

CSC468-01 - Project Deliverable #1

GitHub Link:

https://github.com/TM826651/csc468-01_project/tree/main

Group #2

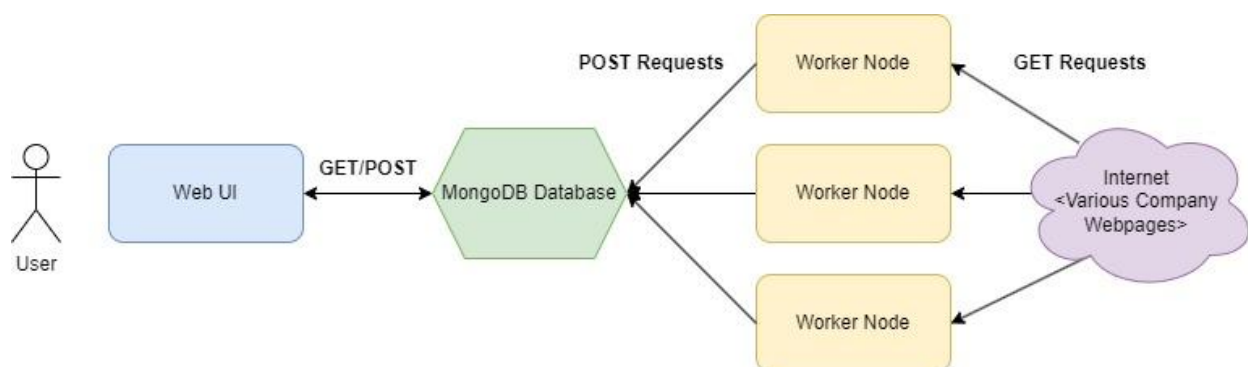
Christopher Calixte, Liam Daly, Tyler Martin, Alexis Nunez

Chapter #1 Project Overview: Product Price Comparison Tool

Our team will be designing a web scraping application to gain insight into prices of products hosted on Amazon (potentially others as well) to track the increase/decrease of prices over time. Comparisons will be made against products at different times of day, days of week, and beginning and end of the month. Stakeholder value would be the savings gained from knowing that they are purchasing a given product at its ideal (lowest) price. Additionally, similar products can be compared across different company web pages in order to determine which retailer offers the best possible price both historically and at the current time.

Advantages of using the app:

- **Cost savings:** Users are empowered with the information to determine whether they are getting a good deal on the goods they are purchasing by having ready access to all prices for a product over a given period of time.
- **Awareness of price fluctuations:** Users will be aware of times of day and days of the week on when the best time is to purchase a given product.
- **Price comparisons:** Users can compare a given product across multiple companies to see which one is offering the best price for a given product.



Chapter #2: Project Discussion/Implementation Plan

Our team will achieve this product through a CI/CD pipeline to handle the web scraping, data cleansing and saving to a database, and the presentation of the data through an interactive UI. Containers using a combination of Linux and Python will be utilized for web scraping and cleaning, while a lightweight Linux distribution node will handle the database management; Another node will handle the web server for the UI. By using CI/CD pipeline, we can automate the deployment of containers building the web scraping to scale and increase speed by each container performing its own data cleansing.

Web Scraping will be performed at irregular intervals between 30 seconds and 120 seconds (2 minutes) in order to avoid ban risks. Containers may be utilized with IP masks in the case of constant bans.

