Mustafa Abdallah Mohamed

Backend Engineer | Python, TypeScript, Golang | AWS, Azure, GCP | Docker, Terraform

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Experience

Freelancer on UpWork as a Developer *Aug. 2022 to Dec. 2022*

- Hired by a client from Germany to work on a DevOps project, where I built the deployment pipeline for development, staging and production environments with Docker, Linode, Terraform and CircleCI.

- Hired by a client from Sweden to work on a serverless backend built with AWS CDK and TypeScript, using AWS Lambda, API Gateway and DyanmoDB.

Backend Engineer at Soundwav.io | *Toronto, Canada* *May. 2022 to Jun. 2022*

Soundwav (https://soundwav.io) is Canada based startup where they are building a real-time collaboration platform for musicians and producers to collaborate in real-time.

I was part of a team of three people, the founder, the UX designer and me the developer, I was hired to build the MVP and convert the Figma designs to a real live dashboard, I used Python, Django and PostgresSQL for the backend and TypeScript/React.js for the frontend.

For the backend API, here is what I did:

- Built the backend API with Python, Django and PostgreSQL.
- Deployed the backend API on Heroku for testing.
- Tracked the code changes with version control using Git and GitHub.
- Managed the project with Agile and Jira.
- Built the frontend dashboard with TypeScript, React.js and Redux.

As part of developing my skills, I continued developing this backend API and here is what I did:

- Added Poetry, the dependency and package manager, instead of requirements.txt files.
- Followed Test-driven development process by writing unit tests with Pytest.
- Containerized the backend with Docker and Docker Compose.
- Deployed to GCP and used services like:
    - Google Cloud Compute Engine
    - Google Cloud Storage
    - Google Cloud SQL (PostgresSQL)
    - Google Cloud Container Registry
- Wrote the infrastructure with Terraform.
- Automated the deployment and testing with Jenkins.

Code: https://gitfront.io/r/mstva/jZSLiEJGvfd9/soundwav

Backend Engineer at Medicore Medical Services | *Dublin, Ireland* *Jan. 2021 to May. 2022*

Medicore Medical Services (www.medicore.ie) is an ambulance service where the hospitals call them to provide an ambulance to transfer a patient from the incident place to the hospital. They built CrewTech to connect the manager with the ambulance's crew. CrewTech is a dashboard for managers to add calls and forms, and an Android app for the crew to see the calls and forms they need to fill.

It was only me in the software engineering team working directly with the manager! Where I worked on refactoring the old code, adding new features, and fixing some bugs. Worked on the app with Android/Kotlin, on the backend API with Python/Django and the frontend dashboard with TypeScript/React.js.

For the backend API, here is what I did:

- Refactored the backend API that was written with Python, Django and PostgreSQL.
- Added new features and made the code reusable, and reliable with the MVC architecture.
- Developed a device manager to make admin manage registered devices.
- Built a form builder and connected it to the backend API.
- Deployed the backend API on Heroku for testing and Digital Ocean for production use.
- Managed the project with Agile and Jira.
- Tracked the code changes with version control using Git and GitHub.

As part of developing my skills, I continued developing this backend API and here is what I did:

- Added Poetry, the dependency and package manager, instead of requirements.txt files.
- Followed Test-driven development process by writing unit tests with Pytest.
- Containerized the backend with Docker and Docker Compose.
- Deployed to AWS with services like: EC2, RDS, S3 and ECR.
- Wrote the infrastructure with Terraform.
- Automated the deployment and testing with CircleCI.

Code: https://gitfront.io/r/mstva/DVb6QkdE8umR/crewteech

For the frontend part, here is what I did:

- Built the frontend with TypeScript and React.js.
- Handled the state management with Redux.
- Crafted and created the UI elements with Chakra UI.
- Built the navigation system with React Router.
- Integrated and made requests to the backend REST API with Axios.
- Deployed to Heroku for testing.

For the Android part, here is what I did:

- Refacatored an old Android Java app.
- Redesigned and rebuilt the app with Kotlin, MVVM and JetpackCompose.
- Handled the API requests using Retrofit and Kotlin Coroutines.
- Saved data locally using Android Room Database, for using the app in offline mode.
- Integrated Firebase Cloud Messaging for sending and receiving notifications.

Backend Engineer at Itesyl Technologies | *Nairobi, Kenya* *Apr. 2021 to Apr. 2022*

Itesyl Technologies (https://itesyl.com) is a company that develops business banking solutions, they build Kodeec to connect the real state with e-banking by connecting landlords and apartment owners with tenants and banks.

Our team was two people building the Kodeec project, my job was working on adding new features to the backend API with Flask/Python, building a mobile app with Flutter/Dart and building a WhatsApp chatbot using Node.js/TypeScript.

For the backend API, here is what I did:

- Added new features to a backend API written with Flask and PostgreSQL.
- Used Twilio and local SMS providers to send SMS to users.
- Built a Fingerprint and PIN Authentication system with a two-factor feature.
- Generated PDF files and sent Emails to users based on user filters.
- Tested and documented the API using Postman.
- Deployed the backend API on Heroku for testing.
- Managed the project with Agile and Jira.
- Tracked the code changes with version control using Git and GitHub.

