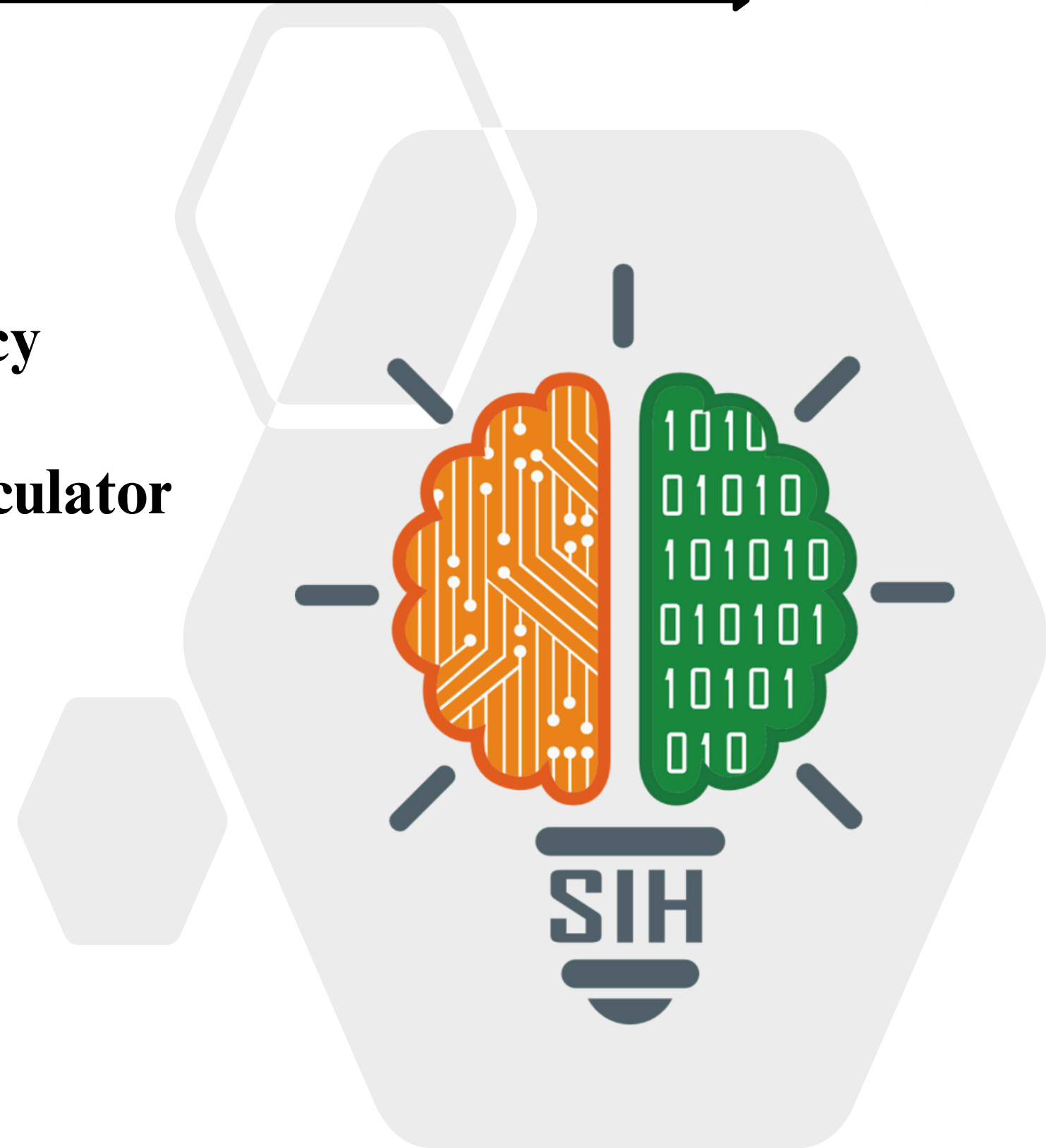


- **Problem Statement ID – 1628**
- **Problem Statement Title - Smart Competency Diagnostic and Candidate Profile Score Calculator**
- **Theme - Smart Education**
- **PS Category - Software**
- **Team ID - 1251**
- **Team Name – Chaos Coders**



