Nafiseh Valizadeh (She/Her)

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Highlights of Qualifications

- Second year Master's of Software Engineering student eligible for 4-12 month co-op opportunity.
- Gained expertise in cloud service automation and VPS monitoring, utilizing tools like Ansible, Prometheus, and Grafana.
- Acquired experience in scripting for incident management, enhancing operational efficiency with Python and Shell scripts.
- Proficient in Kubernetes, with comprehensive knowledge of core concepts (Pods, Deployments, Services, Namespaces), cluster architecture, and deployment strategies.
- Developed teamwork and communication skills through collaborative work in various industry and academic settings.

Education

McMaster University Sep 2022 - Now
Master of Applied Science in Software Engineering *Hamilton, ON, Canada*

Alzahra University Sep. 2017 - April. 2022
Bachelor of Engineering in Computer Engineering *Tehran, Iran*

Skills

Programming: Python, C++, C, Java, SQL, Shell Scripting, Django, HTML, CSS

Operating Systems: Linux-based systems

DevOps Tools: Git, Docker, Kubernetes, Prometheus, Grafana, PyTest, K6

Languages: English (TOEFL:107), Persian (Native)

Research and Work Experience

Kubernetes Performance Model McMaster University
Research Assistant *Sep. 2022 - Now*

Currently leading the development of an advanced performance model for Kubernetes, aimed at accurately simulating the behavior of diverse applications within a Kubernetes environment. This model, grounded in server queuing theory and scheduling algorithms, is designed to predict performance metrics such as response times under various load tests for applications with differing computational demands.

Key objectives include refining the model to closely mirror the performance of an actual Kubernetes cluster. This involves extensive analysis and simulation to determine optimal configurations for specific performance goals. A significant application of this model is in guiding the configuration of Kubernetes clusters, particularly in determining the ideal number of nodes and pods to achieve desired performance levels. The model's ability to predict the optimal ratio of pods per node is instrumental in enhancing cluster efficiency and resource utilization.

Cloudzy Infrastructure as a Service abrNOC Company
DevOps Engineer Intern *Nov. 2021 - March. 2022*

Assisted in the design of a cloud infrastructure platform based on Kuberntes architecture. Involved in maintaining various project components, with key tasks including: Automating virtual machine deployment and cloud services using Ansible. Developing Molecule tests to validate infrastructure as code. Monitored the status of cloud and VPS services using Prometheus and Grafana. Developed Python and Shell scripts to automate the resolution of recurring server resource usage issues. Supported cross-functional teams, such as SEO in data management processes using Pandas and Python scripts.

Main Projects

Azure VMs Capacity Planning Jan 2023. - Oct 2023

Designed a capacity planning tool for suggesting the optimizaed number and configuration of VMs for a Cubic transportation company. Employed linear optimization Given the key performance indicators of each VM (throughput and response time) to suggest cost effective set of VMs for each application

McFood Delivery System Sep. 2022 - Dec 2022

Developed a microservice web application for food delivery using Spring Boot. The application comprises various services including food-provider, user-management, tracker, billing, and cart-management, all communicating through REST API and RabbitMQ. Initially designed based on Hexagonal Architecture principles, these components were effectively transformed into individual microservices.

API Management System Jan. 2022 - April 2022

Designed an API management system to centralize the APIs of various companies, enhancing merchant accessibility to these services. The system's architecture includes a Gateway for handling incoming requests, a developer portal for buyer access to purchased APIs, a repository for API records, and a monitoring component for continuous health checks through load testing. Implemented continuous performance tests using K6, an open-source testing tool, and monitored real-time data using Prometheus.

Book Management May. 2021 - June 2021

Developed a Spring Boot web application for a bookshop, facilitating book access management for users and enabling authors to publish their works. The project is structured on MVC architecture, with components (Book, Authentication, Search) communicating via REST API. Data storage is efficiently handled using a PostgreSQL database.

Question and Answer Forum Sep. 2020 - Dec 2020

Developed a question-and-answer web application, akin to Stack Overflow, enabling users to post questions and provide answers. The project was architecturally designed using the MVT (Model-View-Template) framework in Django. Database models were meticulously crafted in conjunction with UML diagrams to ensure a robust and efficient structure.

Teaching – Teaching Assisting

Binding Theory to Practice Fall 2023

- Assisted coding lab sessions for over 150 students
- Aided in implementing time efficient Algorithms

Software Testing Winter 2023

- Assisted tutorial classes for over 250 students
- Helped students in understanding various functional and non-functional testing methodologies
- Helped in using JUnit as a testing framework.

Computer Architecture Winter 2022

- Assisted students in grasping the concepts of CPU instructions and pipeline processing

Operating Systems Lab Fall 2021

- Conducted tutorial sessions to educate students about the basics of Linux kernel and Unix operating systems
- Guided them in utilizing Linux commands effectively. Instructed them on script writing within the Linux environment

Linux LPIC1 Workshop June 2021

- Held a workshop for teaching the LPIC1 concepts to students from different universities

Related Courses

Formal Courses:

- Software Design
- Software Testing
- Micro-service Oriented Architecture
- Analysis of Stochastic Networks
- Internet Engineering