As part of developing my skills, I continued developing this backend API and here is what I did:

- Added Poetry, the dependency and package manager, instead of requirements.txt files.
- Followed Test-driven development process by writing unit tests with Pytest.
- Containerized the backend with Docker and Docker Compose.
- Deployed to Azure with resources like:
    - Azure VNet (Virtual Network)
    - Azure Virtual Machine
    - Azure Database for PostgreSQL
    - Azure Blob Storage
    - Azure Container Registry (ACR)
- Wrote the infrastructure with Terraform.
- Automated the deployment and testing with GitHub Actions.

Code: https://gitfront.io/r/mstva/yJfq225m9vAN/kodeec

For the chatbot part, here is what I did:

- Built a WhatsApp chatbot using TypeScript and Node.js.
- Generated and setup a WhatsApp phone number with Twillo.
- Integrated and used DialogFlow for natural language processing.

For the Fluter app part, here is what I did:

- Built a mobile application from scratch using Flutter and Dart.
- Used GetX for state management and building a navigation system.
- Used Dio for network requests and make an API integration.
- Integrated Firebase cloud messaging for building a notifications system.
- Integrated Google Maps API for handling location and map features.

Projects

Creditor

- Django Backend API with DigitalOcean Infrastructure which is written with Terraform.
- With CircleCI as the CI/CD and Docker and Docker Compose for the containerization.
- Code: https://gitfront.io/r/mstva/E49jALoHqkxK/creditor

Serculate

- A serverless backend API built with AWS CDK and TypeScript.
- Code https://gitfront.io/r/mstva/yYiwzEvWk1xr/serculatee

Formbull

- A serverless backend API built with AWS CDK and Python.
- Code https://gitfront.io/r/mstva/eCLeqVGuhhEB/formbull

Tufulat

- A serverless backend API built with AWS CDK and Golang.
- Code https://gitfront.io/r/mstva/szYWtXB8WFV4/tufulat

SovirApp

- An eCommerce app using React Native with Node.js & MongoDB backend.
- Code: https://github.com/mstva/SovirApp

Design Patterns Implementation

- Implementation of some of the design patterns mentioned in the “Head First Design Patterns” book.
- With multiple programming languages like C++, Java, Kotlin, JavaScript, Python and Ruby.
- Code: https://github.com/mstva/DesignPatterns

Skills

Programming	DevOps	Cloud & Serverless	Software Engineering
Python Django Flask PostgreSQL MySQL TypeScript Node.js Express.js MongoDB Java Kotlin	Terraform Docker Docker Compose CircleCI GitHub Actions Jenkins Git & GitHub Agile & Jira	AWS Azure GCP Digital Ocean Heroku AWS CDK AWS Lambda AWS API Gateway AWS DynamoDB	OOP Design Patterns Algorithms Data Structures API Integration RESTful API Linux/macOS Bash Scripting Postman

Education

B.Sc. in Computer Engineering - Minia University | *Minya, Egypt* *Sept. 2015 to Aug. 2020*

Minia University is a local university in Egypt that serves students from the Minia government, I was studying in the faculty of engineering and specialized in the computers and systems engineering department. After five years of studying, we ended up with a graduation project, and mine was called “Hafyz”.

Hafyz is a smart Android assistant app for Alzheimer's disease patients! We worked as a team of five students where we needed to develop this application using Android and Java, the app has three main features: face recognition for helping patients recognize people who forgot them, a location tracker for tracking patients' locations in case they are lost and a personal assistant for answering patients' questions.

My part was working on the face recognition feature and here is what I did:

- Wrote and analyzed the requirements document, to generate use cases and user stories.
- Designed the user interface with consideration of Computer-Human Interaction guidelines.
- Built a face recognition system with the face_recognition library which has a 99.38% accuracy.
- Developed the backend REST API using Flask which hosted the face recognition system.
- Deployed the Flask server on Heroku which led to reducing the time of testing.
- Implemented the frontend in Android Studio using Java with the support of Camera & Gallery.
- Organized the development process with Agile/Scrum and version control with Git & GitHub.
- Led the team and distributed the tasks and followed up on the progress of building the app.

Code: https://github.com/mstva/Hafyz | Demo: https://vimeo.com/456017663

Volunteering

Social Media Marketing Specialist - IEEE Minia University | *Minya, Egypt* *Nov. 2017 to April 2018*

IEEE Minia University is a student branch at the Minia University, faculty of engineering, under the global organization IEEE, where volunteers organize competitions, workshops and events for inspiring people about technology, business and creativity!

I volunteered in the social media team, and our team consisted of three people, we worked together to create content and publish news, events and competitions about the branch, my job was creating content, managing the social media channels and covering the events during it happens.

During my volunteering, I worked on multiple projects at IEEE MU and here is what I did:

- Created the event description of “Hot Wheels" which is a competition for Robots.
- Covered the “Problem Solving Competition” event which was a programming competition.
- Planned and created the event “Line Follower 2018” which was a competition for Robots to follow a line.
- Worked as a content creator and covered their big event with my team called “Innovation Day 7” it was three days event in the seventh year of its creation, where a lot of speakers, competitions and workshops come together in one place to talk about technology, business, and creativity to inspire students!