Comprehensive Solution

- Personalized job recommendations based on candidate skills and job skills similarity percentage using cosine similarity.
- Targeted training for each interview round with recommended short courses and relevant tests.
- Skill gap analysis computed using Large Language Model (LLM).
- Course suggestions based on missing skill sets to bridge the gap, leveraging LLM and similarity scores.
- Community forum connecting job seekers, recruiters, and educators for a strong support network.
- Data analytics for future skill requirement predictions.
- Organization of virtual events, workshops, and webinars focused on employment and career development, including sessions for individuals with special needs.
- Badges and certifications for candidates to display on profiles and share on social media platforms like LinkedIn.
- Real-time dashboard displaying trending jobs, in-demand skills, and salary benchmarks.
- Adaptive learning pathways for personalized career and skill development.

Problem Addressed

Current employment platforms lack personalized and adaptive job matching and skill development. Our solution aims to revolutionize the job-seeking process by offering AI-driven job recommendations, skill gap analysis, and tailored training pathways, empowering candidates to become highly competitive in the evolving job market.

Innovative Approach

- Report feedback based on Transcription for interviews using a third part website conducted on our platform.
- Mock interview preparation using TTS, STT and Cohere (a LLM model).
- Train the candidate for each round of the interview by recommending courses and providing tests.
- Event Management system - Calendar Schedule system.
- Resume based skill extraction for better accessibility.
- AI driven coach/ chatbot for personal assistance.
- Certificate Validation using tesseract and web scraping

PROGRAMMING LANGUAGES

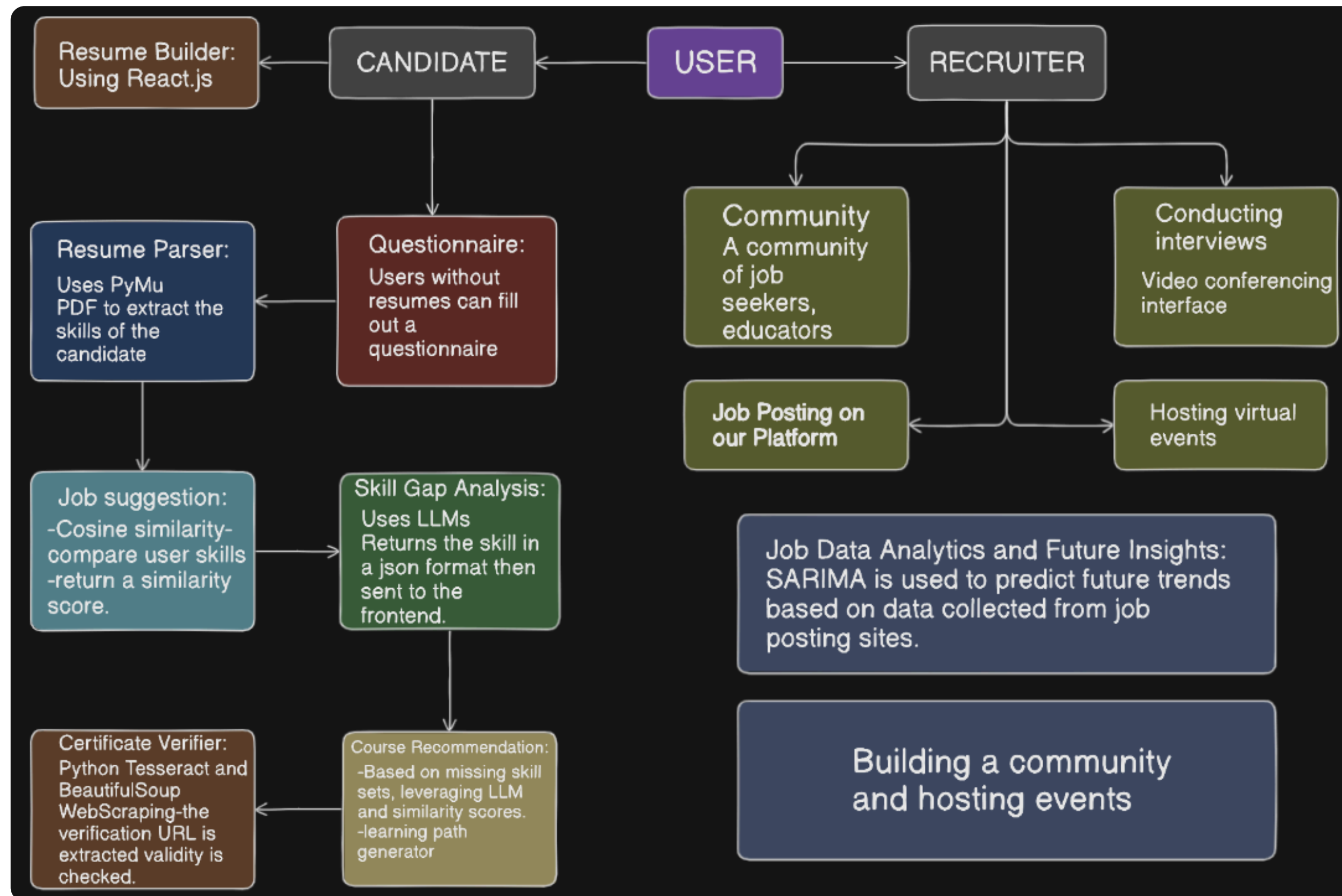
1. Python, JavaScript, MongoDB
2. Frameworks & Libraries: Scikit-learn, Tesseract, React.js, Express.js, Tailwind css
3. Data Handling: Pandas, NumPy
4. Other: BeautifulSoup, NLTK.
5. Machine Learning : Cosine similarity, lemmitization, regex

