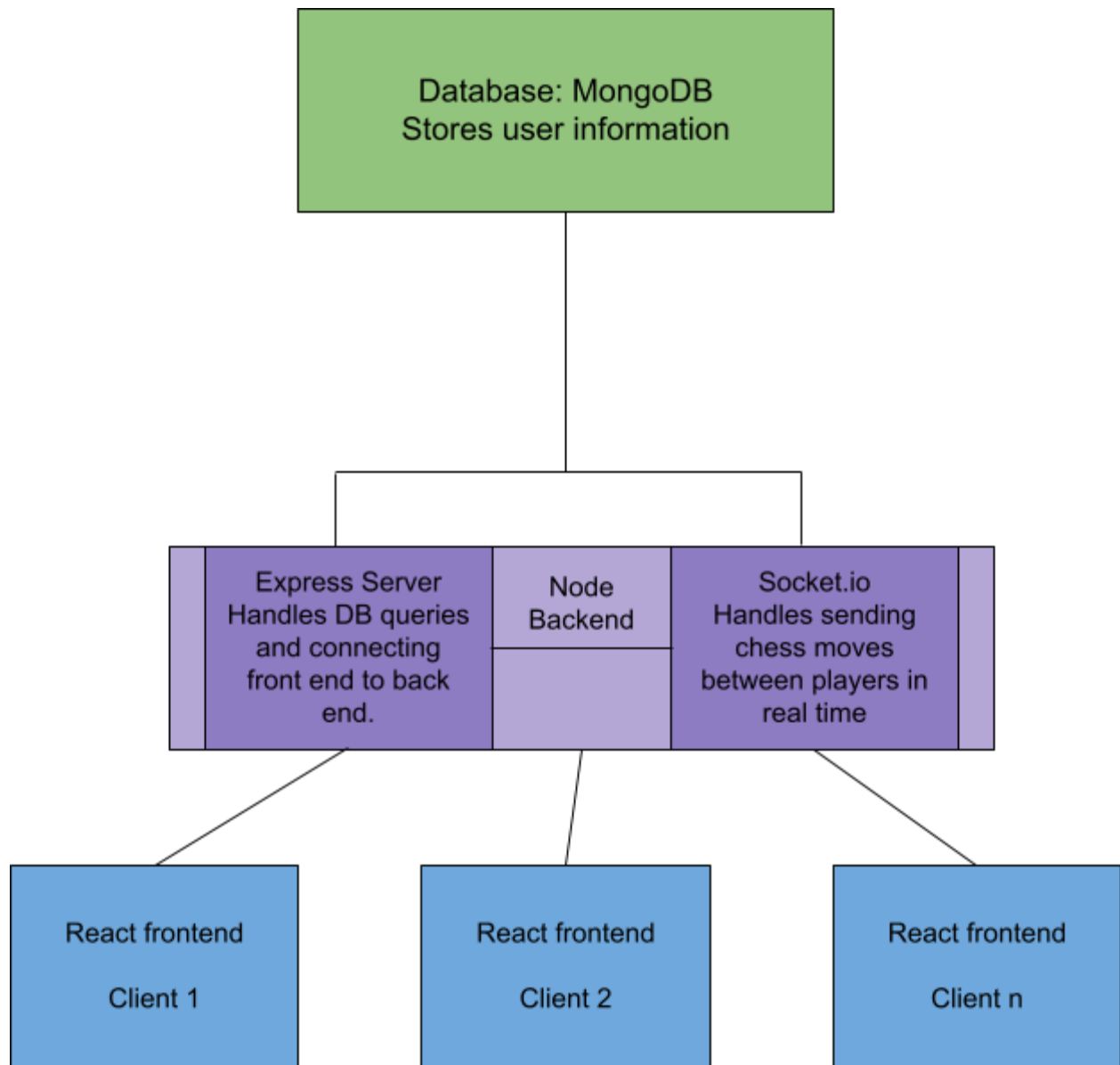West Chester University

CSC468 Project
Chess Game

Kevin Jusino
Hilary Lumeh
Ben McFalls
Devin Parentice
Emilia Quintana

Summary

This report will define the vision of our project and go into detail about the technologies used to complete it. The figure shows the structure of the project and how everything interacts. The Vision section explains what the goal of the project is from a user perspective. This defines exactly what we are trying to create without focusing on how that is done. The Technical Requirements section is a discussion about how to satisfy the requirements laid out for the project as well as how those will combine to achieve the vision. Intermediate Milestones is a section written in the middle of production on the app. It explains our progress so far and a few challenges that we still face in finishing the project. Finally, we have the resumes of all of the contributors to this project listed at the bottom.

