**Akshaj Alva: Knowledge Base**

**About Me**

I am Akshaj Alva. I believe intent is key to problem-solving, as it guides the approach to finding the best solution. I want to make people’s lives easier by building things they can use.

**Education**

* **Degree:** Bachelor of Engineering in Electronics and Communication
* **Institution:** NMAM Institute of Technology, Nitte
* **Year of Graduation:** 2020
* **Year of Admission:** 2016

**Work Experience**

#### **Accenture**

**Role**: Associate Development Analyst – Salesforce Developer  
**Duration**: February 2021 – June 2023  
**Location**: Bengaluru, India

**Responsibilities**:

* Developed and implemented custom features in Salesforce, enhancing application functionality and user experience for clients.
* Leveraged Salesforce administration expertise to implement automated workflows and flows, optimizing business processes and improving user efficiency.
* Created and maintained comprehensive dashboards and reports, providing actionable insights to stakeholders and enhancing decision-making processes.
* Conducted data cleansing, analysis, manipulation, and loading into applications to ensure data accuracy and integrity.
* Managed deployment processes for a team of 6 developers, utilizing Git for version control and Jenkins for continuous integration and delivery.
* Delivered client presentations, effectively communicating technical concepts and demonstrating new functionalities to non-technical stakeholders.

**Skills**

* **Programming**: Proficient in Python and SQL, enabling efficient data manipulation, querying, and processing.
* **Data Science**: Hands-on experience with data preprocessing, exploration, and analysis using libraries such as Pandas and NumPy. Skilled in cleaning, transforming, and preparing data for analysis or modeling.
* **Machine Learning**: Knowledge of building and evaluating models for regression and classification tasks. Familiar with Natural Language Processing (NLP) basics, including text preprocessing and feature extraction.
* **Data Workflow and Tools**:
* Experienced in understanding data patterns, deriving insights, and implementing data-driven solutions.
* Worked with Scikit-learn for feature engineering, model training, and evaluation.
* Familiar with LangChain and FAISS for information retrieval and embedding-based workflows.
* **Salesforce**:
* Proficient in Salesforce administration, including creating automated workflows, managing data, and optimizing business processes.
* Knowledge of Salesforce development basics, including building and deploying custom solutions to enhance user experience.
* **Platforms and Frameworks**: Proficient in working with Salesforce, Github, Git.
* **Soft Skills**: Strong problem-solving abilities, analytical thinking, and effective teamwork for collaborative projects.

**Career Gap**

In the final year of my work at Accenture, I realized that my interests lay in a different field—specifically, the sports industry. I wanted to leverage the skills and experience that I had from working in events during my college days to events that resonated with my passions. To explore this interest, I took a career break and actively pursued opportunities in the sports industry.

During this time, I volunteered at various local sports events, such as surfing competitions, triathlons, marathons, ocean swimming events, and beach festivals. I gained hands-on experience in organizing and managing these events and thoroughly enjoyed the process. Additionally, I networked extensively, gave multiple interviews, and even cleared the FIFA Agent exam to better understand the sports industry landscape and explore different options.

As part of my exploration, I came across a PhD opportunity from a university, the project aimed at measuring the social impact of having a football club within a community. This project introduced me to the fascinating application of data science, combining quantitative and qualitative data to draw meaningful conclusions. The idea of leveraging statistical techniques to analyze and measure social impact was interesting, as I have always had an interest in statistics and numbers.

While I was intrigued by the sports industry, I recognized the volatility of the market also the time the industry needed for growth. So, there was a need to gain a technical skill that I liked to further my career aspirations. Data science emerged as a compelling choice for me because it combined my love for mathematics with practical applications across diverse industries, including sports. Though I initially didn’t enjoy coding, I realized it could be a powerful tool to implement and build ideas.

Since April 2024, I have been focused on developing my data science skills through self-learning and courses. I started with programming fundamentals, machine learning basics, and project-building to gain practical experience. Over time, I have progressed to learning deep learning techniques and building meaningful projects in natural language processing (NLP).

