

# Josh Wessel . Jarvis Consulting

I graduated from Ontario Tech University with a Bachelor's Degree in Information Technology, majoring in Game Development and Entrepreneurship. During my time at university, I mainly worked with C++, C#, and R, using IDEs such as Visual Studio and RStudio. My educational background introduced me to object-oriented programming, user research, algorithms & data structures, and many other technical concepts. I have experience with source control tools such as Git, GitHub, and GitKraken, and other collaboration tools such as Slack, Discord, Notion, and Trello. I have also worked on projects using the agile framework during my education and training with Jarvis. For the three summers from 2018-2020, I performed research during internships with Sustainable Cobourg (2018, 2019) and the Township of Hamilton (2020). My responsibilities included research, data collection, data entry, and data visualization. These positions also provided opportunities for me to develop my organization, communication, and time management skills. I am passionate about collecting and organizing data. I am interested in pursuing a career in the data industry.

## Skills

**Proficient:** Java, C++, SQL, Python/Pandas/NumPy, RDBMS, Object Oriented Programming, Agile/Scrum, Linux/Bash

**Competent:** Git, Docker, Hadoop/Hive, Databricks, Spark/Scala, Zeppelin Notebook, Springboot, Visual Studio

**Familiar:** Kubernetes, Jenkins, C#, R, RStudio, GitKraken, Tableau, Tidyverse

## Jarvis Projects

Project source code: [https://github.com/jarviscanada/jarvis\\_data\\_eng\\_JoshWessel](https://github.com/jarviscanada/jarvis_data_eng_JoshWessel)

**Cluster Monitor** [GitHub]: Developed a system that collects hardware specifications and resource usage data from Linux hosts and sends it to a PostgreSQL database. The system is built on Linux using SQL and bash scripts. Docker is used to create and manage the container in which the system runs. Crontab automates the collection of usage data from the host device by running the appropriate script every minute while the system is active. Finally, the queried data addresses various questions related to the hardware information and usage data in the PostgreSQL database.

**Core Java Apps** [GitHub]:

- **Twitter App:** Developed an application that allows users to post, show, and delete tweets directly from a command line. It uses HttpClient and Twitter's REST API. The user must supply various parameters, including the consumer key and secret, the access token and token secret, the Docker image, and the desired command followed by command-specific arguments. The application was written in Java, using IntelliJ as the IDE. The testing process involved trial and error tests using JUnit and Mockito to test each component. The application was cleaned and packaged using Maven and deployed using Docker. A Docker image was also built and pushed to Docker Hub.
- **JDBC App:** Implemented a framework for interacting with a PSQL database using Data Access Objects (DAO's). The project employs two DAO's used by an executor class to perform various operations on the PSQL database. The project was written in Java using IntelliJ. Testing involved trial and error tests to ensure the code produced the expected result. IntelliJ's debugger served as a valuable resource for detecting errors. Maven cleaned and packaged the project. Docker provided a container in which to store the database.
- **Grep App:** Developed an application that searches all files within a given directory for all lines that match a given pattern, writing all matches to a given output location. The application requires the user to supply three parameters. These parameters include a pattern to search for, the search directory, and the output file to store all matched lines. The application was written in Java, using IntelliJ as the IDE. The testing process involved a series of trial and error tests. IntelliJ's debugger was especially useful in identifying issues related to properly searching the given directory. The application was cleaned and packaged using Maven and deployed using Docker. A Docker image was also built and pushed to Docker Hub.

**Springboot App** [GitHub]: Developed a trading application framework that allows users to manage traders and tickers. It simulates a small stock exchange and allows users to create and delete traders. It also allows users to add tickers and update existing tickers to match real-world quote data from the IEX Cloud. The application is accessible through the command line or a REST API due to the Tomcat webserver. The application was written in Java, using IntelliJ as the IDE. The testing process involved a series of trial and error tests using JUnit to test the individual components. The application was cleaned and packaged using Maven and deployed using Docker.

**Python Data Analytics** [GitHub]: Performed data wrangling and analysis on a dataset of invoices to identify customer segmentation and suggest marketing strategies. The results included the segmentation of customers in the dataset. Also

included are recommended marketing strategies for the three most populated segments. These results provide the necessary information to identify targeted marketing campaigns for each of the three segments. The project was written in Python using Jupyter Notebook. It used libraries such as Pandas, NumPy, and Matplotlib. A PSQL database stores the dataset, and the Jupyter Notebook accesses the data from the PSQL database. The testing process involved a series of trial and error tests. A pair of Docker containers provide environments for the PSQL database and Jupyter Notebook. The containers communicate using a Docker network.

