



THE/NUDGE
INSTITUTE

∞ Meta

Pragati

AI for Impact Hackathon

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HACK2SKILL

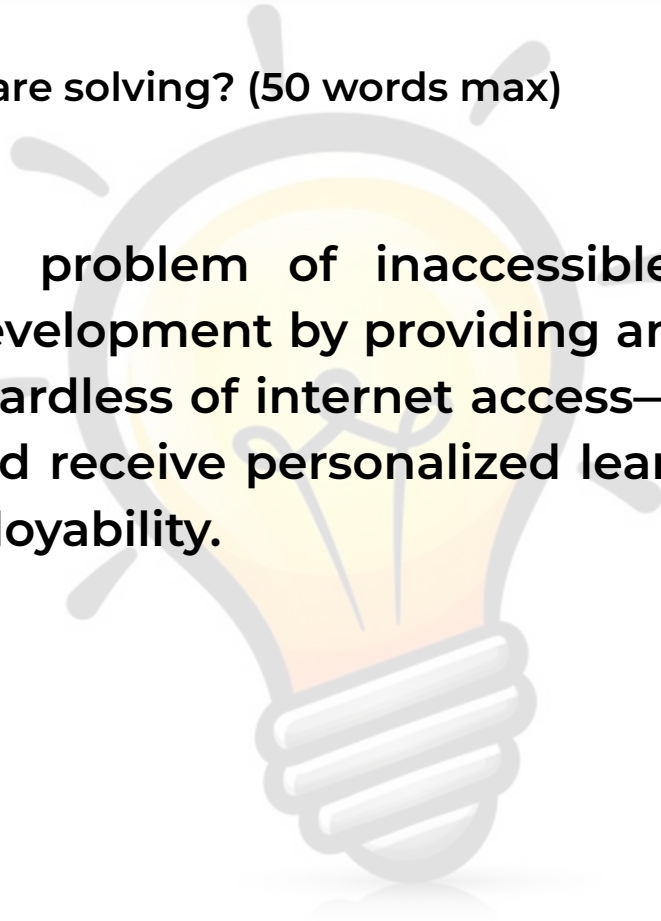
Team Name : 404

Team Leader Name : Chaitanya Patange

Which domain does your idea address?: **Skilling**

What is the problem you are solving? (50 words max)

We are solving the problem of inaccessible and inefficient job matching and skill development by providing an AI-powered platform that helps users—regardless of internet access—identify suitable jobs, analyze skill gaps, and receive personalized learning and certification to improve their employability.



Describe your solution. How different is it from any of the other existing ideas? How will it be able to solve the problem? USP of the proposed solution? What is the intended impact of your solution (max 350 words).

Our solution is an inclusive, AI-powered platform that helps users find their desired jobs, identify skill gaps, and upskill through personalized crash courses and certification. It is accessible via a website, mobile app, and even voice/SMS—ensuring that users with little or no internet access can still be benefited.

How It Works:

- The user uploads their resume and desired job description through the app, website, or SMS/MMS.
- Our AI analyzes the resume and extracts both technical and soft skills.
- It compares the user's profile with current job market requirements or their dream job based on the Job Description, then:
 - Suggests relevant job opportunities
 - Identifies skills the user already has
 - Highlights skill gaps that need to be filled

The **mobile app** supports both **online and offline use**. Users can download an offline AI model to analyze resumes which runs without internet connectivity.

For the skills required by the company, users are guided to a second platform that offers:

- **AI-generated crash** courses tailored to their specific needs
- An AI-generated exam at the end of each course
- A certificate of completion, boosting their resume and job prospects

How It's Different:

Unlike most job platforms that require internet access and only suggest jobs, our platform:

- Works even offline or via SMS/voice
- Uses AI to personalize upskilling content and certification
- Offers end-to-end support: from identifying gaps to filling them

USP (Unique Selling Proposition):

- Accessibility-first: Works for people with limited internet or digital literacy
- AI personalization: Tailored courses and exams, not one-size-fits-all
- Low-bandwidth design: Ideal for remote and rural areas

Intended Impact: Our goal is to enable job access and skill development through a smart, low-bandwidth, and personalized platform—helping users to achieve their dream jobs.