This journey has been transformative, equipping me with a versatile technical skill set that I can now use to solve real-world problems across industries, including my original interest in sports.

**Personal Interests**

I have always been deeply passionate about sports, both as a participant and as someone who appreciates their impact on individuals and communities. During my career gap, I explored this passion in various ways. Inspired by witnessing runners at an event I volunteered for, I took up running myself. It became more than just an activity, it was a journey of self-discovery, where I documented my experiences and reflections on how running mirrors life in my personal blog.

In addition to running, I delved into other sports like boxing and MMA, which further deepened my appreciation for the discipline and dedication required in athletics.

My interests also extend to volunteering and organizing sports events. I’ve contributed to marathons, triathlons, ocean swims, beach festivals, and surfing competitions, gaining hands-on experience in event management and connecting with the vibrant sports community.

Sports are not just a hobby for me; they represent a way to learn, grow, and contribute meaningfully to the world around me

# Projects:

## House Price Prediction:

* + **Objective**: Built a predictive model to estimate house prices based on various features like location, square footage, number of bedrooms, and other property attributes.
  + Conducted exploratory data analysis (EDA) to identify trends, correlations, and data distributions.
  + Applied feature engineering techniques, including handling missing values, encoding categorical variables, and scaling numerical features.
  + Implemented multiple machine learning models, such as Linear Regression, Random Forest, and Gradient Boosting Machines, and fine-tuned them using hyperparameter optimization.
  + Used cross-validation for model evaluation and assessed performance using metrics like RMSE (Root Mean Squared Error) and R-squared.
  + Outcome: Achieved an improved model with r2 score of 0.9063 and gained valuable insights into the relationship between different features and house pricing.
  + Tools: Python, Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn, Jupyter Notebook, VS Code, Git.

## Cubic Zirconia Price Prediction

* + Objective: This project focuses on predicting the price of cubic zirconia stones based on various physical and geometric features. The dataset includes attributes such as carat, depth percentage, table percentage, and price, among others. The goal is to build a machine learning model that accurately predicts the price of cubic zirconia stones and provides insights into the relationships between these features.
  + Performed exploratory data analysis (EDA) to identify trends, correlations, and data distributions, followed by feature engineering techniques including handling missing values, encoding categorical variables, and scaling numerical features to prepare the data for modeling.
  + Implemented multiple machine learning models, such as Linear Regression, Random Forest, and Gradient Boosting Machines
  + Achieved an XGBoost model with an r2 score of 0.9802.

**Interactive AI Chatbot for Personal Portfolio**

**Description:**  
I have developed an interactive AI-powered chatbot that enhances the user experience on my personal portfolio website. The chatbot is designed to answer queries about my professional background, skills, work experience, projects, and interests. It uses a combination of advanced natural language processing (NLP) and retrieval-augmented generation (RAG) to provide accurate and context-aware responses.

**Key Features:**

* **Context-Aware Responses:** The chatbot strictly responds to questions based on the predefined knowledge base, ensuring accurate and relevant answers.
* **Knowledge Base Integration:** It uses a custom knowledge base that includes information about my professional journey, skills, career gap, and aspirations.
* **Dynamic Interaction:** The chatbot enables users to interact seamlessly with my portfolio, creating a more engaging user experience.
* **Retrieval-Augmented Generation (RAG):** The chatbot leverages a FAISS-based vector store and embeddings from sentence-transformers to retrieve relevant context before generating responses.
* **Customizable Design:** It is integrated into the website with a user-friendly interface, styled to align with the portfolio's aesthetics.

**Technical Highlights:**

* **Backend Technology:** The chatbot backend is built using FastAPI, ensuring a fast and reliable API for handling user queries.
* **AI Model:** Utilizes the Ollama LLM (llama3.2) for generating responses.
* **Vector Store:** Powered by FAISS (Facebook AI Similarity Search) to manage and query embeddings effectively.
* **Deployment:** Hosted on Render, providing a scalable and secure environment to serve the chatbot.
* **Frontend Integration:** The chatbot seamlessly integrates with my GitHub Pages-hosted portfolio, allowing real-time interaction with visitors.