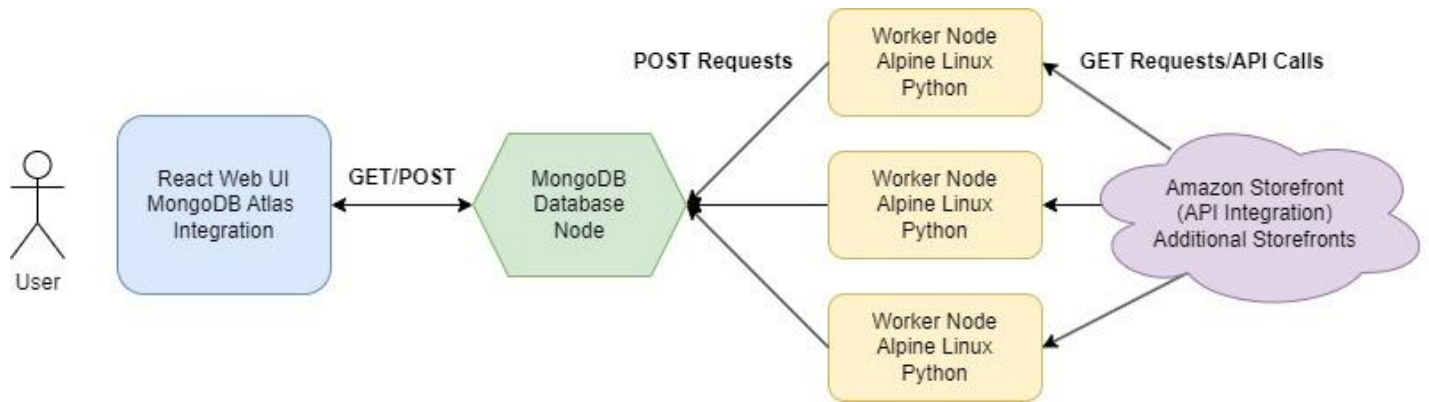
The Amazon API can be utilized (up to a million requests for a free account) to do direct web scraping with minimal cleaning; if that does not suffice, then alternative web scraping will need to be utilized for that specific storefront.

Step-by-step analysis of design:

1. Webscraper detects price change or pull price at irregular intervals. This will be handled through either comparison or using Python sleep at randomized intervals to avoid bot detection by the host storefront.
2. Change is pulled down to worker node. This will be performed using either a Python web scraping library or cURL requests.
3. Data is parsed for price and time. Parsing will be done with a Python script to pull the price from the data, depending on the storefront.
4. Worker node sends POST with cleaned information to MongoDB database server
5. MongoDB writes data to database.
6. User opens web UI (webserver written in React)
7. Webserver sends GET to database server to load pertinent data during query
8. Data is loaded into UI with information for user. This frontend will provide all needed information with a visually pleasing UX, as well as a suggestion on the ideal time to purchase the product in question.

Tech Stack:

- Frontend: Linux, React
- Backend: Linux, Python, Jenkins, Github
- Database Server: MongoDB (MongoDB Atlas)



Tyler Martin

Malvern, PA 19355 | inquiries.tmartin@gmail.com

SUMMARY

Growth oriented Computer Science student with 7+ years of experience in the arts, 1.5+ years of experience in e-commerce, and impressive customer service abilities making a career change to technology. Passionate about providing technical solutions and developing collaborative relationships through mentorship and education.

SKILLS

- | | | |
|-------------------------|-------------------|--------------------------|
| • Gitlab/GitHub/GitBash | • Docker | • Kubernetes |
| • Python | • Java | • Shopify |
| • Wordpress | • Public Speaking | • Small Group Management |
| • Conflict Resolution | • Problem Solving | • Team Building |

EDUCATION

West Chester University of Pennsylvania, West Chester, PA

Bachelor of Science - Computer Science - (Anticipated Completion) - 2024

Montgomery County Community College, Blue Bell, PA

Associate of Science – Computer Science – 2021

Associate of Arts – Liberal Studies – 2019

PROFESSIONAL HIGHLIGHTS

Zenoscope Entertainment, Horsham, PA

Web Development and Marketing Associate, May 2016 – October 2017

- Helped drive over \$500,000 of annual comic book sales through development of e-commerce webstore
- Used Mailchimp email services to market products to 10,000+ customers
- Created content for Wordpress blog for customer contact, marketing, and product display
- Migrated 100s of products from Pinnaclecart to new Shopify web storefront
- Utilized HTML/CSS to develop Shopify storefront to improve UX/conversions
- Collaborated with team members to develop campaigns and sales strategies

Upper Moreland High School, Willow Grove, PA

Part-Time Music Teacher, June 2018 – November 2019

- Oversaw development of teamwork and musical skills for a group of 10 high school students within a larger ensemble
- Created rehearsal strategies and used interpersonal communication skills to educate and mentor 9th – 12th grade students

- Helped compose, adjust music, and collaborated with other staff members to create a positive member experience

