Banking Application
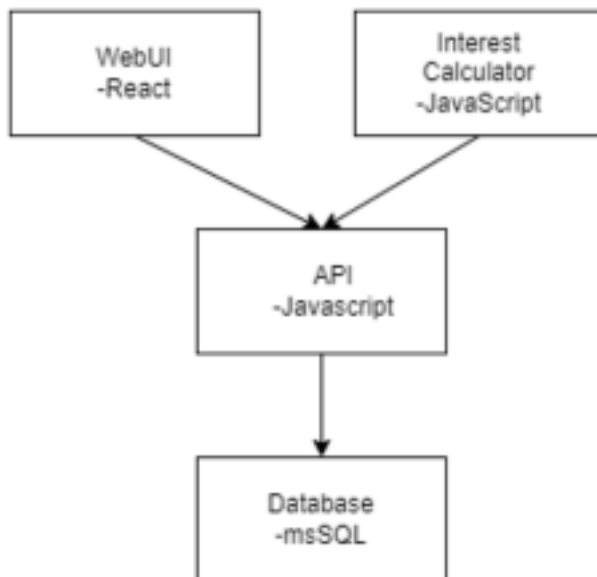
A simple banking application made as CSC-468 project

Table of Contents

About the project

Getting Started

We plan on creating a banking system using the cloud. It will be front-end heavy with multiple WebUI pages created using Javascript. These pages include a login page, an account creation page, a page to view the account's balance, and a page to deposit/withdraw/transfer money.

These pages will be connected to a SQL database where all the information is stored. On the WebUI, there will be an option to access an existing account or create a new one. If a user accesses an existing account, then only the SQL database will be accessed. If the user creates a new account, then the SQL database will be checked for an existing user by the same login info. If there is not a user with the same credentials, then it gets pushed to the corporate component where the information they input on the WebUI page is used to create a new account.

Some of the issues we will have to deal with are deciding when the changes in account balances will process. For example, if a user initiates a transfer, will we process it immediately, or wait until end-of-day, allowing them to deposit more if their account doesn't currently have enough in it. We could face this by creating a queue of transactions that build up throughout the day, and then at a certain point, for example midnight or at bank closing, they all process at once. Or we could process them as they occur, limiting all transactions to what the user's current balance is.

Road Map

We have made great progress on our project. We have the WebUI almost fully functional with only small aesthetic changes and User Authentication needing to be added/changed.

The SQL server is all set up with the tables that we need to store the data for our customers. The only thing we need to change about it is adding more stored procedures to manipulate the tables.

Our API is off to a strong start and its hooks into the WebUI are also looking good so far. The API was one of the hardest parts of the project because it is in charge of connecting all of the other parts of the project and if it doesn't do its job well the rest of the project doesn't work. All we need to finish the API is to add all of the functions to get/update data from the SQL server when it is needed.

We have the plans ironed out for the interest calculator. We just need to take the time to write the code and hook it into the API. The team has done a great job working together to achieve our shared goal of creating the best project we can!

- ☑ ~~Add Web UI~~
- ☑ ~~Add MySQL Database~~
- ☑ ~~Add Express.js API~~
  - ☐ Add API calls for all of the react components
- ☐ Add user authentication

☐ Add Program that adds money to savings accounts
☐ Add way to transfer money from checking to savings and vice versa
☐ Implement Jenkins
☐ Implement Kubernetes

Results

After a lot of hard work, we only were able to partially complete what we initially set out to do. We were able to implement a WebUI, connect it to a database via an API, all of which worked locally however. We managed to implement a Jenkins pipeline and were able to deploy our WebUI and API on Kubernetes.

In planning we underestimated the scope of the project we intended to create. In creating this project, we had to essentially build it from scratch. We had to learn react, express, SQL, and how they all interacted, as well as learning about the cloud and how to deploy applications on it. We spent too much time originally trying to build functionality of our project locally, and in doing so, hurt ourselves later in the process when we deployed Jenkins and Kubernetes.

Jenkins took a while to figure out, but eventually we were able to get it to build our project. Where we really struggled was Kubernetes, transitioning our docker containers into kubernetes. We tried to follow along with the hands-on episode, but configuring it from ramcoin to fit our project wasn't working. We did get the WebUI and API up and online, but without the database, they can't function like we would like. We were able to partially complete the project, just not to the requirements we put in Chapter 2 of this document.