**Hadoop** [GitHub]: Addressed business problems on a big data dataset using Hadoop, Hive, and a Zeppelin Notebook. The Hadoop cluster included a master node and two worker nodes. Google Cloud Storage initially stored the dataset before later being contained in the Hadoop Distributed File System (HDFS). The Zeppelin Notebook contained the HQL queries used to address the business problems. Ultimately, the notebook addressed each of the nine business problems. The testing process involved trial and error tests for each cell in the notebook. The project's deployment used Google Cloud Platform to provision the master and worker nodes.

**Spark** [GitHub]: Addressed business problems on a pair of big data datasets using Hadoop and Spark clusters. Both clusters used a master node and two worker nodes. Google Cloud Storage stored one dataset, and Azure storage contained the other. A Zeppelin notebook in the Hadoop cluster and a Databricks notebook in the Spark cluster addressed each business problem. The testing process involved trial and error tests for each cell in the notebooks. The project's deployment used Google Cloud Platform and Azure Databricks to provision the clusters.

**Cloud/DevOps** [GitHub]: Deployed the existing Springboot trading application to a Kubernetes cluster using Azure cloud services. The Kubernetes cluster included a master node and a worker node. The master node controls the worker node and uses an API server to connect to the Kubernetes API. The worker node includes a load balancer and three pods. Two pods handle traffic directed by the load balancer, and the third pod stores a PSQL database. The project deployed the application using both dev and prod deployment environments. The project also used a Jenkins pipeline to automate deployment. The project used Azure cloud services to provision the cluster and all other services related to the project.

## Highlighted Projects

**Basketball (2021)** [GitHub]: Developed a text-based basketball simulation game featuring an assortment of mistake-prone basketball players called Babduls. Though initially developed to gain more programming experience and refresh my object-oriented programming skills, I continue to work on it periodically in my spare time. The program is written using C++ in Visual Studio and uses object-oriented programming. GitKraken provides source control.

**Firefighter Simulator (2020)**: Developed a first-person firefighting simulator where the user controls a firefighter and must extinguish all fires in a burning building. The simulator was an individual project developed for a final assignment in a fourth-year Immersive Technology course at Ontario Tech University. The project's objective featured the development of a firefighting simulation that firefighters could use to help increase their resilience to stress on the job. The project focused on using visuals and sound to accomplish the objective. Smoke, flames, and the sound of fire combine to help users increase their resilience to similar stressful situations. The simulation is built in the Unity game engine and uses C# scripts written using Visual Studio.

**Gridiron (2019-2020)**: Worked in a group of eight developers to develop a hybrid 3rd Person Shooter/Real-Time Strategy game during my third year at Ontario Tech University. In this project, I worked as an environment artist whose primary responsibilities included 3D modeling and texturing. The project used the agile framework. We participated in daily scrums and planned weekly/bi-weekly sprints. GitKraken provided source control.

## Professional Experiences

**Software Developer, Jarvis (2021-Present)**: Developed applications using languages such as bash, SQL, and Java, as well as software such as Google Cloud Platform, IntelliJ, Maven, and Docker to gain experience in data engineering. This position provided me the opportunity to develop my skills using git. I was also able to practice communication while working in a small group. Used agile framework (daily scrum meetings and bi-weekly sprint retrospective meetings) to complete projects.

**Environmental Intern, Sustainable Cobourg / Hamilton Township (2018-2020 (Summers))**: Worked as a summer intern for Sustainable Cobourg (2018-2019) and the Township of Hamilton (2020). My responsibilities included research, data collection, data entry, and creating charts and graphs. I also worked on survey creation for Hamilton Township. Technologies used include Google Suite, Microsoft Office, and a web-based framework that functioned as a database, in which I performed data entry (in the second and third summers). Almost all of my work was individual, allowing me the opportunity to improve my time management skills. I was often left to myself to complete a list of tasks,

allowing me the opportunity to practice effective time management. The third summer was entirely remote, which allowed me to develop my communication skills using communication tools such as email and zoom. I was also able to use my organizational skills while working with many files and folders daily.

## **Education**

**Ontario Tech University (2017-2021)**, Bachelor of Information Technology, Game Development And Entrepreneurship  
- Ontario Tech University Entry Scholarship for averaging 90% to 95% in top 6 high school courses - Dean's List (2020-2021)

## **Miscellaneous**

- Dean's List (2020-2021)
- Rotary Club of Northumberland Sunrise Scholarship for high academic standing
- Developing video games