

Karan Ratra

Email: karanratra07@gmail.com

LinkedIn: www.linkedin.com/in/karanratra07/

1375 Crossman Ave

Sunnyvale

California

United States 94089

Profile Summary: -

- Dynamic and accomplished Senior Software Engineering Manager with over 16 years of experience in enterprise software development and engineering leadership.
- Currently leading high-impact initiatives at Walmart Labs, overseeing globally distributed teams and architecting scalable, high-volume fulfillment platforms for the world's largest retailer.
- Proven expertise in Java-based enterprise systems, microservices architecture, cloud-native design, and DevOps transformation.
- Having strong technical knowledge of algorithms, data structures and operating systems.
- Highly proficient in developing and deploying Java/J2EE applications.
- Recognized for driving strategic technical direction, mentoring engineering talent, and delivering complex products at scale in e-commerce, fintech, and telecom domains.
- Having expertise on multi-threaded, client-server and distributed architectures using Java technologies.
- Extensive experience in system integration and data migration.
- Expertise in Object-Oriented Design, RESTful services, and Microservices, with a strong background in algorithm design, data structures, and operating systems.
- Proven track record in designing and developing multi-threaded, client-server, and distributed architectures.
- Award-winning engineering leader with a consistent record of operational excellence and innovation.

Technical Proficiencies: -

Programming Languages	Core Java 1.7 & Java 1.8, J2EE, Objective-C(Cocoa), Ruby, Python, NodeJS, SQL, PL/SQL
Core Competencies	Engineering Leadership and Team Building, Scalable Distributed Systems, Microservices and API Design, Cloud Computing (Azure, Kubernetes), Agile and DevOps Transformation, Event-Driven Architectures, System Integration and Data Migration, CI/CD Pipelines, Observability and Monitoring, E-Commerce, Payments, Telecom Platforms, Compliance and Risk Systems
Database Technologies	Oracle 10/11g, MySQL, SQLite, SQL-server, Azure COSMOS, Elastic Cluster
Scripting Languages	JavaScript, CSS, Bash shell scripting, jQuery, Awk, Sed, Python, Apache Pig, AngularJS
Technologies/Frameworks	REST, SOAP, WSDL, Hibernate, Spring-core 4.X, Spring Data JPA, Spring AOP, Spring Boot, Spring Batch, KAFKA, JPA, JDBC, JNDI, Apache Camel, JMS, Apache ActiveMQ, Hadoop, JUnit, Jmock, Mockito, Lucene, JAX-RS, JAX-WS, Apache CXF JAXB, XML, HTML, JSON, AJAX, Angular JS, Bootstrap, Ant, Maven, Splunk, Apache Log4J, Apache SOLR, Caching Services (Mega cache), Microservices.

Web/Application Servers	Apache Tomcat, Jboss 7x, WebLogic 8x/9x
Operating Systems	Mac, Linux, Solaris, Windows
Methodology	Agile/Scrum programming, Extreme programming, Waterfall model
Design Methodology	UML, Design Patterns & Architecture Design Patterns
Tools	Eclipse, IntelliJ, X-code, Spring Tool Suite, JProfiler, CVS, SVN, Git, Bugzilla, Jira, Firebug, Jenkins, Jconsole, VisualVM, SQL developer, JMeter, Confluence, Sonar, IBM ODM decision engine

Professional Experience: -

Senior Software Engineering Manager II,

Walmart Labs, Sunnyvale, CA

(August 2023 – Till Date)

Project Description

Walmart's Fulfilment Management System (FMS) is a robust and highly integrated platform designed to efficiently fulfill customer orders by coordinating across multiple channels and systems. It seamlessly integrates with Walmart Stores, Walmart Fulfilment Centers, Customer Order Management Systems (OMS), Marketplace Sellers, Last Mile Delivery Systems, and National Carrier Systems to ensure that customer orders are processed and delivered swiftly. The FMS leverages a Java Backend APIs to manage core business logic and processes, while Kafka Asynchronous message processing systems handle real-time data streaming and event-driven tasks, ensuring smooth communication between different components. Azure COSMOS, a no-SQL database management system, facilitates scalable data management and processing, while the Elastic Cluster provides a flexible and resilient infrastructure for handling large-scale search and analytics tasks. This intricate integration of technologies and systems not only ensures that customer orders are fulfilled accurately and promptly but also significantly enhances the overall customer order journey by providing transparency, speed, and reliability in the delivery process.

