All Ground Up

Group 7

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Summary

All Ground Up is a cloud-based web application designed to allow users to order coffee delivery from their favorite local coffee shops with ease. The application supports consumers, vendors, and drivers. The customers can order from the application and the order will be sent directly to one of the drivers with the best route for delivery. Vendors can change and update their menu which will be updated directly for the customers to view. All Ground up is created using Docker containers and deployed through Kubernetes.

Chapter 1: All Ground Up Vision

All Ground Up is a cloud-based web application for users to order from their favorite local coffee shops. All Ground Up will have three different platforms for consumers, vendors, and drivers. The consumer platform will allow users to order from their local coffee shops with ease. The vendor platform will allow local coffee shops the opportunity to post their menu, work closely with the drivers, and offer deals. The driver platform will allow drivers the opportunity to optimize their routes and deliver efficiently. All Ground Up will be based in a web UI that hosts the three different platforms.

Project Design
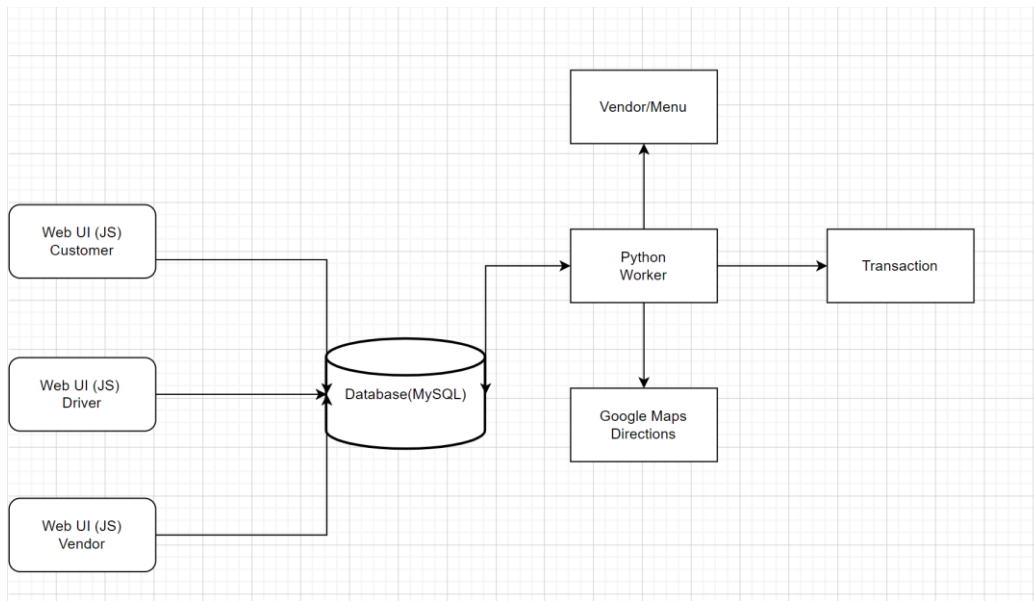
## Chapter 2: All Ground Up Implementation Proposal

To create All Ground Up, our group will need to implement a Container System to control the various parts of our cloud-based system. We chose to use Kubernetes to orchestrate the management of our application and assist All Ground Up remain stable with the use of pods. If one pod goes down, there will be another to take its place with the use of a Replica set.

For All Ground Up, we will need to create a web interface for customers, drivers, and vendors to interact with in their own unique way. We chose to create the front-end web UI with React.js. React.js is a JavaScript development framework used for the creation of web applications.

Our group will use Python to obtain business menus, pull directions from Google Maps, post grand totals, call transaction software, and update our database. The Python worker will keep watch on the databases so it can update the data tables on the back end.

The Database we chose to use is MySQL and it will keep track of each user, transaction, menu, etc. This will allow the web UI and worker to easily query and to post to the database. The database design is crucial to helping the web application run smoothly. The chart below shows the different database tables and how they will interact with each other.

