RamBot

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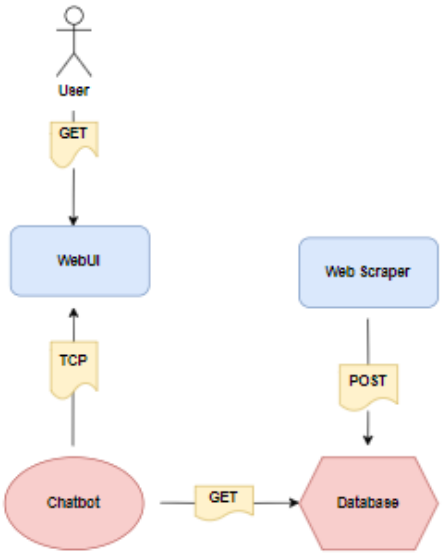
Chapter 1 (Team Vision)



Chapter 2: Description

The West Chester University Campus Chatbot will help serve West Chester students on any questions they need to know regarding campus. Students will be able to ask the chatbot questions, and from there, our application will retrieve database queries that the web scraper was able to collect from the West Chester University website. This chatbot will be able to give fast, accurate answers to their questions, including questions about the course catalog and club/sports information. In addition to this, it can supply the user with important digital documents and help with scheduling on-campus visits.

The project consists of four parts: a web user interface, the chatbot, the web scraper, and a database. Throughout the project we will be using CI/CD (Continuous Integration and Continuous Delivery) using Jenkins. We will also be using Docker and Kubernetes to deploy our application.

WebUI

For the WebUI we will be using HTML, Javascript, and CSS. We will be building the UI using Javascript. There our application will be using React.js and Bootstrap as a framework. Using the UI provided, users will be able to interact with the chatbot by asking questions where they will receive answers to instantly. The HTML will serve as the base of our UI as the layout for the elements of our application and CSS and Bootstrap will help format the elements.

Chatbot

The chatbot will utilize a recurrent neural network deep learning algorithm so that it can both read and respond to the user text. It will be trained to interpret the user's text and answer appropriately whether it should be text, image, or a link to what is needed. It will use the Polyglot package within Python to develop the architecture needed to train it. The chatbot will interact with the WebUI and Database through TCP requests. Also, it is intended to be isolated on a Kubernetes pod.

Web Scraper

The web scraper will run a simple script that will pull from the university website about common campus questions and will fill the database. It will be written in Python and utilize libraries such as pandas for data frame interaction, Beautiful Soup to search webpages, and JBDC Connecter for MySQL. The program will target key works dealing with campus and various events and news. The data from the web scraper will be put into a data frame and exported to the database, where the information will be stored.

Database

The database will store the information from the web scraper and can be accessed by Chatbot. It will be managed by managed by a MySQL server and will be hosted on Kubernetes. It will interact directly with the web scraper and the chatbot to receive and then send the information accordingly.

Jessica Gorr

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Education

BACHELOR OF SCIENCE | MAY 2023 | WEST CHESTER UNIVERSITY MAY 15, 2023
MAJOR: COMPUTER SCIENCE

- Minor: Applied Statistics, ABET Certificate in Cybersecurity
- Dean's List (GPA per semester > 3.670) fall 2019 – spring 2023.
- Member of Upsilon Phi Epsilon Honors Fraternity
- PSAC Scholar Athlete Award- Years 2019-2020, 2020-2021, 2021-2022
- IWLCA Academic Honor Roll (Cumulative GPA > 3.5, through minimum six semesters)

Work and Leadership Experience

SOFTWARE DEVELOPMENT INTERN | IBM | MAY 2022 – AUGUST 2022

- Streamlined and automated processes using JIRA and Python OOP practices to reinvent the current dump management program.
- Implemented several test plans and coordinated testing for projects throughout the development cycle and provided accurate documentation of limiting factors in the code.
- Lead communications between beta testing groups and outlined future improvements to next team using various platforms such as GitHub, Linux, Slack, PowerPoint, etc.
- Ascertained credentials pertaining to data science using R, Python, and Statical Analysis techniques.

TECHNOLOGY INTERN | SAINTS PHILIP AND JAMES SCHOOL | JUNE 2020 – AUGUST 2021

- Instructed students on software programs such as: Microsoft Excel, Office, & PowerPoint, programming skills, typing, & basic components of the computer and how they work.
- Facilitated the creation of current curriculum for students at each grade level according to the standards set by the Archdioceses of Philadelphia.
- Troubleshooted any technology issues within the school pertaining to hardware and software including laptops, smartboards, servers, and programs.
- Redesigned school website and refreshed school website according to feedback from faculty and upkept with current events of the school and achievements of students.

WOMEN IN STEM WORKSHOP | WEST CHESTER UNIVERSITY | OCTOBER 2021, 2022

- Mentored students in various STEM fields in areas pertaining to computer science, mathematics, and computer engineering with stations and continued communication with outreach programs.
- Designed multiple factor experiments and analysis plans for young women to perform and learn skills in statistics, focusing on t-tests and ANOVA analysis.
- Instructed students on analysis techniques and useful programs such as R, SPSS, and SAS to facilitate the analysis and how to communicate results effectively to an audience.

ADDITIONAL SKILLS

- Programming languages: Java, Python, R, C, SQL, HTML, CSS, & JIRA.
- LARC I Tutor Certification – October 2020.
- Member of West Chester University Varsity Women's Lacrosse Team (August 2019-2023).
- Captain's Leadership Advancement Series – Fall 2022

Nathan B. Parlett

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EDUCATION

West Chester University 2021-May 2023

BS. in Computer Science & Certificate In Computer Security.

- GPA 3.75

Delaware County Community College, 2019-2021

TECHNICAL SKILLS

Languages: Java, C, Python, C++, Object Oriented Programming,

Linux, Unified Modeling Language, Statistics, Calculus.

CLASS HIGHLIGHTS

CSC 231 Computer Systems: Learned the basics of C, Assembly, and computer hardware. Transcribed assembly code into C.

CSC 472 Software Security: Analyzed assembly code in depth. Learned about the operation of the stack. Utilized stack overflow, return oriented programming, and ASLR bypass via GOT overwrite in hacking labs. Used python to write exploit scripts.

CSC 401 Software Engineering: Learned higher principles of Object Programming and Object-Oriented Design. Implemented design patterns. Learned Unified Modeling Language.

CSC 301 Cyber Security and Ethics: Discussed and wrote about important ethical issues related to privacy, technology, and Cyber Security. Gave group presentation on smart home technology.

INTERESTS

Linux, Programming, Cyber Security, Open-Source Software, Piano, Music Theory, Philosophy.

WORK HISTORY

United Parcel Service August 2019 - Present

Package Handler

- Handle customer packages during shipping process.
- Load Trucks, Sort Packages, Tend to Belts.

Chic fil-a September 2017 – July 2018

Cashier:

- Take and process customer orders, Resolve issues with customer orders.