Brejvinder Singh Dhillon . Jarvis Consulting

I'm Brejvinder, a recent graduate from the University of Windsor with a Bachelor's in Computer Science Honors. I specialize in the design and analysis of algorithms and have a foundation in theoretical computer science. I'm currently a Data Engineer at Jarvis Consulting where I'm being given the opportunity to apply my knowledge and hone my skills with industry-standard tools. I have an interest in artificial intelligence, data analytics and game theory. Despite being from a science background, I have a passion for creative arts, namely music and creative writing which translates back into my programming as I like to create beautiful and efficient code.

Skills

Proficient: Java, C/C++, Algorithms/Data Structures, Linux/BASH, RDBMS/SQL, Agile/Scrum, Git/GitHub, GitFlow, Maven, Springboot, REST APIs

Competent: CSS, PHP, HTML, JavaScript, Python, Docker, Jupyter Notebook, Zepplin Notebook, HDFS

Familiar: Operating Systems, Computer Graphics, TeX, x86 ASM, Google Cloud Platform

Jarvis Projects

Project source code: https://github.com/jarviscanada/jarvis_data_eng_BrejvinderDhillon

Cluster Monitor [GitHub]: Developed a BASH tool that allows users to monitor nodes connected in a Linux cluster by tracking the hardware specifications and resource usage of the cluster nodes. The data is collected in real-time using Linux commands and is currently being used for report generation and future planning. The Monitoring Agents on the nodes collect and send data to the centralized PSQL database on a scheduled basis via crontab over the network. The docker initialization and SQL scripts ensure the deployment of the PSQL database with a standardized schema and environment.

Core Java Apps [GitHub]:

- Twitter App: Implemented a Java 8 application that can Post, Show and Delete Tweets from the command line. It follows the MVC design pattern, utilizing an HTTP client library to access the Twitter REST API. JUnit and Mockito were used to test the application with dependency management being done with the Spring framework.
- JDBC App: Coded an implementation of CRUD (Create, Read, Update and Delete) operations on a PostgresSQL Database through the Data Access Object(DAO) design pattern in Java.
- Grep App: Programmed a Java 8 implementation of the Linux grep command. Specifically, it recursively searches through a specified directory for a given RegEx pattern and stores the found lines into an output file. There are two implementations, one with and without the usage of Lambda Functions and Streams. Maven and Docker were used to build, deploy and run the app.

Springboot App [GitHub]: Developed an online stock trading simulation RESTful API that can be consumed by front-end and mobile developers, as well as traders. It retrieves stock market information and persists it into a PSQL database that can then be used to CRUD quote, trader and order data from and to the database. The application is a proof of concept designed with a microservice architecture. It follows the three-tier and MVC architecture design patterns. IEX Cloud was used as the stock information data source. SpringBoot was used to manage dependencies and PSQL was used to persist and CRUD data using DAO. Docker was used to run an instance of the PSQL database along with another image for the application which was based on the openjdk:8-alpine image. Testing was done using JUnit 4. The GUI of the RESTful API was built using Swagger.

Python Data Wrangling [GitHub]: Performed data analytics and wrangling against a data warehouse using the Pandas Python package and Jupyter Notebook with information supplied by an online retailer with the goal being to help drive up their revenue. A dockerized PSQL instance was used for the Data Warehouse whereas matplotlib was used to plot and present the data in the notebook. The analysis consisted of answering business questions along with segmenting customers using RFM Segmentation to help the company develop targeted marketing strategies.

Hadoop [GitHub]: Evaluated Hadoop's core components namely HDFS, YARN, and MapReduce. A 3-node Hadoop cluster was deployed using Google Cloud Platform Dataproc, where data processing/analytics was performed using Hive and Zeppelin notebook. The 2016 World Development Indicators dataset was examined, optimized and analyzed with the leverage of the distributed storage and processing capabilities of Hadoop's ecosystem.

Spark [GitHub]: Not started

Cloud/DevOps [GitHub]: Not started

Highlighted Projects

Graphics Project [GitHub]: Programmed a modified 2.5D Doom-style environment in C++ with SDL2 and Eigen. The project was used to gain experience in and understanding of computer graphics. It features various drawing and rendering techniques used to produce computed surfaces. Eigen facilitated the use of linear algebra in this project, particularly the matrix and vector manipulation. It allowed the algorithms to be optimized and leverage SDL2's potential for rapid pixel manipulation which was achieved. CMake was used to test and build the program while Emscripten integration allowed it to be deployed straight to the browser.

Mergit [GitHub]: Collaborated on a Python 3 based desktop application used to streamline the management of git projects by helping users to resolve merge conflicts quickly and efficiently. This was done by facilitating quick jumping between all conflicts in a project. The app scanned the entire project and presented all the merge conflicts found in it to the user. The GUI was built with pygame and PyQT5 and allowed the merge conflicts to be directly edited within the app.

Cipher Mod [GitHub]: Implemented a cipher system and modded it into Minecraft's in game chat system to allow for private communication. The mod was coded in Java and built off the Forge API with Gradle being used to build and package it. the The mod is optimized for seamless intergration with automatic decrytion being achieved using keywords and allowed for more robust ciphers to be easily added in later.

Professional Experiences

Software Developer, Jarvis (2020-present): Collaborated with a small team using the Scrum framework to develop various Data Engineering projects. Projects were implemented using Java, Maven, SpringBoot, Bash, RDBMS/SQL, Git, Hadoop, Spark/Scala, and Docker within a Linux environment. Integration and unit testing was done using JUnit and Mockito.

Volunteer & Committee Member, University of Windsor Science Olympiad (October 2017 & 2018 respectively): Recruited and led a team of 6 UWindsor students to organize and run the Computer Science division of the Olympiad. The challenges were designed, revised and iteratively tested with the team.

Volunteer Technician, North Borneo Youth Camp (Summer 2017): Volunteered to help run a youth camp focused on education and cultural development for 43 children. Ensured the camps audiovisual equipment was distributed, set up and their users educated on their operation. Rotated throughout the camp to help other teams and troubleshot problems that arose throughout the camp.

Education

University of Windsor (2016-2020), Bachelor of Computer Science (Hon), School of Computer Science - Directors Honour Roll 2017

Miscellaneous

- Tabla & Harmonium player
- Badminton & Table Tennis player