Philadelphia Eagles, Philadelphia, PA

Gameday Entertainment/Performer, September 2014 – Present

- Performed at all Philadelphia Eagles regular-season and post-season games in stadium and adjacent lots for tailgates
- Created dynamic musical and visual entertainment for over 60,000+ fans per game
- Traveled to perform for small groups, parties, parades (Macy's Thanksgiving Day Parade)
- Maintained equipment as needed and prepared multiple pieces of music

Christopher Seth Calixte

Lansdale, Pa | [LinkedIn](#) | Github

EDUCATION

West Chester University of Pennsylvania

Bachelor's of Science, Computer Science

Anticipated Graduation Spring 2025

West Chester, Pa

Cumulative GPA: 3.4

Experience

Baraka Grocery

Assistant Manager

Philadelphia, PA

May 2019 - July 2021

- Handled sensitive information and money
- Developed skills in customer service and satisfaction
- Analyzed inventory and kept records of current stock

PROJECTS

School Projects

- **Calculator Application**-Created a simple calculator using JFrame GUI
- **BlackJack**-Created a BlackJack application that mimics the game
- **Sudoku solver**- Created a complex sudoku program to generate and solve a sudoku puzzle efficiently
- **Articles Website**-Designed and deployed a simple html and CSS article for an anti-demagogic
- **DatabaseManagement**-Implemented a program to communicate with a sql database
- **GRSH**-Created a golden rams shell terminal
- **Personal Website**-Designed a personal website with html and css

CLUBS AND PARTICIPATION

Competitive Programming Club

Treasurer

- Participated in the International Collegiate programming contest to solve complex coding problems in Java with a team

Computer Science Club

Member

Cybersecurity Club

Member

Beta Alpha Psi & Wipfli Ethics case competition

Determined and developed a solution to a complex ethics problem with a small team

C.C.S.T. Hackathon

Won 1st place in CCST Hackathon with a mobile application

TECHNICAL SKILLS

Languages: Java, C/C++, Python, MySql, Html, Css, Javascript, Sql

FrameWorks: WordPress

Developer Tools: Git, Docker, VS Code, IntelliJ, Eclipse, MySql, Pycharm, Microsoft access

Relevant Coursework

Computer Systems, Operating Systems, Data structures and Algorithms, Java I, II, III, Database Management

References

Available upon request

Alexis Nunez

Kennett Square, PA 19348

alexisnunez5664@gmail.com

Independent, initiative-taking, and flexible fourth year computer science student who is ready to take on the challenges of a tech job. Excellent listener and prioritizes time for different tasks and enthusiastic to gain experience by completing projects and providing innovative ideas.

Education:

West Chester University West Chester, PA

- o Bachelor of Science in Computer Science
 - o **Current GPA: 3.73** **(Dean's List)**
- o Expected graduation date: May 2024

Projects:

Pokémon 2D RPG Game

- o Collaborated with a group to implement different game features
- o Constructed a 2D game environment using SpriteKit framework

Experience:

Red Sombrero Kennett Square, PA June 2020 - Present

Cashier responsible for customer service and cleaning duties

- o Recognized for learning job duties quickly and demonstrates teamwork
- o Managed leadership by training new employees

Mushroom Festival Kennett Square, PA Sept. 2017 & Sept. 2018

Volunteer responsible for helping with various stands

- o Recognized for being punctual and enlisted help when needed
- o Strengthened a good relationship with others and was able to work under pressure

Skills:

Languages: Java, Python, Swift

Developer Tools: Visual Studio Code, GitHub, XCode

Liam Daly

West Chester, PA 19380
liamdaly1003@gmail.com

EDUCATION

Souderton Area High School, Souderton, PA

September 2016 - June 2020

Graduated: June 2020

Montgomery County Community College, Blue Bell, PA

August 2020 - May 2022

West Chester University, West Chester, PA

August 2022 - Present

Expected Graduation: 2025

WORK EXPERIENCE

GIANT Food Store, Harleysville, PA - *DIRECT Manager and Customer Service*

June 2019 - May 2022

- Manage customers, orders, and deliveries to store
- Track inventory and maintain database of financial and performance metrics

Planet Fitness, Lansdale, PA - *Customer Service*

May 2022 - August 2022

- Register, sign-in, and membership enrollment for customers
- Dust and clean facilities

VOLUNTEER EXPERIENCE

Lamancha Animal Rescue, Coatesville, PA

September 2022 - January 2023

- Animal care for dogs and cats
- Complete daily and weekly tasks