Adnan Momin

Tech Lead Engineer with expertise in Python, AWS, Serverless architecture, System Design. Holds a Bachelor's Degree in Computer Engineering, Graduated in 2016.

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OVERVIEW

Experienced Tech Lead Engineer with a 8-year track record in developing efficient, scalable, secure, and maintainable code solutions. Specializing in backend development and engineering for 7 years. I am a quick learner with proficiency in Python(Django/Flask), MongoDb & PostgreSQL, AWS Cloud, Serverless, RESTful APIs, System Design/Architect. Having 4 years of experience as SSE/Team Lead . Eager to contribute on large-scale distributed systems with a passion for system design and solution architecture. Passionate to solve problems using data structures, algorithms and OOPS.

EXPERIENCE

Karza Technologies, Mumbai — *Tech Lead Engineer*

JULY 2017 - PRESENT

Overview:
Joined the organization in its early stage and worked on building products from scratch. Today I oversee and own multiple platform level projects that support and form the foundation for the products of the organization. Working on developing config driven complex generic central systems that work for all the products. Building systems that are driven by microservice based architecture. I am Responsible for designing, architecting, formulating strategies for implementation, testing, and deployment of the products.

Major Projects:

1. **Self-Service Portal(SSP)** (Year 2023-24):
   To minimize the involvement of the BD, Sales and Support team, the management team came up with an idea of a self serving portal. The main idea of this product is to allow clients, users, individuals to use/explore our products and APIs easily by themselves. This product contains an onboarding journey, a sandbox to try our API, payment integration to purchase plans to use our APIs on production, a dashboard to view account balances, payments, plans, usage history & stats.
   Responsibilities: As a team lead, I designed APIs, process flows, database schema, deployment architecture of this system. Created authentication mechanism using JWT and Cookies. Guide/mentor a junior team member to implement the APIs to drive the self serving

SKILLS

Python, Flask, Django, Pytest. Java, Android App Development

MongoDb, PostgreSQL.

AWS, Redis, Docker, CI/CD, Basic DevOps.

RESTful APIs, Web Services.

Bitbucket, Github, Gitlab, JIRA.

Design Patterns, Algorithms, Data Structures, Problem Solving.

System Design, Solution Architect.

Linux(Ubuntu), MacOS.

Web-Scraping, Selenium, Automation

ONLINE PROFILE

https://stackoverflow.com/users/6587774/adnan-momin

https://www.linkedin.com/in/adnan-momin-24454095/

LANGUAGES

English, Urdu

portal. Created design for payment integration keeping in mind all the infosec standards.
TechStack: AWS SQS, Lambda, API-Gateway, Secrets Manager, Python, Microservices, JWT, MongoDb, Redis, Gitlab, JIRA.

2. **Asynchronous Framework (Year 2022-23):**
Most of our APIs run for more than 30 secs, and most of them are real-time web-scrapers. Due to high traffic from few clients the source website goes out of service, thereby impacting our APIs and creating a bad impression for our client. This project allows us to implement strategies to have concurrency control, quota control, high throughput and improved performance of the overall system.
Responsibilities: As a team lead, due to team's bandwidth crunch, Independently overseeing the architecture, design, implementation, testing, and deployment of the APIs for Asynchronous Framework. Created schemas for database and staging store.
TechStack: AWS ELB, EC2, ECS, ASG, SQS, Lambda, Secrets Manager, API-Gateway, Python, Microservices, RestAPIs, Flask, Asyncio, MongoDb, Docker, Redis, Bitbucket, JIRA.

3. **Encryption Framework (Year 2022):**
All of our APIs follow RESTFull standards and are exposed to the clients via HTTPS protocol. Few clients request payload level encryption to increase their security within a private network. This project allows us to perform payload level encryption supporting PGP Asymmetric Encryption, AES Symmetric Encryption and Hybrid Encryption consisting of RSA and AES.
Responsibilities: As a team lead and senior software engineer, worked on designing the logic and process of the framework. Mentored team members to implement the framework according to best coding practices following industry standards. Created deployment plan and architecture.
TechStack: AWS API-Gateway, Lambda, Secrets Manager, Python, Cryptography, MongoDb, Gitlab, JIRA.

4. **Alternate-Gw (Year 2021):**
We use AWS API-Gateway to create APIs for our products. Few of our APIs run beyond 30 secs. Due to the timeout limitation of AWS API-Gateway, we built our own API-Gateway known as Alternate-Gw with a limited set of features like routing traffic to correct backend lambda functions. After running these services for more than 2 years on AWS Elastic Beanstalk and EC2, we noticed an opportunity to save more than 45% cost if migrating it to AWS ECS. This alternate-gw is based out of Flask and is deployed on AWS ECS.
Responsibilities: As a team lead and senior software engineer, individually wrote the complex logic for properly routing the traffic. Defined the guiding steps and helped team members to perform POC on base container profiling. Created scaling policies, self refreshing logic for the gateway to support new APIs. Planned and seamlessly

executed the migration of the service to AWS ECS with zero downtime and 99.99 % availability.
TechStack: AWS ELB, EC2, ECS, ASG, Elastic Beanstalk, Lambda, Python, Flask, MongoDb, Docker, Redis, Gitlab, JIRA.