Database Design
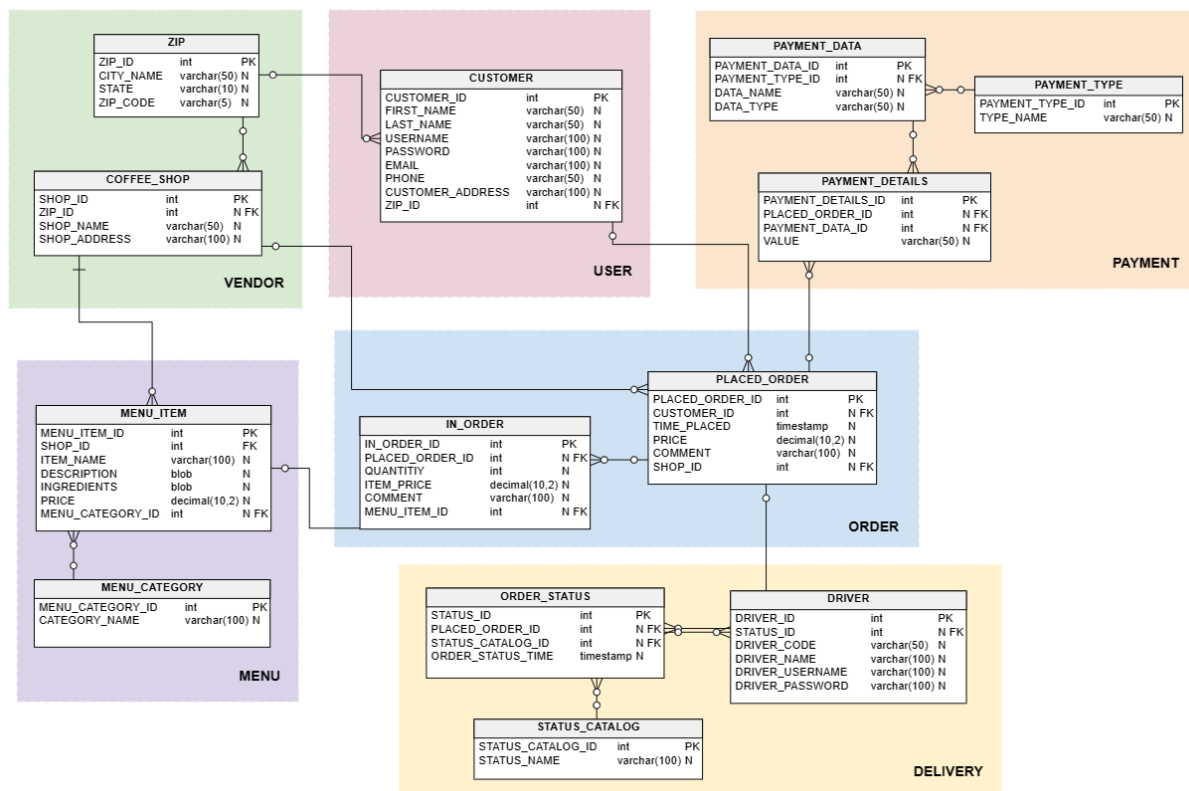
Chapter 3: Building Images

There are three individual docker images that were created to make the app functional. There's a backend image for Python, MYSQL image to store data and a front-end image to the run the React app. The steps that are taken to build the docker images for these components are mentioned in detail below:

1. **Building the worker (back-end) image:** For the Python image, we created a Docker image that is built off the python: alpine image. From this image, we were able to add specific installations necessary for our Python worker. We installed mysql-connector and flask since the worker will be interacting with both the database and the webui. Finally, we copied the worker python files into the image so we can run our worker within the container. During initial testing, we were able to successfully build the Docker image with our test code, build the container and run test Python code within the Docker container.

2. **Building the database (MySQL) image:** The Dockerfile for the database image uses the "mysql/mysql-server:latest" base image, sets the root password, creates a database and user, and copies the SQL script into the container. To build the image, navigate to the directory containing the Dockerfile and run the command "docker build -t <image-name>.", replacing <image-name> with the desired name for the image. After building the image, it can be run using the command "docker run -d -p 3306:3306 <image-name>". During initial testing, we were able to successfully build the MySQL image, build the container, and run our sql files within the container. Within an interactive container, we were also able to work with the database to insert information, select specific tables, and interact with the database successfully.

3. **Building the front-end image:** The Dockerfile for the front-end image uses the "node:16-alpine" base image, sets the working directory to "/app", copies the package.json, package-lock.json, and all other files from the current directory to "/app", installs the required packages, and builds the application. It then uses the "nginx:1.21.0-alpine" base image, sets the environment variable "NODE_ENV" to "production", copies the build artifacts to Nginx, and sets up the Nginx configuration. To build the image, navigate to the directory containing the Dockerfile and run the command "docker build -t <image-name>.", replacing <image-name> with the desired name for the image. After building the image, it can be run using the command "docker run -d -p 80:80 <image-name>".

For our data, we are creating a new database to manage all the data needed for All Ground Up. In Chapter 3, there is a database schema which shows how our database is set up and formatted. We are creating base data for our project by creating csv files for each table with the data we want to import. The csv files are an efficient way to load multiple lines of data into the MySQL database with one command. We are also going to be collecting and managing our data tables through the Python worker. When information is requested within the webui, the Python worker will pull the data from the webui, save the information as a variable, and import/update the data within the database.