Check out our flow:

<https://app.eraser.io/workspace/MoYM3Yt0WTa7EBro5x4y>

Working Model Demo:

<https://youtu.be/0pYzMrELzqk?si=-ueuK4jhSiEW-kU>



- **Unique Offerings:** We combine job recommendations with AI-driven skill gap analysis and course recommendations, offering a comprehensive solution our competitors lack.
- **All-in-One Platform:** Our platform offers everything a candidate needs to improve their skills and land a job.
- **Job & Course Recommendations:** Provides personalized suggestions for jobs and training based on AI insights.
- **AI-Based Mock Interviews:** Simulates real interview scenarios to prepare candidates.
- **AI-Powered Interview Feedback:** Delivers detailed reports after interview calls to help users improve.
- **Comprehensive Interview Preparation:** Trains and tests candidates for all interview stages to ensure readiness.
- **Future Job Insights:** Offers valuable predictions and trends for future job markets.
- **Event Management:** Enables scheduling and managing events to help candidates stay on track.
- **Community Support:** Fosters a strong network for advice, mentorship, and peer-to-peer learning.

Potential challenges and risks :

- **Data Privacy:** User Data Privacy can be a huge problem thus we will use end-to-end encryption and avoid taking sensitive data unless absolutely necessary.
- **Recommendation Bias:** These AI models often make biased decisions for their training data and hence can give biased recommendations regarding job opportunities or course choices.

Strategies for overcoming these challenges :

- **Differentiating from Competitors:** We'll stand out by offering unique features like personalized learning paths, certification badges, and special support for diverse user needs, including those with special requirements.
- **Seamless Tech Integration:** We'll focus on thorough testing and clear design to ensure all the technologies work together smoothly, creating a reliable and intuitive user experience.

Potential Impact on the Target Audience

- **Personalized Job Recommendations:** Tailors job suggestions based on user skills and interests.
- **Skill Gap Analysis:** Identifies missing skills needed for desired roles.
- **Tailored Training Courses:** Provides relevant training programs to bridge skill gaps.
- **Increased Employability:** Equips users with the right skills, enhancing their attractiveness to employers.
- **Improved Job Matching:** Increases chances of securing desired roles through targeted preparation.
- **Adaptive Learning Pathways:** Offers personalized learning journeys based on user progress and goals.
- **Targeted Training Recommendations:** Suggests specific courses aligned with career objectives.
- **Career Development Control:** Empowers users to actively manage and direct their learning.
- **Accessible Upskilling:** Simplifies the process of acquiring new skills and knowledge.
- **Manageable Growth:** Breaks down skill development into achievable steps, making upskilling easier.