Environment – Core Java, J2EE, Spring Core, Spring AOP, Spring Batch, Spring Boot, Oracle 11g, REST & SOAP, Jboss 7, Apache ActiveMQ, Apache Kafka, Azure COSMOS, Kubernetes, Elastic Search, Kibana, jQuery, Bootstrap, HTML, AJAX, Maven, PIG, Junit, Mockito, Jira, Linux OS, Hadoop, GIT, SVN

- Lead a team of 10+ engineers across multiple projects, focusing on the development of scalable and secure e-commerce platforms.
- Drive the technical strategy and execution for key Walmart Fulfilment services, resulting in a 25% increase in system efficiency and a 15% reduction in operational costs.
- Collaborate with cross-functional teams, including product managers, UX designers, and data scientists, to deliver features that enhance the customer experience.
- Implemented DevOps practices and CI/CD pipelines, reducing deployment time by 50% and increasing release frequency by 40%.
- Fostered a culture of innovation and continuous improvement, leading to the successful launching of 10+ key E-commerce features related to customer experience using cloud computing, scalable databases & async message processing frameworks.
- Led the migration of legacy monolithic systems to a modern API-driven architecture, improving scalability and reducing technical debt by 30%.
- Designed and implemented a mentorship program within the engineering team, pairing senior engineers with junior staff, resulting in accelerated skill development and increased team cohesion.

Senior Software Engineering Manager I,**Walmart Labs, San Bruno, CA****(August 2022 – July 2023)**

Environment – Core Java, J2EE, Spring Core, Spring AOP, Spring Batch, Spring Boot, Oracle 11g, REST & SOAP, Jboss 7, Apache ActiveMQ, Apache Kafka, Elastic Search, Kibana, jQuery, Bootstrap, HTML, AJAX, Maven, PIG, Junit, Mockito, Azure COSMOS, Kubernetes, Jira, Linux OS, Hadoop, GIT, SVN

- Spearheaded the development of scalable and reliable Fulfilment APIs, enabling seamless integration with third-party systems and supporting millions of transactions daily.
- Led the design and implementation of microservices-based architecture for the Fulfilment API, improving modularity, maintainability, and deployment agility across teams.
- Drove the adoption of RESTful API standards and best practices, resulting in a 40% reduction in response times and a significant improvement in overall system performance.
- Collaborated with cross-functional teams to define API specifications that aligned with business requirements, ensuring API solutions were robust, secure, and easy to integrate.
- Implemented comprehensive monitoring and logging for Fulfilment APIs using tools like ELK stack, enhancing system observability and enabling proactive issue resolution.

Staff Software Engineer,**Walmart Labs, Sunnyvale, CA****(December 2020 – July 2022)**

Environment – Core Java, J2EE, Spring Core, Spring AOP, Spring Batch, Spring Boot, Oracle 11g, REST & SOAP, Jboss 7, Apache ActiveMQ, Apache Kafka, Azure COSMOS, Kubernetes, Elastic Search, Kibana, jQuery, Bootstrap, HTML, AJAX, Maven, PIG, Junit, Mockito, Jira, Linux OS, Hadoop, GIT, SVN

- Led the migration of legacy monolithic systems to a modern API-driven architecture, improving scalability and reducing technical debt by 30%.
- Established and enforced API governance processes, including versioning, documentation, and security protocols, ensuring consistency and compliance across all services.
- Implemented the use of Kafka for asynchronous message processing within the Fulfilment APIs, enabling real-time data streaming and event-driven architecture for high throughput and low latency.
- Developed a robust testing framework for Fulfilment APIs, incorporating unit, integration, and performance testing, resulting in a 50% reduction in production defects and improved system reliability.
- Analyzed the expected traffic and performed various performance tuning to reduce the SLA and improve performance. Helped reduce cloud costs and serve high traffic with fewer resources by fine-tuning the application frameworks and infrastructures.
- Designed the data model for Fulfillment Management Services.
- Setup the server infrastructures at Azure cloud for Fulfilment Management System.
- Led the evaluation and POC of various messaging frameworks, ultimately selecting Azure Service Bus for its scalability, reliability, and seamless integration capabilities, to

support Walmart's Fulfillment Management System (FMS) in processing over ~100 million messages daily across US, CA, and MX markets.

