

# Muhammad Safdar

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## OBJECTIVE

Aspiring to contribute my expertise in C++, JavaScript, Python, and database management to backend development, focusing on building scalable MERN/PERN web applications, optimizing performance, and solving real-world challenges.

## EDUCATION

<b>BSc (Computer Science)</b> FAST University	CGPA: 3.55/4.0	Aug 2022 - Present Karachi, Pakistan
<b>A-Levels (Engineering)</b> Beaconhouse School System	Grades: 2A*, 1A	Aug 2020 - Aug 2022 Karachi, Pakistan

## WORK EXPERIENCE

<b>Backend Developer</b>	<b>Freelance</b>	<b>2025 - Present</b>
<ul style="list-style-type: none"><li>Developed the backend for <b>Rezq</b>, a restaurant reservation platform, using <b>FastAPI</b> for scalable performance and efficient request handling.</li><li>Designed and optimized <b>PostgreSQL</b> queries, improving response times and ensuring data integrity.</li><li>Implemented authentication and authorization using <b>JWT</b> and OAuth for secure user access.</li><li>Developed RESTful APIs and integrated third-party services.</li></ul>		
<b>Graphic Designer</b>	<b>Freelance</b>	<b>2022 - 2024</b>
<ul style="list-style-type: none"><li>Designed visually compelling logos and marketing posters using <b>Adobe Illustrator</b>, strengthening brand identities.</li><li>Created social media graphics that increased audience engagement, demonstrating an understanding of digital marketing trends.</li><li>Managed client communications to gather requirements, provide feedback, and deliver projects on time, improving client satisfaction and project efficiency.</li></ul>		

## PROJECTS

<b>GearUp - Vehicle Rental And Selling Platform</b>	PERN Stack
<ul style="list-style-type: none"><li>Developed a full-stack web application with <b>PostgreSQL</b>, <b>Express.js</b>, <b>React</b>, and <b>Node.js</b>.</li><li>Implemented role-based access control for users and admins, ensuring data security.</li><li>Integrated <b>Socket.io</b> for real-time chat and notifications.</li><li>Optimized database queries to enhance system scalability and reduced API response time.</li></ul>	
<b>Crowd Estimation Using CSRNet</b>	Deep Learning
<ul style="list-style-type: none"><li>Developed a deep learning model for crowd estimation using <b>CSRNet</b>.</li><li>Trained the model on the <b>ShanghaiTech dataset</b> for high-density and low-density crowd estimation.</li><li>Evaluated model performance using <b>MAE</b> and <b>MSE</b> metrics to measure accuracy and penalize large deviations in predictions, ensuring robust crowd estimation.</li></ul>	
<b>Algorithm Visualization - Closest Pair of Points and Karatsuba Multiplication</b>	Python
<ul style="list-style-type: none"><li>Implemented and visualized the <b>Closest Pair of Points</b> algorithm using a divide-and-conquer approach for finding the shortest distance in a set of 2D points.</li><li>Developed an GUI using <b>Tkinter</b>, <b>Matplotlib</b>, and <b>NetworkX</b> to display step-by-step execution of the algorithms.</li><li>Designed a real-time animation for the <b>Karatsuba Multiplication Algorithm</b>, showcasing its recursive approach to multiplying large numbers efficiently.</li></ul>	
<b>Inventory Management System</b>	C++
<ul style="list-style-type: none"><li>Designed an efficient inventory management system using <b>AVL trees</b> and <b>hashing</b>.</li><li>Implemented functionalities for product addition, deletion, and real-time stock updates.</li><li>Improved search efficiency by utilizing data structures for optimized lookups.</li></ul>	

## TECHNICAL SKILLS

**Programming:** C++, JavaScript, Python  
**Backend:** Node.js, Express.js, FastAPI, RESTful APIs  
**Frontend:** React, Material UI, Tailwind CSS  
**Databases:** PostgreSQL, MongoDB  
**Tools:** Git, Postman, Swagger UI  
**Soft Skills:** Problem-solving, Team Collaboration, Agile Development