Inclusive Support:

- **Virtual Events:** Hosts online events to connect users with peers.
- **Community Forums:** Provides a space for discussions, advice, and peer support.

Benefits of the Solution

- **Building a Supportive Network:** Our platform creates a close-knit community where job seekers, recruiters, and educators can connect and grow together.
- **Opportunities for Mentorship:** Users can find mentors and peers who provide guidance, support, and encouragement throughout their career journeys.
- **Shared Experiences:** Job seekers can exchange stories and advice, making the job search process less isolating and more collaborative.
- **Lifelong Learning Culture:** We promote a mindset of continuous learning and improvement, helping people stay competitive and prepared for the future.
- **Reducing Unemployment:** By connecting people with the right opportunities and resources, we contribute to a stronger, more skilled workforce that can help reduce unemployment rates.

- <https://www.kaggle.com/datasets/ravindrasinghrana/job-description-dataset>
- <https://www.kaggle.com/datasets/aloktantrik/dataset-of-1200-coursera-courses>
- A. R. Lahitani, A. E. Permanasari and N. A. Setiawan, "Cosine similarity to determine similarity measur [Link](#)
- M. Alodadi and V. P. Janeja, "Similarity in Patient Support Forums Using TF-IDF and Cosine Similarity Metrics," [Link](#)
- A. E. Permanasari, I. Hidayah and I. A. Bustoni, "SARIMA (Seasonal ARIMA) implementation on time series to forecast the number of Malaria incidence [Link](#)