Vision & Design

Our goal is to build a project to allow people to play chess online against other players and computer opponents. Our project will include user profiles with logins, a profile page where statistics and match history can be seen, and live chat between opponents.

Technical Requirements

For this project, we plan to use the MERN stack. Using this stack will simplify the process of developing and implementing the game. Since the technologies involved are designed to work together, much of the complexity can be reduced.

For the UI, we will be using React.js, the R in MERN. The front end will need to handle user logins, as well as the display and functionality of the chess board and all legal moves. Any time a login, new game, or move is attempted, our application will need to communicate with the server.

On the server side, we will be using Express and Node.js. Our server will communicate with the database in order to register and log in accounts as well as fetch user data. Our server will handle interfacing between clients to allow for real time chess playing with Socket.io.

Our database of choice is MongoDB, which will facilitate fast communication with the application. This database will store all information related to user logins and profiles. Since MongoDB stores information in JSON-like files, it is ideal for use alongside the rest of the MERN stack.

Intermediate Milestones

At this point in the project we have a functional Minimum Viable Product. Players can log in and play games by searching for their opponent under whatever time constraints they choose. Players' stats are tracked and viewable with their profile and there is a live chat between players during games.

We are using MongoDB to store player profiles as well as their moves and outcomes of games. This allows players to create accounts so they can keep track of their games and any statistics that they might care about. This allows for very fast and lightweight transfer of data so users do not have to deal with slow loading times caused by connections between the database and the server.

We also used express and Node.js to facilitate communication between the database and the user. By combining these technologies with Socket.io we enabled users to play games in real time seamlessly. These middleware technologies allow the users to interact with one another without directly referencing the database. This way, the database only needs to be interacted with at the end of the game to record the results, which avoids delays that could happen when many players are interacting with the database simultaneously. There are still a few errors in this section related to private lobbies and players having the wrong time constraints. We believe the best way to resolve this will be by modifying what information gets brought in with the player when they join a lobby versus what information the lobby would carry to give to the player.

The UI uses React.js and specifically the Mantine library. This has hundreds of components that will look familiar to users. This allows both for easier development of the design of our webpage as well as making it very intuitive for users. Currently the front end is mostly used through the side bar which has links to look at your profile, find a match, or set up a private match. Some next steps will be to add these same links on the main page and to work to make both the main page as well as game lobbies more visually appealing.

Kevin L. Jusino

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Professional Summary

A skilled computer scientist with 3-years of coding and development experiences; organized and strategic team player and project manager capable of guiding a team; independent and able to prioritize multiple projects.

Education

West Chester University of Pennsylvania. 2020 – 2023, B.S. Degree to be awarded May 2023
Dean's List FA2020, SP2021. Grade Point Average: 3.935
Major: Computer Science with focus on program development.
Related courses:
- Basic, Intermediate, and Advanced Java Language Computer Programming
- Intro C Language Computer Programming
- Computer Systems, Data Structures and Algorithms Penn State University Park, 2019 - 2020

Dean's List FA2019, SP2020. Grade Point Average: 3.87
Major: Computer Science Engineering
Related courses:
- Engineering Design and Development
- Intermediate Python Language Computer Programming

Experience

CAP 2 (Stocking) Team Associate (Part Time) Aug. 2020 – Present, Wal-Mart
    Duties included loading and unloading freight from trucks, pallets, and carts, lifting 40lbs or more daily, stocking and organizing shelves, providing customer service and assistance as needed.

Burger King Cashier (Part Time), June 2018 – Aug. 2019, HMS Host Hickory Run Service Plaza
    Duties included taking and delivering orders to customers, navigating the register screen and drawer, working efficiently during busy hours, training new hires, providing customer service and assistance, and replenishing stock of condiments and utensils.

Snow-Tubing Attendant (Part and Full-Time), Dec. 2016 – Jan. 2020, Jack Frost Big Boulder
    Duties included directing guests up and down the snow slopes, radio communication with my coworkers, preparing equipment and electric carpets, inflating, and deflating, snow tubes, and digging pathways for guests and associates to move through.

Skills

General: Mathematically Inclined, Team Player, Project Planner, Leader
Computer: Products of: Microsoft Office, Google, Adobe, Apple, Windows, PC. jGRASP, IDLE3, Terminal, Visual Studio Code
Coding Languages: Python, Java, C, Haskell
Languages: English (Primary), Basic Spanish

References

References are available upon request.

Emilia Quintana

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Education

West Chester University of Pennsylvania, West Chester, PA Graduation: May 2022
Bachelor of Science in Computer Science Current GPA: 3.9
Computer Security Certificate Major GPA: 3.9
Dean's List: Fall 2019; Spring 2020; Fall 2020; Spring 2021
Notable Courses: Software Security; Computer Security; Operating Systems

Work Experience

Endevor, LLC, Wilmington, DE Dec 2021 - Present
Software Developer/Analyst Intern
- Work within an agile framework on large software products.
- Develop front and back-end systems for multiple clients.