5. **Url-Shortener & Download Service** (Year 2021-22):
Sharing large output report files with our clients via emails, g-drive and storage devices was an inefficient and improper way according to infosec. We came up with a solution to use AWS S3 to host the files and server them via an expirable download link. The download URLs used to be large and in few other products we felt the need for short URLs, hence we built our own URL-Shortener service. After running these services for a few months on AWS Elastic Beanstalk, we observed a scope for increasing performance and saving more than 45% cost by moving them to AWS ECS.
Responsibilities: As a senior software engineer, I implemented the APIs, created database schema, authentication mechanism based on static key, deployment architecture, implemented scaling policies for the services. Worked on re-architecting the system to migrate to a docker based solution to host on AWS ECS.
TechStack: AWS ELB, EC2, ECS, ASG, Elastic Beanstalk, Secrets Manager, Python, Microservices, Flask, MongoDb, Docker, Bitbucket, Gitlab, JIRA.

6. **Dashboard, Sandbox & User Management** (Year 2020-22):
The organization is a product based company and has major products around TotalKYC, GST, ITR, Fraud Analysis/Identification, Litigations, Employment Verification, etc. These products are exposed to our clients via microservice based RestFull APIs. These APIs are part of our Common Sandbox. This project allows our clients to use our products via the sandbox. The clients use our dashboard to view their usage history and stats, analyze the success and failure of the APIs. This project also has user management which allows our clients to create and manage their users who can use our APIs via this sandbox. This project is a kind of SaaS software.
Responsibilities: As a software developer/engineer, I individually implemented the APIs from scratch, created an authentication mechanism using JWT and Cookies. Designed and implemented complex logic in user-management for Role Based Access Control(RBAC) of the dashboard and sandbox. Worked with another colleague to create a database schema for usage logs and user-management.
TechStack: AWS Lambda, API-Gateway, Secrets Manager, Python, RestAPI, JWT, MongoDb, Bitbucket, Gitlab.

7. **OCR Service** (Year 2017-18):
One of our product features OCR as a service. The APIs takes KYC documents as an input in image/pdf format and return the text from

the document in well structured JSON format. The data science team developed the OCR models.
Responsibilities: As a senior software developer/engineer, I worked with the data science team to host these OCR models on AWS lambdas and expose them as APIs for our product. Researched on how to efficiently load and run OCR models on lambdas with less API latency and avoiding cold starts.
TechStack: AWS Lambda, API-Gateway, Python, Microservices, Tensorflow, Bitbucket.

Minor Projects:

1. **Password Management System Upgrade** (Year 2023):
   We used to perform Hashing(md5/sha256) of the plain text password before transferring them over the public network. We also used to store the hash as it is in the database. The Infosec team raised this as a weak and non-standard practice to manage passwords. This project defined best industry standard practices to manage and store the passwords.
   Responsibilities: As a senior software engineer, I individually worked with the infosec team to define proper and secure methods of storing and transferring password over public and private networks. Guided a team member to implement the project and planned and executed its deployment.
   TechStack: AWS KMS, Lambda, API-Gateway, Secrets Manager, Python, RestAPI, MongoDb, Gitlab, JIRA.

2. **CI/CD Implementation** (Year 2023-24):
   Most of our projects were tested and deployed manually. This project helped us to build CI/CD for our systems. We used Gitlabs CI/CD for completing this project. This project significantly reduced our deployment efforts to just code review and code merge to development and main branch.
   Responsibilities: As team lead and senior engineer, I mentor and guide a team member to learn and start implementing testing and deployment pipelines. Defined the strategies and logical process and steps for implementing pipelines for development and production stages, storing secret access keys and tokens needed to access AWS resources.
   TechStack: Gitlab, CI/CD, JIRA.

3. **Billing & Invoicing System** (Year 2020-21):
   On the 1st of every month, our tech leads use to send usage logs dump of each client in csv/excel format with our finance team for calculating the usage amount and raising the invoice. Our finance team manually calculates the amount and raises invoice using excel files. This project helped us to create an automated way to raise invoices between 1st to 5th of every month. Thus reducing the

manual efforts of our finance team.
Responsibilities: As senior engineer, I designed the APIs for calculating bill amount, generating invoices. Defined database schema to store custom billing configurations according to clients agreement. Along with a team member worked on building the complex logic for calculating the bill based on custom configs.
TechStack: AWS Lambda, S3, Python, RestAPI, MongoDb, Async-processing, Job Scheduling, Bitbucket.

