SHIVA NARAYAN DEY

PYTHON DEVELOPER | FULL-STACK WEB & CLOUD ENGINEER | AI AUTOMATION
SPECIALIST | AWS CERTIFIED

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🔗 LinkedIn | GitHub | Portfolio| LeetCode

SUMMARY

Results-driven Full Stack Engineer with 4+ years of experience, transitioning from Python automation testing to backend and full stack development. *Proven success in building scalable, AI-integrated, cloud-native applications, with a strong foundation in quality engineering and a deepening expertise in Python (Flask), AWS, and modern frontend frameworks. Demonstrated ability to boost workflow automation by 70%, reduce operational costs by 15%, and improve system uptimes to 99.9% through Dockerized deployments and cloud-first architectures. Passionate about designing resilient, user-centric solutions and continuously evolving through hands-on cloud and GenAI projects.*

WORK EXPERIENCE

COGNIZANT TECHNOLOGY SOLUTIONS

Programmer Analyst

November 2020 – Present (4 years 6 month) | Hyderabad

Contributed to nine major projects, driving **cloud migrations**, developing **scalable applications**, and integrating **AI-driven solutions**.

KEY PROJECTS

9. PEOPLE API (EMPLOYEE DATA MANAGEMENT) [FEB 2025 – PRESENT]

Tech Stack: Python, AWS Lambda, AWS Glue, DynamoDB, boto3, pandas, numpy, pyspark

- Developed REST APIs for internal tools like **My Duty Trip** and **SailPoint integration** using **Python** and **AWS Lambda**.
- Created AWS Glue ETL jobs using **awsglue** and **pyspark** for data ingestion and transformation tasks between **DynamoDB**, **S3**, and downstream consumers.
- Managed asynchronous API workflows and data pipelines with **boto3**, **pandas**, and **numpy** for structured data processing.
- Integrated ETL jobs into CI/CD pipelines and provided backend code enhancements to improve performance and scalability.
- Collaborated on test automation for these APIs using Python-based validation scripts.

8. BAHS (BRITISH AIRWAYS HEALTH SERVICES) [FEB 2025 – PRESENT]

Tech Stack: Python, AWS Glue, S3, boto3, pandas, numpy, pyspark

- Designed and developed APIs to support the **My Duty Trip** consumer application, managing API requests, data validation, and secure data transfer with **AWS services**.

- Engineered data transformation jobs using **AWS Glue DynamicFrames** and **pyspark.sql.functions** for large-scale data operations.

- Automated backend data ingestion pipelines from on-premise to cloud storage with custom **Glue ETL** scripts.

- Performed performance tuning and log management using **logging** and custom monitoring scripts.

- Assisted the testing team by writing data validation utilities and post-deployment sanity checks in Python.

7. REFZ (REFERENCING PORTAL) [FEB 2025 – PRESENT]

Tech Stack: Python, Flask, SQLAlchemy, AWS (boto3), HTML, CSS, JavaScript
Role: Backend Developer & QA Engineer

- Developed backend modules using **Flask**, integrating **SQLAlchemy ORM** for database operations and **PyJWT** for secure token-based authentication.
- Designed APIs for managing candidate archives, AWS resource operations via **boto3**, and file encryption utilities using the **cryptography** module.
- Handled application configurations with **PyYAML**, implemented AWS interaction utilities (**app.awsfunctions**) and custom encryption logic.
- Contributed to the front-end using **HTML**, **CSS**, and **JavaScript** for basic UI operations.
- Wrote database migration scripts using **Alembic** and managed scheduled jobs for data purging and reporting through custom Python scripts.
- Maintained **GraphQL schema** for API queries and mutations.
- Supported the QA team by building automation suites using **pytest** and **pytest-mock** for backend API validations.

6. RTO STATUS – OFFICE ATTENDANCE TRACKER (PYTHON FLASK WEB APP) [APR 2025 – PRESENT]

- Developed a Python Flask web application for tracking Return to Office (RTO) status submissions from employees.
- Integrated SQLite database for storing daily attendance records.
- Designed an intuitive web interface using HTML, CSS, and Bootstrap for associates to log attendance.
- Enabled data export and visualization features using Pandas and Matplotlib for management reporting.
- Tools/Skills: Python (Flask), SQLite, Pandas, Matplotlib, HTML, CSS, Bootstrap
  - 🔗 GitHub Repository

5. SMARTCASE – AI-POWERED TEST CASE GENERATOR (FLASK WEB APPLICATION) [OCT 2024 – PRESENT]

GitHub: SmartCase

- Developed a full-stack Python Flask web application for AI-driven test case generation and intelligent resource management.
- Integrated OpenAI API with manual context handling to simulate conversational memory and support dynamic test generation workflows.
- Built a stream-style AI chat interface to enhance usability, with ongoing development of a Retrieval-Augmented Generation (RAG) framework for context-rich responses.