Chapter 4: Connecting Components with Docker

To connect our components, we created our own Docker network, called agunet. First, we built images of the React app webui, the MySQL database, and the Python worker, named webui, db, and worker, respectively. We ran the commands '*docker run -d –name db –net agunet db', 'docker run -d -p 8080:80 -- name webui –-net agunet webui'* and '*docker run --name worker –net agunet -d -it worker sh'*. Each of the commands to build the running containers within the Docker network worked successfully. To make sure the containers were on agunet, we entered the command '*docker network inspect agune*t', which showed the containers are listed and were indeed running on the same network. To ensure the containers could communicate, the command '*docker exec -ti webui ping db'* was entered. From the output we saw, the containers were able to successfully speak to one another. We ran the same command multiple times with a separate set of the three containers to make sure all the containers were able to communicate properly. All the containers were able to successfully ping each other. We also checked to see if the Python script within the worker container was able to successfully edit the main database in the MySQL file. When we entered the MySQL container, we were able to see the tables were successfully updated from the Python script. This successful communication will allow our group to continue the development stage and providing fuller functionality for our worker and webui.

Jessica Arriaga

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Education

West Chester University of Pennsylvania, West Chester, PA
West Chester University Honors College, Class XXII

Bachelor of Science in Computer Science
Minors - Communication Studies, Criminal Justice, Spanish

Cumulative GPA: 4.0
Anticipated Graduation: May 2024

Experience

Intern at Essentia Advisory Partners   Summer 2022
- Worked with a lead developer to learn about projects assigned to different teams
- Worked side by side with another intern to complete various coding projects
- Developed introductory slide decks about commodities like Natural Gas and Power

Intern at Essentia Advisory Partners   Summer 2021
- Completed research on different applications that the company utilizes
- Created initial training material for these applications
- Worked with developers to learn more about tools and services utilized

Involvement

Women in Computer Science Club
    Secretary   Fall 2021 – Spring 2022
    Vice President   Spring 2022 – current

Activity Clubs
    Art Club, Honors Student Association, Spanish Club, Stitched Together

Sigma Delta Pi   Spring 2022 – current
    Spanish Honors Society

Institute for Cultural Competence & Inclusive Excellence – West Chester University
    Working towards certification through training and education workshops in the areas
    of diversity, equity, and inclusion

Python Bootcamp   March 2021
    Women in Computer Science Club sponsored workshop; led by a professor within
    the Computer Science Department; learned foundational concepts of the
    programming language, Python

Skills

Programming Languages: Java, Python, C
Relevant Courses: Data Structures and Algorithms, Software Security, Computer Systems,
    Intro to Cloud Computing

Jett Alexander Canavarro

Contact Info:

Email: jettcanavarro@gmail.com

Phone: (610) 420-3532

EDUCATION:

- West Chester University of Pennsylvania
    - Bachelor's of Science in Computer Science, Fall 2023
        - Master's of Science in Computer Science, Fall (accelerated program) 2024
- Delaware County Community College
    - Associate's Degree in Computer Science, December 2021

SKILLS:

- Adept knowledge of troubleshooting software and hardware issues
- Well-versed with JAVA, as well as Intermediate knowledge of C++ and Python
- Working on AWS knowledge & certifications.
- Capable knowledge of Mathematics, including Algebra, Calculus, & Differential Equations
- Proficient in Microsoft office applications (Word, Excel, PowerPoint, Outlook, etc.)
- Friendly and inclusive attitude & exceptional interpersonal skills, with great attention to detail
- Fast and decisive learner, which allows me to perform tasks autonomously

WORK EXPERIENCE:

- Wawa Inc. - Lead Customer Service Associate - 10/2018 tox Present - West Chester
- Trained to work in all areas of the store including deli, coffee station, making beverages, point of sales, facilities, fuel court, and receiving & stocking orders
- Put in the role of talking to customers, training new employees, and taking on solo tasks, to ensure the store operates smoothly

Mateen Ali

mateenali9001@gmail.com ｜ (267) 575-9261

EDUCATION: **West Chester University of Pennsylvania**

Bachelor of Science in Computer Science

Expected graduation date: Summer 2023

Delaware County Community College

Associate of Science in Computer Science

Graduated 2022

CODING SKILLS:

- Intermediate Java
- HTML/CSS/JavaScript
- Intermediate C
- Intermediate Python

TECHNICAL SKILLS:

- GitHub
- MS-Office
- Linux
- MySQL

PROFESSIONAL EXPERIENCE:

Samsung

Position: Samsung Experience Consultant (SEC), August 2021- Present

• Help troubleshoot Samsung devices and fix any issues.

