Farnaz Towhidi . Jarvis Consulting

I am Farnaz, a technical consultant at Jarvis Consulting Group. I completed my master's and PhD in computer science at UTM University. My research demonstrated the vulnerability of graphical password authentication to dictionary attacks by aggregation of regions within an image that exhibit low-level properties in conjunction with their neighboring regions. The result of attacking with this dictionary revealed that hot-spot are the main security flaws in graphical passwords. The findings of my research have been elegantly captured in two book available on Amazon."

Skills

Proficient: JavaScript, Java, React, Angular, Linux bash scripting, Node.js, MongoDB, SQL

Competent: REST APIs, Docker, Git, Html/CSS, Agile/Scrum

Familiar: OAuth, TestRail, Selenium, Jira, .Net

Jarvis Projects

Project source code: https://github.com/Jarvis-Consulting-Group/jarvis_data_eng-FarnazTowhidi

Twitter CRUD App [GitHub]: I have developed an MVC application that allows users to create and delete tweets on Twitter using the Twitter REST API v2. The application follows a layered architecture with four components; Model, Controller, Service, and Data Access. The Controller layer handles client input and calls the service layer to handle the business logic. The service layer interacts with the Data Access Object for communication with the Twitter REST API. This enables actions such as posting, showing, and deleting tweets. To ensure the quality of the code, integration and unit testing are performed using the Mockito and JUnit4 libraries. To authenticate with the Twitter API, the application utilizes the OAuth 1.0a protocol, which includes the necessary credentials in the HTTP Authorization header. For easy distribution and deployment, the project is packaged into a Docker image and published on Docker Hub. In addition, the spring boot framework is used to manage dependencies.

Cluster Monitor [GitHub]: This project is used by the Jarvis Linux Cluster Administrator (LCA) team to manage server nodes in a closed network. The bash script collected the hardware specs of each server like host name, CPU architecture, CPU model, and L2 cache as well as real time resource usage of each server like CPU idle, kernel statistics and available disk space. The PostgreSQL Docker container configured and maintained to store and manage the collected data.To ensure accurate and up-to-date information, resource usage is fetched at regular intervals using Crontab.

Grep App [GitHub]: This project simulatered the egrep text processing tool, enabling recursive searches of a given directory using regular expressions. The BufferedReader class is used to read the file, and regular expressions are applied to compare words against the provided regex pattern. The identified words are saved to an output file using the FileWriter class. Additionally, the project was re-implemented using Lambda and Stream APIs to write code in a more readable functional programming style. Maven is utilized for dependency management, specifically for incorporating slf4j and log4j for logging purposes.

JDBC Apps [GitHub]: Developed proficiency in data access patterns and JDBC by performing data manipulation tasks on the hplussport PostgreSQL database. Utilized Dbeaver and Intellij Idea for database management, Docker for containerization, PostgreSQL and PSQL CLI tool for database creation and manipulation, JDBC for data access, and Maven for build automation.

Highlighted Projects

Chatterbox [GitHub]: I have developed "Chatterbox," an instant messaging application with a Client-Server architecture that enables real-time communication between users. In this single-page application, the client-side scripting is implemented using React and Material-UI (MUI), providing a seamless and intuitive user interface. To handle data storage and manipulation, CRUD requests are sent to the server through API calls using Express.js and MongoDB. The application leverages Socket.io to achieve the functionality of instant messaging, enabling users to engage in real-time conversations. Additionally, the aws-sdk package is utilized to facilitate the smooth uploading of images to Amazon Web Service (AWS) S3 buckets. This allows users to easily share and display images within the application. Lastly, the project is deployed to Heroku, ensuring that Chatterbox is accessible and available to users on a reliable hosting platform.

Track Fit [GitHub]: Track Fit is a Python-based Django Web Framework designed for individuals to track their fitness journey. With Django's built-in authentication, users can securely authenticate and manage their daily exercises in a

PostgreSQL database. The framework also provides yearly reports grouped by month for insightful analysis. Deployment is seamless through Heroku, ensuring easy accessibility and availability for users.

War Card Game [GitHub]: Solo, 1 week project for the browser base game, using application state, manipulating DOM and includes shuffling and win/loss logic. Technologies used, HTML, CSS and JavaScript.

Professional Experiences

Technical Consultant, Jarvis (2023-present): I have joined Jarvis as a technical consultant to develop, consult, and assist customers with their software solutions. I work in an Agile/Scrum development environment where I participate in daily scrum meetings with the Scrum Master to discuss our progress and possible blockers. The sprint meeting is held every two weeks to select from various project backlogs like 'Twitter Java App', 'Grep Java App', 'Linux Cluster Monitor App' , and 'Angular Trading App'. At Jarvis, I have gained exposure to various technologies commonly used in professional technical environments, such as Java, RDBMS, Linux, Docker, SpringBoot, React, and Angular.

Full Stack Developer, Iranian Iron & Steel Institute of Education, Remote (2021-2022): Implemented a website for managing and scheduling workshops on Metallurgical and Materials engineering. Allowed organizations and individuals to create and sign-up for events, as well as share learning resources. The website created by asp, html and bootstrape, ensuring a user-friendly experience for all users.

Quality Assurance, IBM, Fredericton (2020-2020): I joined IBM as a Tech-reentry in the Security Intelligence team, where I had the opportunity to learn about QRadar. QRadar is an enterprise security information and event management product designed to collect log data from various sources, including network devices, host assets, operating systems, applications, and user activities and behaviors. Through this experience, I gained knowledge on how QRadar efficiently analyzes the log data and network flows to identify malicious activities. As part of my role as a QA, I was responsible for both automation and manual testing, utilizing tools such as Selenium WebDriver. While testing QRadar, I validating its functionalities and detecting any potential issues. Additionally, I worked extensively with Jenkins jobs during the QRadar patch release, ensuring smooth and efficient deployment.

Full Stack Developer, Canadian Institute of Cybersecurity, Fredericton (2019-2019): The PST website is a forum designed for researchers worldwide to share their latest work in privacy, security, and trust. It is organized annually by the University of New Brunswick and the Canadian Institute for Cybersecurity. The website features a responsive design created using ASP, Bootstrap, HTML, and CSS. It provides various sections including a 'Call for Papers' to invite submissions, a 'Paper Registration' section for authors, and an archive of previous conferences.

Full Stack Developer, Biossentials, Kuala Lumpur (2009-2014): I redesigned the Biossentials website to prioritize SEO improvement. I focused on creating engaging content, optimizing relevant keywords, improving site structure, integrating social media, and enhancing user experience. The website was developed using ASP, HTML, and CSS, ensuring a professional and seamless online presence.

Education

General Assembly (2022-2022), Software Engineering Immersive, Faculty of Computing - GPA: 3.9/4.0

Universiti Teknologi Malaysia (2010-2015), PHD of Computer Science, Faculty of Computing - This thesis creates a new method for dictionary of cued recall based graphical password by combination of top down and bottom visual attention. This approach leads to powerful automated dictionary attack that can guess up to 70% of some passwords.

Universiti Teknologi Malaysia (2008-2010), Master of Computer Science (Information Security), Faculty of Computing - GPA: 3.65/4.0 - This thesis is an Enhancement on Passface Graphical Password Authentication.

Miscellaneous

- Published on Amazon: Graphical User Authentication (GUA): Graphical Password Algorithms and Analysis
- Published on Amazon: Graphical Password An Alternative to Textual Password
- Computer Hacking Forensics Investigator (CHFI), EC-Council
- Certified Ethical Hacker (CEH), EC-Council
- Cloud Core, IBM
- Design and User Experience (D&UX), IBM