- Architected and implemented a custom internal Scheduler framework on Azure Service Bus, optimizing message processing through advanced techniques like batch processing and parallelism, ensuring high throughput, low latency, and dynamic scalability during peak periods.
- Drove continuous improvement of the Scheduler framework through performance monitoring, rigorous testing, and cross-team knowledge sharing, resulting in a 20% reduction in processing time and a 15% decrease in operational costs, while maintaining consistent performance across multiple markets.

Senior Software Engineer,

Walmart Labs, San Bruno, CA

(January 2018 – December 2020)

Environment – Core Java, J2EE, Spring Core, Spring AOP, Spring Batch, Spring Boot, Oracle 11g, REST & SOAP, Jboss 7, Apache ActiveMQ, Apache Kafka, Azure COSMOS, Kubernetes, Elastic Search, Kibana, jQuery, Bootstrap, HTML, AJAX, Maven, PIG, Junit, Mockito, Jira, Linux OS, Hadoop, GIT, SVN

- Maintaining and enhancing existing REST web services used in Supply chain management for Walmart stores.
- Integration of core REST web services used in Inventory management with ETL layer using Python, Celery & J2EE Enterprise Integration Patterns.
- Designed and developed a robust ETL (Extract, Transform, Load) layer to streamline the data processing pipeline within the Inbound Supply Chain for Walmart Labs for all the Data centers of Walmart warehouse across USA.
- Improved ETL and microservices performance, reducing processing times by 30% and increasing system efficiency by 20%.
- Established CI/CD pipelines for automated testing and deployment, enabling faster, more reliable releases.
- Created documentation and promoted best practices, ensuring high standards in coding, testing, and deployment.

Senior Software Engineer,

Acceligent Inc, San Bruno, CA

(06/03/2017 – 01/05/2018)

Environment – Core Java, J2EE, Spring Core, Spring AOP, Spring Batch, Spring Boot, Oracle 11g, REST & SOAP, Jboss 7, Apache ActiveMQ, Apache Kafka, Azure COSMOS, Kubernetes, Elastic Search, Kibana, jQuery, Bootstrap, HTML, AJAX, Maven, PIG, Junit, Mockito, Jira, Linux OS, Hadoop, GIT, SVN

- Led the migration of a monolithic system to microservices, boosting scalability, maintainability, and development speed.
- Contributed to allocation, replenishment, and forecasting by developing services that optimized inventory and improved forecasting accuracy.
- Procured and setup the Linux distro boxes used for ETL process in Walmart.
- Partnered with product managers and operations to ensure solutions met business needs and performance standards.

Project Description

The Risk & Compliance Team at PayPal plays a critical role in ensuring the integrity and security of payment transactions. As a subject matter expert in the Compliance domain, I was deeply involved in the entire lifecycle of feature development, from inception to release. This included implementing numerous compliance checks that operate in real-time during payment transactions, ensuring that each transaction adheres to regulatory standards and mitigates potential risks. These measures are vital to maintaining PayPal's commitment to secure and compliant financial operations.

Environment – Core Java, J2EE, Spring Core, Spring AOP, Spring Batch, Spring Boot, Oracle 11g, REST & SOAP, Jboss 7, Apache ActiveMQ, Apache Kafka, Elastic Search, Kibana, jQuery, Bootstrap, HTML, AJAX, Maven, PIG, Junit, Mockito, Jira, Linux OS, Hadoop, GIT, SVN

- Designed and developed the RESTful Web services to check compliance regulations in real time during payment transaction.
- Working closely with product managers on analyzing market requirements, prioritizing and designing product features.
- Closely worked with product owners and cross-domain teams for 6 months stay in San Jose, USA and delivered high priority product features including new REST APIs in PayPal compliance domain.
- Conceptualized and implemented key REST APIs to update & retrieve customer's history in compliance domain.
- Designed & developed a framework responsible for auditing, monitoring and reporting of various compliance domain services using MySQL, Kibana & Elastic search capabilities.
- Developed the REST based API's that helps the PayPal users to upload their documents which is required as a part of CIP program to perform the payment transaction.
- Implemented various compliance business-based rules like OFAC, RTR, TR and FATCA rules in PayPal compliance domain.
- Designed & implemented in-memory cache system in compliance REST API's that resulted in optimizing the SLA time to 300 MS from 450 MS.
- Utilized Apache Kafka & Spring frameworks to build business rules execution simulation environment used in the E-Commerce platform.
- Designed and Implemented logging framework in all the REST services using Spring AOP.
- Implemented various key features in compliance fail safe batch. This batch is responsible for scrutinizing and rectifying any broken pipeline actions during payment transaction.
- Used Apache ActiveMQ message broker to exchange asynchronous messages between cross domain services required for transaction processing.
- Demonstrated a prototype to compliance organization by integrating Spring Boot framework with PayPal infrastructure framework.
- Designed & implemented automated functional test suites that helped in improving the Quality assurance index of the web services.
- Worked closely with PayPal infrastructure team and designed, developed & implemented multisite data center disaster recovery framework for compliance transaction services.
- Implemented Spring service layer with dependency wiring, transaction, DAO and annotations.
- Written several business rules to check compliance regulations by using IBM ODM decision engine.