☑ ~~Add Web UI~~
☑ ~~Add MySQL Database~~
☑ ~~Add Express.js API~~
    ☑ ~~Add API calls for all of the react components~~
☐ Add user authentication
☐ Add Program that adds money to savings accounts
☐ Add way to transfer money from checking to savings and vice versa
☑ ~~Implement Jenkins~~
☑ ~~Implement Kubernetes~~

Acknowledgements

- https://www.reactjs.org
- https://www.Docker.com
- https://www.Expressjs.com
- https://www.mysql.com
- https://www.Cloudlab.us
- https://www.V5.reactrouter.com/
- https://www.Npmjs.com/package/nodemon

- https://www.Digitalocean.com/community/tutorials/how-to-add-login-authentication-to-react-applications
- https://www.Youtube.com/c/AnsontheDeveloper
- https://docs.docker.com/reference/
- https://mherman.org/blog/dockerizing-a-react-app/
- https://www.youtube.com/watch?v=cCOL7MC4Pl0

Austin Heard

1305 Rolling Glen Drive, Apt B | Boothwyn, PA
linkedin.com/in/austin-heard/ | (484) 634-2523 | AustinHeard.com |
austinheard55@gmail.com
Education

West Chester University of Pennsylvania, West Chester, PA
Bachelor of Science in Computer Science, 09/2019 – 05/2022
· GPA: 3.5 Dean's List
· Course Highlights: Computer Science 1 – 3, Discrete Math, Calculus 1 – 2, Applied Stats, Data Structures & Algorithms, Computer Security & Ethics, Data Base Management, Software Engineering, User Interfaces with React, Software Security, Big Data Engineering, Networking

Northampton Community College, Bethlehem, PA
Associates in Arts in Business Administration, 09/2017 – 05/2019
· Course Highlights: Financial Accounting, Managerial Accounting, Micro/Macro Economics, Business Writing

Skills Summary

Java	Git	HTML/CSS
Javascript/Typescript	Banking Application	Matlab/R Node.js
Python	Linux	Docker React
	C/C++/C# SQL	

Projects

React frontend, express backend, MySQL database
· Dockerized with docker-compose for cloud deployment
· Features include User Authentication, Ability to transfer money between users, and savings accounts accruing interest
AWS EC2 F1 Image processing
·Accelerated code written in C++ using FPGAs
·Encode H.264 video in real-time using an AWS EC2 F1 instance
Sort Algorithm Visualization
·Visualized various sorting algorithms using processing

Professional Experience

Sales Associate
Specialty Tile, Flanders, NJ, 05/2015 – 09/2019
·Spearheaded the implementation of digital price labeling, which cut time to revenue by 30% · Organized warehouse and customer-facing spaces to increase productivity and conversion rate ·Engaged with customers to evaluate their needs to ensure satisfaction
· Developed B2B relationships with Contractors, Wholesalers, and other Strategic Partners · Trained other sales associates in many facets such as Procurement, Sales, Machinery operation, Accounting, Inventory management, and Technical knowledge.

Extracurricular Activities

Computer Science Club
Member 2020 – present
·Participate in discussions in the club discord server
· Help steer fellow members to answers for questions they have about assignments or problems with personal projects
Investment Group
Sector Head 2019 - 2020
·Proposed pitches to persuade the club to buy/sell thousands of dollars of stocks
· Collaborated with other Sector Heads and Club Executives to ensure the future prosperity of the club ·Analyzed stock trends and patterns with the team to decide what stocks to pitch

YOUSSUF KROMAH

30 High Street, Sharon Hill PA 19079

linkedin.com/in/youssuf-kromah-201116118/ | youssuf991@gmail.com | (215) 820-9028

EDUCATION:

West Chester University of Pennsylvania, West Chester, PA

Bachelor of Science in Computer Science

> Relevant Courses: Software Engineering, Computer Organization, Computer Security, and Introduction to Discrete Mathematics, Database management system, Intro to Data Science using Python, NumPy, and Pandas libraries.