- Implemented secure user authentication using Flask-Login and email-based validation.
- Integrated cloud storage APIs (Google Drive, SharePoint, OneDrive) for seamless resource tracking.
- Created data analytics dashboards using Seaborn and Matplotlib to visualize test coverage, resource usage, and performance insights.
- Stack: Python, Flask, HTML, CSS, Bootstrap, SQLite, PostgreSQL, pandas, NumPy, scikit-learn, OpenAI API.

4. IAG DC-EXIT (AWS MIGRATION) [AUG 2024 - FEB 2025]

- Transitioned from python automation testing to migration and development with python backend development.
- Migrated 5+ legacy applications to AWS, reducing server costs by 15% and achieving 99.9% application uptime with ECS and Docker.
- Deployed automated cost-monitoring scripts on AWS, optimizing cloud expenditure by 10%.
- Designed and implemented loosely coupled systems for enhanced scalability using Docker and ECS for containerized deployments.
- Utilized AWS Elastic Beanstalk and CloudFormation for seamless infrastructure automation and deployment.
- Collaborated with business clients and TCS teams to propose and implement solutions using loosely coupled technologies, ensuring high system availability.
- Technologies: Python (Flask), AWS ECS, Elastic Beanstalk, Docker, SQL, CloudFormation, AWS RDS.

3. INTERNATIONAL AIRLINES GROUP (IAG) PEGASUS [MAR 2023 – FEB 2025]

- Automated UI workflows with Selenium (Python) and API testing via Pytest.
- Developed and validated Flask-based microservices and APIs.
- Created test automation dashboards and executed backend job validations via AWS SSH.
- Tools/Skills: Selenium (Python), Pytest, Flask, AWS RDS, DynamoDB.

2. MELBOURNE AIRPORT (CRM TOOL) [AUG 2022 – JAN 2023]

- Developed and executed comprehensive **end-to-end test strategies** for ticket management systems and workflows.
- Automated functional and **API testing** using **Java-Selenium** and **Java Cucumber**, ensuring robust integration with schema-less NoSQL databases.
- Led testing for customer query management workflows, including forms and bots for efficient support system interactions.
- Validated ticket queuing and **SLA tracking** systems to ensure proper priority handling and timely issue resolution.
- Integrated advanced **test reporting frameworks** to provide real-time insights into system performance and test results.
- Conducted **User Acceptance Testing (UAT)** to ensure CRM system features met business requirements.
- Validated priority-based ticket queuing logic using **JUnit** to guarantee accurate ticket escalation handling.
- **Technologies**: Java (Cucumber, Avanstac, JUnit), Selenium, NoSQL, AWS ECS, Test Reporting Tools.

1. CENTRICA (ENERGY & UTILITIES) [MAR 2021- AUG 2022]

- Transitioned from **Java-Selenium automation** to a testing-centric role, focusing on both functional and integration testing.
- Developed and executed automated test cases for customer portal features, utilizing **Java Cucumber** and **Avanstac** for behavior-driven development (BDD).
- Led **API testing** and validation efforts using **JUnit** to ensure backend and front-end systems communicated smoothly.
- Conducted regression testing to validate energy data management features and sales manager profile functionality.
- Implemented **performance testing** to ensure scalability under high traffic, including load and stress testing.
- Created and managed **test reports** to provide clear insights into system performance and test outcomes.
- **Technologies**: Java (Cucumber, Avanstac, JUnit), Selenium, Test Reporting Tools.

RESPONSIBILITIES ACROSS PROJECTS:

- Developed and maintained **RESTful APIs** and backend modules using **Python Flask**, integrating database operations with **SQLAlchemy** and securing endpoints with **JWT authentication**.
- Designed and executed **AWS Glue ETL jobs** for data ingestion, transformation, and migration tasks involving **S3**, **DynamoDB**, and on-premise sources.
- Built **AWS Lambda functions** and automated backend data workflows using **boto3**, **pandas**, **numpy**, and **pyspark**, enhancing data processing efficiency.
- Implemented database migration scripts using **Alembic** and optimized scheduled backend jobs for data archiving and reporting.
- Managed API schema definitions using **GraphQL** and contributed to integrating backend services with front-end interfaces using **HTML**, **CSS**, and **JavaScript**.
- Wrote custom utilities for file encryption, AWS resource management, and dynamic configuration handling via **PyYAML** and **custom Python modules**.
- Collaborated with cross-functional teams to integrate backend services into CI/CD pipelines and deployed applications to AWS environments.
- Conducted unit, integration, and system testing of backend components using **pytest**, **pytest-mock**, and custom Python test suites.
- Contributed to performance optimization and logging infrastructure using **Python logging** and monitoring scripts for production stability.
- Engaged in code reviews, documentation, and backend deployment planning for enterprise applications and APIs.