- Used Spring Boot framework and migrated a RESTful Java 1.7 based service to Java 1.8 and successfully deployed it to Production. This involves code re-factoring and re-structuring the code by using Java 1.8 standards.
- Migrated legacy C++ services into RESTful based web services using Spring Boot.
- Designed & developed GitHub feed reader, a google chrome extension for GitHub operations using jQuery, Bootstrap, HTML, CSS, AJAX, JavaScript.
- Written rules in python scripts to generate business alerts by auditing & monitoring the log data from Splunk framework.
- Integrated various checkout & P2P payment flows in PayPal for compliance checks in real time.
- Integrated new systems like Venmo & Brain Tree payments with existing compliance check systems in PayPal.
- Incorporated build automation, continuous pipeline integration and deployment using Jenkins.
- Integrated different projects using Service Oriented Architecture (SOA).

Software Engineer,

**Subex Limited, Bengaluru, KA
(09/15/2010 – 07/26/2013)**

Project Description

As part of the Credit Risk Management team at Subex, I contributed significantly as a Senior Software Engineer on the roadmap team for Prevea, a leading credit risk management product tailored for telecom operators. Prevea is designed to help telecom companies effectively manage and mitigate credit risks, ensuring financial stability and reducing potential losses. This innovative solution is now deployed at several tier 1 and tier 2 telecom operators globally, demonstrating its effectiveness and reliability in the telecommunications industry.

Environment – Core Java, J2EE, Spring Core, Spring AOP, Spring Boot, Oracle 10g, MySQL, REST & SOAP, Apache Tomcat 7, Apache Camel, Apache Solr, Lucene, Elastic Search, Ruby on Rails, jQuery, Bootstrap, HTML & CSS, AJAX, Maven, Ant, Junit, Mockito, Jira, Linux OS, SVN

- Led Proof of Concept (POC) project to evaluate, identify and select emerging Technologies and tools for Portal, SOA and Business Process Modelling platform.
- Involved in design and development of product's multi-threaded and configurable workflow engine responsible for high volume data processing. It serves as a backbone of Prevea.
- Designed and implemented RESTful based workflow services as microservices that can be utilized by the other modules in the system.
- Modeled the time-based rules defined in the system as configurable REST based workflows.
- Introduced a multi-threaded Java feed processor in the system for faster processing of the incoming telecom record.
- Integrated with different XML feeds from multiple systems using Spring & Apache Camel as the main integration component.
- Created the MVP for a new user experience of Prevea from scratch both front- and back-ends. The server side was made with Java, Spring Boot, Spring Security, Spring data JPA with Hibernate, and MySQL. Front end was made with HTML, CSS, jQuery, AngularJS, AJAX.
- Introduced a new feature for handling crash recovery mechanism in the system-using checkpoint mechanism.
- Implemented open-source Apache SOLR a Lucene based search engine to search for a particular subscriber in the system.
- Implemented the persistence layer using Hibernate ORM and configured Hibernate with Spring to interact with the Oracle database.