Who is the primary user of your solution, and explain how your solution will leverage open-source AI to address the aspects mentioned in the [Key Design Guidelines](#) (max 200 words).

Primary User:

Our solution targets job seekers who often face barriers like limited internet access, basic devices, low digital literacy, and economic constraints. Many are first-time tech users or rely on shared or feature phones.

How We Leverage Open-Source AI:

We use lightweight **open-source AI models** (e.g., ONNX, TFLite) for **offline resume parsing and skill gap analysis** on low-end mobile devices, ensuring connectivity resilience. AI-generated personalized crash courses and assessments are hosted online in regional languages, addressing language and trust issues.

To tackle **resource limitations**, we use **open AI Modals** and community-contributed content to generate learning material. Our voice/ SMS interface extends AI access to users without smartphones or internet, ensuring technical inclusivity.

Key Design Guidelines

Technical Realities

- **Connectivity:** Only ~1MB of data needed to upload resume or skills info.
- **Devices:**
 - **Smartphones:** Mobile Application (Android/ IOS)
 - **Feature Phones:** Call/SMS support with no internet needed.
 - Laptops and Desktops: can use the Website.
- **Power Reliability:**
 - **Lightweight:** Lightweight Applications can run easily on Mobile.
 - **Cloud Service:** Can be Hosted on the cloud for 24/7 availability.

User Context

- **Digital literacy:** Minimum requirement is to know how to send an SMS/ Voice call
- **Language:** Basic english to initiate chat and regional language knowledge
- **Trust:** Only skills are processed—no data is stored; analysis is done via Meta AI.

Ethical Consideration

- **Data Privacy and Security:** Only essential data is processed; nothing is stored, and the app uses offline models.
- **Transparency:** AI results are clearly explained in simple language.
- **Bias Mitigation:** Ignores gender, region, and background to ensure fair recommendations.
- **Sustainability:** Open-source, low-cost, and built for long-term community use.

Resource Limitations

- **Economic:** Since its mostly AI generated work it can be charged negligibly or can use offline model.
- **Data:** Leveraging open AI models removes our dependencies on datasets.
- **Expertise:** The platform requires low maintenance and designed for community-based deployment.

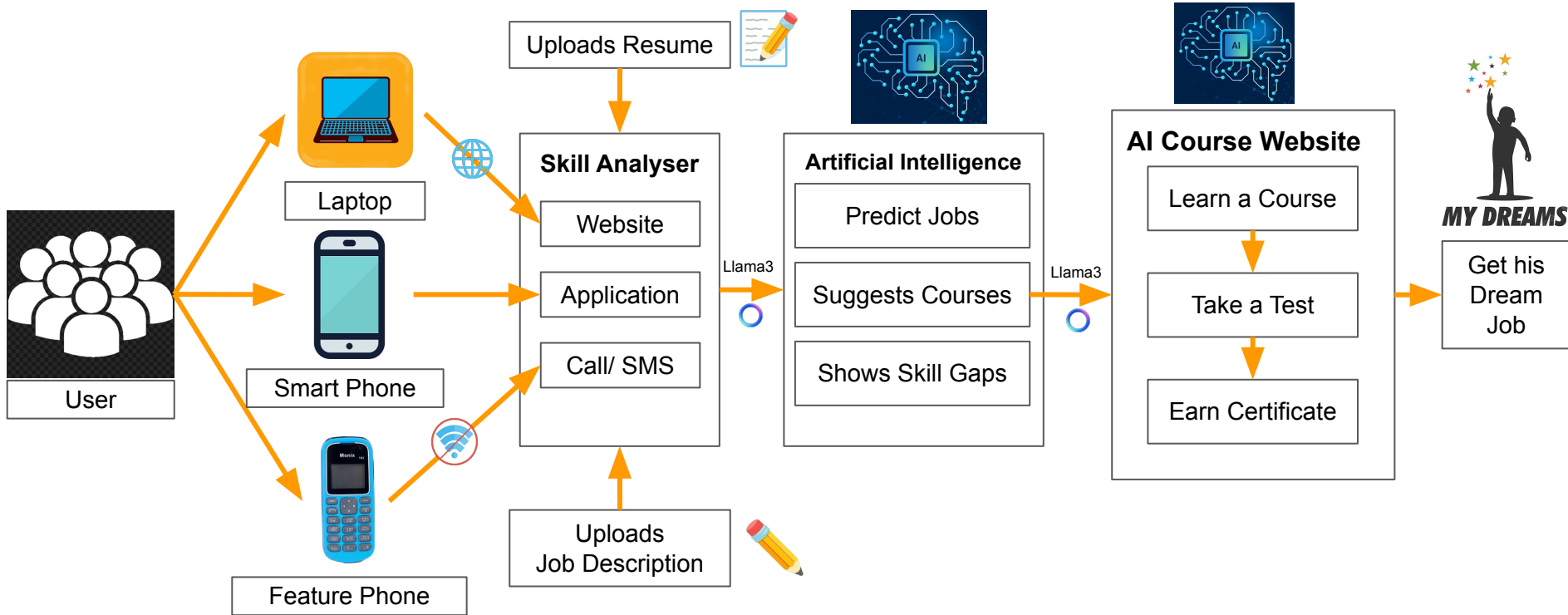
How is this solution scalable? (100 words max)