EDUCATION

SRM University (Masters)
MARCH 2023 – MARCH 2025

- Graduated with an outstanding with 9.8 SGPA.
- Delivered innovative projects leveraging Flutter, Flask, and AI integration to solve real-world problems, including AI-driven travel apps and automated test generation systems.
- Balancing academic commitments seamlessly in an online mode while concurrently engaging in professional work.

NOTABLE ACADEMIC PROJECTS AT SRM UNIVERSITY

As part of my master's program, I successfully delivered innovative projects leveraging modern technologies and frameworks to address real-world challenges. These projects demonstrate my proficiency in **mobile and web application development, AI integration, cloud solutions, and database management**.

1. VAGABOND VISION (FLUTTER MOBILE APPLICATION)

- **Overview:** Developed a travel recommendation app that provides curated travel plans for users based on their location and preferences.

- **Key Features:**

    - AI-driven personalized travel recommendations for genres such as mountains, theatres, parks, restaurants, hotel stays, beaches, and rowing boats.

    - Firebase-powered backend for authentication, notification management, and user data storage.

    - Integrated **Google Maps API** for navigation and real-time geolocation.

    - Utilized **Flutter** for responsive and visually appealing UI/UX design.

- **Technologies Used:** Flutter, Firebase (Firestore, Cloud Messaging), Geolocator, Google Maps API.

- **Repository:** <u>Vagabond Vision</u>

2. SMARTCASE (PYTHON FLASK WEB APPLICATION)

- **Overview:** Created a web application for automated test case generation and efficient resource management for software development teams.

- **Key Features:**

    - **Automated Test Case Generator:** Utilizes AI to create test cases based on user-defined templates and parameters.

    - **Cloud Integration:** Seamless resource tracking and storage via Google Drive, SharePoint, and OneDrive integration.

    - **AI Integration:** Employs the **OpenAI API** for intelligent query handling and dynamic test generation.

    - **Data Visualization:** Resource usage and project analytics displayed through **Seaborn** and Matplotlib.

    - **User Authentication:** Secure login and signup with **Flask-Login** and email validation.

- **Technologies Used:** Python, Flask, SQLite, PostgreSQL, NumPy, pandas, **scikit-learn**, **Seaborn**, Matplotlib, **OpenAI API**, HTML, CSS, Bootstrap.

- **Repository:** <u>SmartCase</u>

BHAVAN'S VIVEKANANDA COLLEGE (GRADUATION)
JUNE 2017 – NOVEMBER 2020

- Graduated with an outstanding 9.51 GPA.
- Achieved 1st Prize for developing an Android application, demonstrating advanced skills in mobile app development and user-centric design.
- Secured 1st Prize in Poster Presentation at the *From Big Bang to Black Holes* Event.

- Participated in a one-day Outreach Program at the *National Balloon Facility* (TIFR).
- Completed coursework in Android App Development.
- Honoured with the title *Mr. Technoment* by the Computer Science department.

BHAVAN'S SRI AUROBINDO JUNIOR COLLEGE (INTERMEDIATE)
JULY 2015 – APRIL 2017

- Specialized in Mathematics, Physics, and Chemistry.
- Excelled with a 93% score in Intermediate.

ST. ANN'S HIGH SCHOOL (SSC BOARD/10TH CLASS)
JUNE 2002 – APRIL 2015

- Attained a remarkable 8.3 GPA in SSC 10th.

SKILLS

Languages & Frameworks: Python (Flask), JavaScript (ES6+), jQuery, HTML5, CSS3, Bootstrap

Cloud & DevOps: AWS (ECS, Lambda, Elastic Beanstalk, RDS, S3, CloudFormation), Docker, Jenkins

AI & Data Tools: OpenAI API, Pandas, NumPy, Seaborn, Matplotlib, scikit-learn

Testing & Automation: Selenium, Pytest, Behave (BDD), Allure, JIRA

Databases: PostgreSQL, MySQL, SQLite, NoSQL

Version Control: Git, GitHub

Others: Swagger, API Automation, Agile Scrum

LANGUAGES

- English (Full Professional)
- Hindi (Native or Bilingual)
- French (Elementary)
- Telugu (Limited Working)

CERTIFICATIONS & AWARDS (REFINED)

CERTIFICATIONS:

- AWS Certified Cloud Practitioner ([Credential](), Nov 2027).

- Udemy: Python 100 Days, 100 Projects Challenge ([GitHub Projects]()).

HONORS & AWARDS:

- Awarded 'Mr. Technoment' for mentoring juniors in Android and web development at Bhavan's college, boosting new projects and enthusiasts by 25%.

- 1st Prize, Android App Development (Bhavan's Vivekananda College)

HOBBIES

Coding, exploring emerging technologies, reading fantasy novels for creative problem-solving, fitness training, and analyzing anime storytelling techniques.