Delaware County Community College Media, PA

Associate Degree in Computer Science

> Relevant Courses: Data Structure and Algorithm, Introduction to Java, Object-Oriented Programming in Java, Introduction to C++, Intermediate C++, Calculus 1 and 2.

EXPERIENCE:

Application Specialist

Signant health 12/2020 – 06/2021 • Work closely with Project Managers, Solution Architects, the Client, other Application Specialists, and everyone else involved in ensuring the Client's clinical study meets their specifications along with following clinical standards.
> • Use Java, SQL, JIRA Agile SDLC, and proprietary software to create/update functional applications specified for the project for various dedicated Android devices, Tablet devices, and the Web.

Application Developer (Data Analyst)

CHUBB 06/2019 – 07/2020 • Assist in analyzing, troubleshooting, providing technical support to claim teams using claim management applications across the company
> • Create daily, weekly, and monthly reports for business users using SQL Query and excel
> • Develop special, complex ad-hoc queries to extract data from multiple databases to create special reports for business users using Transact-SQL

Application Developer Intern

USLI 05/2017 – 05/2019 • Develop, maintain, upgrade, and debug applications used across the company according to user specifications using Microsoft.Net framework, MVC, C#, HTML, CSS, and SQL languages.
> • Use the Agile (Scrum) software development methodology in conjunction with Team Foundation Server.
> • Document applications used across the company.
> • Communicate weekly status updates to leaders and coaches about project progress.
> • Earned USLI leadership degree

Ben Ejimonyeugwo

West Chester, PA 19383

267-530-2731

Education

West Chester University of Pennsylvania, West Chester, PA

Bachelor of Science in Computer Science

Courses Taken: Software Engineering, Computer Organization, Computer Security, and Introduction to Discrete Mathematics, Digital Image processing, Data structures and Algorithms.

Skills

- Java
- Javascript
- Python
- Linux

Experience

12/16- 6/18
NaBrasa, Horsham - *Waiter*

7/18-7/20
Owner of B&M Landscaping

- Organized hours for workers to arrive
- Constructed daily tasks for employees
- Ensure job is complete

8/20-2/22
Intern at ICE ENT, Maryland

- Interned the owner of ICE ENT.
- Learned how to make contracts for potential clients
- Learned law aspect of a business

Accomplishments

- 3.5 GPA
- Dean's List

David Dempsey

West Chester, Pa 19382
610-400-4629
Email: **DDemps14@gmail.com** | **www.linkedin.com/in/davidcdempsey**

Education:

West Chester University 2018-2022

West Chester, PA
Class of 2022 (Currently enrolled)
Pursuing:

- B.S. in Computer Science & Cybersecurity Certificate
  - Relevant classes: Data Structures & Algorithms, Computer Security, Malware Analysis, Computer Security & Ethics, Database Management, User Interfaces, Software Security, Software Engineering, Big Data Engineering, Datacom & Networking, Introduction to Cloud
- Minor in Astronomy
  - Relevant Classes: Geology of the Solar System, Remote Sensing, Galaxies and Cosmology

GPA: 3.220

Accomplishments:

- Eagle Scout
- Dean's List, West Chester University of Pennsylvania *(Spring 2020)*

Work Experience:

Position: Intern *(2018-Present)*

Digital Media Center, Information Services & Technology Department, West Chester University, West Chester, PA
Duties included but not limited to:

- Kept physical files and digitized records organized for easy updating and retrieval by authorized team members.
- Organized company files and created a support system to decrease workload and increase productivity of managers.
- Sorted and organized materials such as physical files, tracking spreadsheets and reports.
- Answered incoming telephone calls, took down messages and relayed information.
- Used Adobe Premier to edit footage into correct order and add effects.
- Set up for shots according to production schedules, weather and lighting conditions and available equipment, as well as recording said shots
- Headed Hardware and Software installations and troubleshooting on department technology

Position: Customer Service Associate *(2020)*

Wawa, West Chester, PA
Duties included but not limited to:

- Handled customer service, including questions and problems
- Prepared orders, both food, and drink, usually multiple at once, within a strict time limit
- Used time without customers to clean and organize work station and rest of store

Skills:

- Java
- Javascript ● SQL
- HTML/CSS
- Linux
- C/C++
- Network Management ● Database Management