

# Garage Management System - Technology Stack

## Introduction

This document outlines the technology stack and system architecture for the Garage Management System. It provides the components, technologies used, application characteristics, and the architectural layout with flowcharts.

## Components & Technologies

1. User Interface: HTML, CSS, JavaScript, React.js (Web), Flutter (Mobile)
2. Application Logic-1: Java Spring Boot for core logic
3. Application Logic-2: Python (AI/ML modules - Optional service tracking)
4. Application Logic-3: Chatbot using Dialogflow or IBM Watson Assistant
5. Database: MySQL for relational storage
6. Cloud Database: Firebase Realtime DB for mobile sync
7. File Storage: Firebase Storage / AWS S3
8. External API-1: Google Maps API for location
9. External API-2: SMS Gateway API (for OTP)
10. ML Model (Optional): Service delay prediction using Scikit-learn
11. Infrastructure: Hosted on AWS with EC2, Load Balancer, and S3

## Application Characteristics

1. Open-Source Frameworks: React.js, Spring Boot, Flutter
2. Security: JWT Tokens, HTTPS, SHA-256 for password hashing
3. Scalable Architecture: Microservices and 3-tier architecture
4. Availability: AWS Load Balancer, Auto-scaling groups
5. Performance: Redis Caching, Cloud CDN for frontend assets

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## System Architecture Diagram

### Garage Management System Architecture