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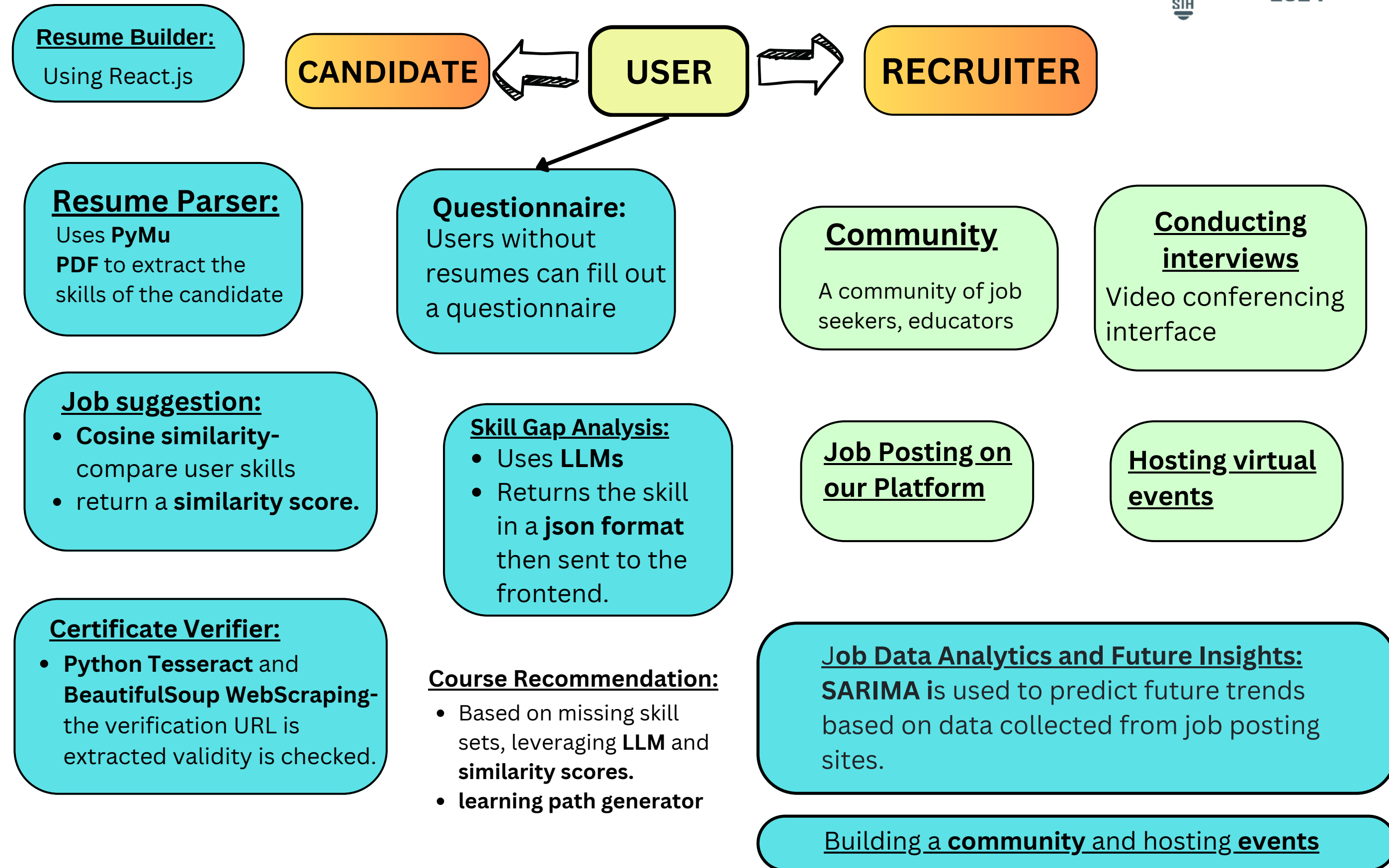
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- **Two user interfaces:** One for the recruiter and one for the candidate
- **Job recommendation :** Jobs are recommended using **Cosine Similarity** where we compare the skills of the user with the skills of the job and returns a **similarity score** and in the filters the job based on the location of the user.
- **Skill gap analysis:**
- **Course recommendations:** It is done based on missing skill sets to bridge the gap, leveraging LLM and similarity scores.
- **Job Data Analytics and future prediction insights:** It does prediction using the SARIMA model and deploys it using **React** and **Flask**. We worked on the data received from various job posting sights about the number of jobs posted in each industry, fed the data in the model and used the **SARIMA (Seasonal Autoregressive Integrated Moving Average)** algorithm to predict the future trend of the job postings in each category.
- **Certificate Verifier:** All the certificates which the user uploads after the completion of the course are verified by our model which is made using **Python Tesseract** and **BeautifulSoup Web-Scraping**. The model scans the verification URL which is printed on each certificate and uses WebScraping to check if the URL exists and the certificate is valid.
- **Community forum** connecting job seekers, recruiters, and educators for a strong support network.
- **Organization of virtual events,** workshops, and webinars focused on employment and career development, including sessions for individuals with special needs.
- **Badges and certifications** for candidates to display on profiles and share on social media platforms like LinkedIn.
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TECHNICAL APPROACH



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Event Management: Enables scheduling and managing events to help candidates stay on track.

Comprehensive Interview Preparation: Trains and tests candidates for all interview stages to ensure readiness.

Community Support: Fosters a strong network for advice, mentorship, and peer-to-peer learning.

Future Job Insights: Offers valuable predictions and trends for future job markets.

Potential challenges and risks :

- **Competition:** Not standing out from the crowd will not be easy, since there have been a number of job-offering platforms.
- It can be very demanding to seamlessly integrate technologies into an easy-to-use platform.
- **Recommendation Bias:** These AI models often make biased decisions for their training data and hence can give biased recommendations regarding job opportunities or course choices.

Strategies for overcoming these challenges

- **Differentiating from Competitors:** We'll stand out by offering unique features like personalized learning paths, certification badges, and special support for diverse user needs, including those with special requirements.
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Inclusive Support:

- **Virtual Events:** Hosts online events to connect users with peers.
- **Community Forums:** Provides a space for discussions, advice, and peer support.
- **Inclusive Environment:** Ensures everyone has access to opportunities and support suited to their needs.
- **Unique Opportunities:** Delivers resources and events designed for diverse user situations.