4. **MongoDb Archival** (Year 2019):
With increase in the business, we started to receive high volume, thus filling our database 10x faster than it used to 2 years back. Initially we increased the storage disc size of our AWS EBS, but with few iterations it reached the max limit and we were not able to increase the size. This project helped us to archive the past data to S3 Glaciers and purge it from the database, thus making room for new data.
Responsibilities: As team lead and senior engineer, I designed the process for creating an archive of the database periodically. Architected the system to efficiently handle the concurrency and bandwidth limitations of the AWS resources. Also designed APIs for requesting the archive restore to a new cluster of databases as needed for business purposes..
TechStack: AWS S3 Glaciers, SQS, EC2, Python, MongoDb, Async-processing, Job Scheduling, Bitbucket.

5. **Decaptcha Services** (Year 2017-18):
More than 20 of our APIs were needed to solve captcha while performing web-scraping. We used paid captcha solving services. This project allowed us to host our own captcha solving service. The data science team worked on development of the tensorflow models for solving captchas.
Responsibilities: As software developer/engineer, I implemented the API services to host the captcha solving tensorflow based models on an EC2. The APIs were implemented on Flask.
TechStack: AWS EC2, ELB, Python, Microservices, Flask, Tensorflow, Apache Web-Server, WSGI.

6. **Web-Scraping & APIs** (Year 2017-19):
Most of our product's APIs are real-time web-scrapers. These APIs take input, perform web-scraping/web-automation on the websites, parses the response HTML and generates a well structured JSON response to return as an API response.
Responsibilities: As software developer/engineer, I individually implemented 100+ web-scrapers and hosted them on AWS Lambdas to serve our products. I owned and managed all the code bases, defined deployment steps and performed various updates as needed by the business.
TechStack: AWS Lambda, API-Gateway, Python, Requests,

BeautifulSoup, Selenium, MongoDb, Bitbucket.

Overall Responsibilities:
Comprehensively analyzing functional, non-functional, technical, non-technical, and business requirements within the project context.
Formulating the overall solution and approach for the project from inception to completion. Collaborate with the frontend team for integrations with user-facing elements.
Developing and Executing strategies for architecture, design, development, testing, and deployment, including schedules for UAT and Production rollouts. Exercise SDLC for better TAT and delivery time.
Swiftly Addressing client-reported issues, providing a detailed deployment timeline, and conducting Root Cause Analysis (RCA) for clients.
Conducting thorough code reviews, executing Proof of Concepts (POCs), and substantiating proposed solutions to meet project requirements.
Assisting Team Members in resolving intricate bugs and problems, offering guidance on problem-solving approaches, providing constructive feedback, and establishing clear expectations.

TechStack:
I possess technical expertise in a wide range of AWS services, including Lambda, API Gateway, Elastic Beanstalk, ELB, EC2, ECS, S3, Glacier, VPC, SNS, SQS, IAM, ASG, Lightsail, ElasticCache, Secrets Manager, CloudWatch, KMS. My skills also extend to Multiprocessing, Scalability, Availability, and proficiency in Serverless Framework. Additionally, I am experienced in working with Apache Web-Server, HAProxy, Docker, Redis, Web Scraping & Automation, CICD. I am well-versed in version control with Bitbucket and Gitlab and project management using JIRA.

Freelancer, Online — *Software Developer*

MAY 2017 - JULY 2017

Gained expertise in web scraping through this experience and completed over 20 mini projects across various freelance platforms.

Freelancer: https://www.freelancer.in/u/adnanmomin9448.html
PeoplePerHour:https://www.peopleperhour.com/freelancer/development-it/adnan-software-developer-programmer-yvjqnmj
Fiverr: https://www.fiverr.com/adnanknown.

Taibah Infotech Pvt. Ltd, Mumbai — *Mobile App Developer*

JULY 2016 - MAY 2017

Created 2-3 applications for both Android and iPhone platforms,

incorporating features such as push notifications, Google Analytics integration, YouTube video streaming, CRUD operations, file downloads, audio streaming, and QR code reading.

EDUCATION

Anjuman-I-Islam's Kalsekar Technical Campus, Navi Mumbai, Maharashtra — *B.E. Computer Engineering*

MAY 2012 - JUNE 2016

Aggregate CGPA is 7.07.

Paper published in February 2016 for B.E. final year project on Intelligent Hiring with Resume Parser and Ranking using Natural Language Processing and Machine Learning(http://www.ijircce.com/upload/2016/april/218_Intelligent.pdf).

Developed an ECommerce Website with Basic features and some mini projects as a part of academics..

Royal Junior College, Mumabai — *H.S.C*

MAY 2010 - APRIL 2012

Annual marks 56.83%.

Queen Mary's High School, Mumabai — *S.S.C*

MAY 2010 - APRIL 2012

Annual marks 80.73%.