- Designed and implemented email/SMS template framework for credit risk management.
- Designed & developed CRUD (create, read, update and delete) based GUI using Ruby on Rails framework.
- Responsible for checking cross browser compatibility and hence worked on different browsers like Mozilla Firefox, Google chrome, Safari and Internet Explorer.
- Implemented Fusion charts in the UI to show GUI components like graphs and charts in the application.
- Used AJAX extensively to implement front end /user interface features in the application.
- Performance and scalability improvement of the product by doing performance tuning & load testing of Prevea using Jconsole.
- Implemented different PL/SQL procedures used during the ETL processing step in the system.
- Preparation of technical specs using UML including technical design diagrams, class diagrams, sequence diagrams.
- Seamless integration of legacy fraud management system with credit risk management system which includes data and service integration.
- Implemented functional test framework in the entire product using Junit & Mockito.
- Designed & implemented a framework to generate subscriber reports using iText library.
- Created logical and physical data models putting into practice, concepts of normalization and RDBMS.
- Database development required creation of new tables, PL/SQL stored procedures, functions, views, indexes and constraints, triggers and required SQL tuning to reduce the response time in the application.
- Worked closely with pre-sales team of Subex Ltd. and implemented the prototype for a product and presented demo to Comcast.
- Extensively used J2EE Design Patterns and Architecture Design Patterns.
- Involved in unit testing, integration testing, & user acceptance testing of the product.

Software Engineer, QuEST Global Engineering Pvt. Ltd. (Exilant Technologies Pvt. Ltd.)
Bengaluru, KA
(08/24/2009 – 09/14/2010)

Project Description

As a Software Engineer at Exilant Technologies, I was part of the development team that provided crucial software solutions for Apple Inc. I contributed to the development and enhancement of Sonar, a business system used by Apple to manage and resolve customer requests and issues. Sonar is a vital tool for Apple's customer care operations, handling inquiries and problems received via email, fax, and phone. Our work ensured that Apple's customer support team could efficiently address and resolve customer concerns, maintaining the high standards of service expected by Apple customers worldwide.

Environment – Core Java, J2EE, Objective-C, Oracle 10g, MySQL, REST & SOAP, Apache Tomcat, WebLogic, jQuery, Bootstrap, HTML & CSS, AJAX, Maven, Junit, Mockito, Jira, Linux OS, SVN

- Analysis & documenting the requirements provided by the Apple Inc.
- Created Design documentation and technical Specification documentation from requirement analysis.
- Designed and implemented a module, which is responsible for sending canned response back to the customer when the request comes to Sonar using Objective-C.

- Design the User Interface screens by using JSP and use JavaScript functions, which are used to perform the client-side validations.
- Involved in Unit testing of application using JUnit and built the package using Ant and deployed the application on to WebLogic App Server.
- Analyzed & Implemented MVC framework technologies including Objective-C, Core-Java & Oracle for architecture of the product
- Developed the “Preferences window” for the product Sonar that saves the user configured preferences using Objective-C & Cocoa framework.
- Implemented the functionality, which helps an agent to involve his/her team members in the response (mail/phone/fax) sent to customer.
- Designed and implemented the new functionality of canned responses, where an agent can select pre-configured canned response(s) saved in database in the product.
- Developed the functionality using which a user can assign an issue to a mini team or an agent.
- Developed a functionality using bash scripting to send automated email follow up to the customer.
- Code re-factor of a main controller module and optimizing the code for better performance which is used to invoke downstream services.
- Focused on Test Driven Development by creating JUnit tests prior to writing functionality.
- Developed crontab jobs using bash shell & python scripts, which runs on specified time to find and updated the status of requests in the system.
- Implemented continuous integration pipeline in the product using continuous integration build tools – like maven & Hudson.
- Worked closely with QA team and fixed QA bugs as well as production issues with a quick turnaround time.
- Used Sonar & JaCoCo frameworks for code coverage and code quality of the product.
- Written Apple scripts to generate email template for the team when a agent tries to reply to customer’s email.
- Involved in creating and extracting data from database using SQL queries, PL/SQL Stored procedures, triggers, and packages in Oracle database.

Education: -

2015 Master of Science in Data Analytics as a Work Integrated Distance Learning Program
Birla Institute of Technology and Science
 8.9 CGPA

2009 Bachelor of Engineering in Computer Science
Government college of Engineering
 8.8 CGPA

Awards and Recognition: -

- Received 1 Impact, 5 Excellence & 2 Impact Awards and at Walmart for outstanding contributions in engineering, innovation, and team collaboration, reflecting consistent high performance and impact.
- Stood 1st in eBay Skunkworks a consumer E-Commerce Hackathon and received Honorable mention award from the SVP & CTO of eBay Inc.
- Stood 2nd in PayPal Disruptive Payments Hackathon in PayPal.
- Four spot awards for outstanding performance and awarded with Golden envelope award from the CEO of PayPal.
- Received “Pat on the Back Award” for driving a successful proof of concept that resulted in company winning a \$10 million deal from Director of Engineering in Subex Ltd.