• Train employees and familiarize them with Samsung products.

• Introduce customers to the newest Samsung devices and their features.

Delaware County Community College

Position: Art Studios Assistant, Mar 2019 – Mar 2020

• Sorted and managed the products required by the students and instructors.

• Helped the students with certain uncomforting products at the studios.

• Developed and executed plans to monitor standard process adherence.

Delaware County Community College

Position: Java Student Tutor, Aug 2018 – Mar2019

• Tutored struggling students individually and in small groups to reinforce java programming concepts.

• Created lesson materials, visual and digital presentations to supplement lesson plans.

• Used specialized teaching techniques to teach beginning java material in an understanding way.

Steven Coffey

(484)-653-9804 | sc986055@wcupa.edu | West Chester, Pa

Education

West Chester University of Pennsylvania

Bachelor of Science, Computer Science

Certification: Software Security

Concentration: Software Engineering

GPA: 3.5

Expected Graduation: May 2023

Delaware County Community College

Associate of Science, Department of Computer Science

GPA: 3.3, National Technical Honors Society, Dean's List

Graduated: May 2021

Delaware County Community College

Mobile Web Programming Certification

GPA: 3.4, National Technical Honors Society, Dean's List

Graduated: December 2020

Technical Skills

- Proficient in Java, Python, C/C++, SQL, HTML/CSS, JavaScript/jQuery/Json, Linux
- Experience with the agile and scrum ideologies
- Database management
- SOLID Software design

Experience

Waresoft Solutions Inc, Royersford, PA   July 2022-Present

Solutions Delivery Associate

- Utilized the Spring framework to develop a website for Pfizer with multiple teams.
- Maintained updates to webpages using Java, SQL, and various front-end languages.
- Created webpage designs, flowcharts and layouts using Visio.
- Worked closely with the Solutions Architect to Design website functionality and code logic.
- Troubleshooting webpage errors and broken code.

Charlestown Landscaping, Malvern, PA   June 2018-October 2021
Operations Manager

- Developing team members and procedures as well as coordinating crews.
- In charge of scheduling, customer relations, and customer price quotes.
- Logging employee hours, maintaining equipment, and customer conflict resolution.
- Operating heavy machinery to design landscapes to customer specifications.

Teachers That Cut, West Chester, PA   March 2018 - June 2018
Landscape Foreman

- Supervisor that handled training and coordinating coworkers to company standards.
- Collecting invoices from customers and quoting additional work to customer specifications.

Dana Bellafiore Landscaping, West Chester, PA   March 2015 - November 2017
Landscape Foreman

- Site Manager responsible for installing landscape lighting, walkways and maintaining customers' properties.
- Being the point of contact to customers and providing quotes for future work.

CTDI, West Chester, PA   September 2014-April 2015
Warehouse Associate/ Product Development

- Developed new testing procedures with software engineers to create machines for telecommunication companies.
- CTDI employee responsible for loading software onto telecommunication devices to ensure newly developed testing devices worked accordingly.

Alejandro Almaraz

Coatesville · 610-457-5760

alejo9973@gmail.com

Responsible and motivated student ready to apply education in the workplace. Offers excellent technical abilities with software and applications, ability to handle challenging work, working as a team, and an outside the box thinker.

Education

Expected graduation date May 2024

Bachelor of Science, Computer Science, West Chester University of Pennsylvania

- Concentration in Cybersecurity
- Currently a member of the Cybersecurity Club
    - Computer Security Certificate from the NSA expected at the same time as graduation.

WORK Experience

Dates From May 2022 – August 2022

CYBERSECURITY CONSULTANT, SAP AMERICA, INC.

- Successfully designed and implemented a malware analysis software.
- Successfully mitigated a cyberattack which is calculated to have an impact of 100K USD
- Identified an unauthorized access of information via Bluetooth which is often called "bluesnarfing".

Skills

• Managing Security Breaches • Telecommunications Systems • Monitoring Computer Viruses • Reporting and Documentation • Microsoft Office	• Critical Thinking • Computer Skills • Problem Solution • Fluent in Spanish • Working as a Team

Certificates

- CompTIA Security+
- Computer Security Certificate from NSA (Expected May 2024)

Additional Information

- Java
- JavaScript
- Linux (Red Hat, Fedora)
- GitHub
- Unix
- OllyDbg
- IDA