West Chester University of Pennsylvania, West Chester, PA Sept 2020 - Dec 2021
Peer Writing Mentor & Writing Center Tutor
- Guided students with interpreting and following writing assignments.
- Worked one-on-one with a diverse student body on writing skills.

Languages

French (intermediate)
English (native)

Technical Skills

Programming Knowledge
- Java
- Python
- C
- C#
- Haskell

SQL
Linux
Microsoft Office Suite

Projects

Command Line Interpreter: a basic shell, written in C, capable of running built-in commands as well as those found on a path.

BENJAMIN MCFALLS

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1114 Wilderness Trail, Downingtown, PA 19335

EDUCATION

**West Chester State University	College of Sciences and Mathematics,** Computer Science, GPA **3.83**	West Chester, PA December 2022
**The Pennsylvania State University	College of Information Sciences and Technology**	University Park, PA *Aug 2017- May 2018*

PROFESSIONAL EXPERIENCE

SAP
Student Training and Rotation (SAP STAR) Internship program

Newtown Square, PA
May 2021 - current

- Multi-year rotational program with structured training in technical skills, business acumen, and soft skills.
- In collaboration with Innovation Center, coded, tested, and developed solutions in alignment with project requirement.
- Leveraged and built knowledge in Java, Javascript, NodeJS etc. to meet business requirements for frontend and backend development.

USLI
College Help Intern - Technical Infrastructure Team

Wayne, PA
Nov 2020 - Apr 2021

- Diagnose and resolve technical hardware and software issues leveraging active directory and Dameware.
- Configure new systems to meet corporate standards and user requirements.

United Postal Service
Supervisor, promoted from package handler in Nov. 2019

West Chester, PA
Oct 2019 - Sept 2020

- Trained and supervised a team of 10 package handlers ensuring the team meets safety and productivity objectives.
- Contributes to the growth of UPS by providing effective leadership, customer service and communication.

iD Tech - West Chester University
Lead Instructor summer 2019, promoted from Instructor following summer 2018

West Chester, PA
May 2018 - Feb 2020

- Prepared lesson plans on a variety of topics including: cyber security, encryption, artificial intelligence, machine learning, coding, game design, and mobile application development.
- Lead a team of instructors in the day to day program operations as well as overnight supervision of students.
- Taught STEM classes to middle school and high school students applying behavior management techniques to encourage motivation, teamwork and a fun learning environment.
- Selected and served as a brand ambassador at events during the year

West Chester, PA
Feb 2019 - June 2019

VOLUNTEER EXPERIENCE

Global Leadership Summit
West Chester, PA

Technology Assistant 2017 Event Assistant 2015, 2016, 2018
Summer 2015 -2018

- Coordinated local, live HD simulcast technology for a 2 day leadership event in coordination with over 200 national sites, and serving over 400,000 people. Worked with a four person technology team at local site.

AWARDS, SKILLS

- JAVA, Python, Linux, HTML, Javascript, SAP S/4 HANA, SAP Ui5
- Machine Learning and AI: Tensorflow: Image classification, reinforcement learning with Open AI Gym
- Microsoft Office, Excel, Word, PowerPoint Proficient

Hilary Lumeh

Hila.lumeh@gmail.com | 215-594-6412 | 7701 Lindbergh Blvd, Philadelphia, PA 19153

Education

West Chester University of Pennsylvania   Exp Graduation: May 2023
Bachelor of Science in Computer Science
GPA: 3.4

Delaware County Community College   Graduated: December 2020
Associate of Science in Information Technology
GPA: 3.6

Work Experience

Amazon, West Deptford, NJ   February 2021 - present

Picker, Amnesty certified

-   Pick items ready to be processed, while working with others to reach a set goal
-   Amnesty certified, troubleshoot the robots on the AR (autonomous robot) floor, remove fallen items from view of the ARs, manually or digitally change paths of the ARs, and make sure the employees (stowers/pickers) have a continuous flow of ARs coming to their stations

InfoCision, Philadelphia, PA   September 2020 – February 2021

Customer Support Representative

-   Helped xfinity customers with problems relating to their internet or mobile devices
-   Upgraded customers' internet and mobile services

United Parcel Service (UPS), Philadelphia, PA   January 2019 – January 2020

Hazardous Material Handler

-   Sorted, scanned, loaded/unloaded packages and made sure that Hazmats were properly documented
-   Helped to teach new employees the company's standards for handling and loading packages

Skills

-   **Technologies -** Bootstrap, react
-   **Languages -** Python, SQL, Java, Ocaml