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Dharmavarapu Karthik
Developer (Java)

HackerRank　　LeetCode　　Google Cloud　　aws

SUMMARY

Full Stack Developer with expertise in building scalable **microservices architectures** and optimizing performance through advanced **data structures and algorithms**. Skilled in both **frontend** and **backend development**, leveraging technologies such as **React**, **Spring Boot**, **Redis**, and **Google Cloud** Run to build high-performance applications. Experienced in designing modular **microservices** for seamless data handling and real-time user interaction.

SKILLS

- **Programming Languages:** Java
- **Frontend Technologies:** React, HTML5, CSS3, Redux, Material-UI
- **Backend Technologies:** Spring Boot, RESTful APIs, Maven
- **Databases:** MySQL, MongoDB
- **Data Structures and Algorithms (DSA):** Hash Maps, Arrays and Linked Lists, Graphs and Graph Traversal (BFS/DFS), Priority Queues and Heaps, Tries and Inverted Indexes, Caching Strategies (LRU Cache, Redis), Sorting and Pagination Algorithms, Load Balancing Algorithms
- **Cloud Services:** AWS (EC2, S3, RDS, SES), Google Authentication
- **Libraries/Frameworks:** Hibernate, JPA, Spring Data JPA/MongoDB, Spring Security, Lombok
- **API Tools:** Swagger, Axios, Fetch API
- **Version Control:** Git, GitHub
- **Problem Solving:** LeetCode, HackerRank

PROJECTS

MICROTWEET – SCALABLE SOCIAL PLATFORM WITH MICROSERVICES ARCHITECTURE

Technologies Used : React, Spring Boot, Redis, Google Cloud Run, Data Structures & Algorithms

Developed a microservices-based social media platform with high-performance functionality across user profiles, tweet handling, relationship management, and search capabilities. Each feature was implemented as a standalone microservice, deployed on Google Cloud Run for scalability and real-time data processing.

Project 1: User Profiles and Authentication Microservice

- **Frontend (React)**: Managed user authentication with Hash Maps for efficient form state handling; implemented Form Validation Algorithms (e.g., regex) for secure input validation.
- **Backend (Spring Boot)**: Used BCrypt hashing for secure password encryption and Hash Maps to store user sessions and tokens, ensuring fast authentication and session management.

Project 2: Tweet Posting and Retrieval Microservice

- **Frontend (React):** Employed Arrays for dynamic tweet storage and applied Sorting Algorithms to display tweets by timestamp, prioritizing the latest tweets.
- **Backend (Spring Boot):** Utilized B-Trees for efficient tweet indexing and storage, with Linked Lists maintaining tweet order in memory. Implemented Pagination Algorithms for smooth data retrieval in batches.

Project 3: Following System Microservice

- **Frontend (React):** Represented user relationships as Graph Data Structures (adjacency list) and optimized API calls with Debounce/Throttling Algorithms for follow/unfollow actions.
- **Backend (Spring Boot):** Modeled relationships as a Graph (Adjacency List) and used Hash Maps for caching, enhancing follow suggestion efficiency. Employed Graph Traversal Algorithms (BFS/DFS) to suggest mutual followers.

Project 4: Timeline Feed Generation Microservice

- **Frontend (React):** Managed feed sorting using Priority Queues for timestamp prioritization and implemented Merge Sort to merge multiple tweet lists from followed users.
- **Backend (Spring Boot):** Utilized Priority Queues/Heaps for sorting and Merge Sort algorithms for feed unification. Applied Redis caching for optimized feed retrieval and response times.

Project 5: Hashtags and Search Functionality Microservice

- **Frontend (React):** Developed hashtag autocomplete with a Trie Data Structure for efficient prefix matching; utilized an Inverted Index for local search.
- **Backend (Spring Boot):** Leveraged Tries for hashtag storage and Inverted Index for keyword-to-tweet mapping, optimizing backend search performance.

Project 6: Integration, Review, and Cloud Deployment

- **Frontend (React):** Integrated Sets for tracking active users and applied LRU Cache for frequently accessed UI components.
- **Backend (Spring Boot):** Used Sets for active session tracking, implemented LRU Cache with Redis for high-demand data, and configured Load Balancing Algorithms on Google Cloud Run for request distribution across services.

ADDITIONAL PROJECTS

OTT PLATFORM   🔗 Project Link   ⬤ Github Repo   ⬤ Github Repo

Technologies Used	React, Redux, Material-UI, TMDB API, HTML, CSS, SpringBoot, Restful APIs, MongoDB, MySql, Axios, Swagger, Postman, Maven

Developed a dynamic OTT platform with TMDB API integration to provide up-to-date movie data. Created a responsive, user-friendly frontend using React, displaying movie information like titles, genres, release dates, and ratings. Implemented Redux for efficient state management, enhancing the app's scalability and performance.

WEATHER APP   🔗 Project Link   ⬤ Github Repo   ⬤ Github Repo

Technologies Used	React, Redux, Material-UI, Weather API, HTML, CSS, SpringBoot, MongoDB, MySql, Axios.

Built a real-time weather application with a responsive frontend using React, integrating a weather API for live data (temperature, humidity, etc.) worldwide. Enabled users to search locations and instantly view current weather updates, with a focus on smooth user experience and efficient API handling.

KEY CONTRIBUTIONS

- **Optimized Performance**: Enhanced application speed and efficiency by implementing data structures and algorithms, including Hash Maps, Arrays, Linked Lists, Graphs, Priority Queues, Tries, and various caching mechanisms.
- **Scalable Architecture**: Designed a modular microservices structure deployed on Google Cloud Run, enabling real-time data processing and efficient request management across distributed services.

CERTIFICATIONS

Program Completion Certification   🔗 Certificate   𝕏 ACADEMIX

Frontend Developer Certificate   🔗 Certificate   ⬡ HackerRank

Java Certificate   🔗 Certificate   ⬡ HackerRank

Salesforce Developer Virtual Internship   🔗 Certificate   Smart Internz

AWARDS & ACHIEVEMENTS

Java Gold Badge   🔗 Certificate   ⬡ HackerRank

EDUCATION

B-Tech - CSE(Computer Science and Engineering) - 2024 - 7.97%
Jawaharlal Nehru Technological University Kakinada.