Our solution is **highly scalable** due to its :

- Uses **open-source AI models**, reducing licensing costs and enabling customization.
- **Modular microservices** allow independent updates, deployment, and scaling.
- **Offline mobile AI** reduces backend dependency, enabling usage at scale even in remote areas.
- **SMS and voice access** work on feature phones, scaling reach in low-connectivity regions.
- **Lightweight data usage (~1MB per resume)** ensures efficiency over slow networks.
- Supports **regional language integration** for localized deployment.
- **Lightweight Models** can be used for faster inference and lower resource usage.
- **APIs are stateless**, making it easier to distribute load across servers.
- Can integrate with **job boards and government employment portals** via APIs.
- Designed to be **deployed in multiple regions** with minimal changes.
- **Open-source nature** encourages contributions and local community adaptations.
- **Certificate generation and crash course content** are dynamically AI-generated, allowing infinite scaling without manual input.

List of features offered by the solution

It is always better to add a few visual representations (drawings/sketches/illustrations etc.) to your presentation, it adds to the power through which it reaches the audience.



What open-source AI tools and technologies will you use to design the solution?
(Please list all.)

Resume Parsing: pdfplumber library from Python

Job Matching & Market Trend Analysis: Llama-3.3-70B-Instruct by Meta

AI-Generated Courses & Exams: Llama-3.3-70B-Instruct by Meta

Mobile Offline AI: Llama 3.2: 1B & 3B (Lightweight)

Voice/SMS Integration: Twilio

Frontend & Backend Stack: React Native, Flask

Why are these open-source technologies the most appropriate for your solution? (150 words max)

These open-source technologies are ideal for our solution because they offer flexibility, scalability, and cost-efficiency—key for building an accessible platform.

1. **pdfplumber** enable fast, accurate resume parsing and skill extraction with minimal training.
2. **ONNX Runtime** and **TensorFlow Lite** allow us to deploy lightweight AI models on mobile devices, supporting offline functionality crucial for low-connectivity users.
3. **Llama-3.3-70B-Instruct** by Meta help generate personalized courses and exams dynamically.
4. **Twilio** support inclusive communication via SMS and voice, reaching users without smartphones.
5. **React Native** enables us to reach more audience with just a single codebase #cross platform.
6. **Flask** gives a one stop solution to integrate AI with backend.

These tools are **well-documented**, **community-supported**, and **modular**, making integration and scaling easier. Together, they form a powerful, cost-effective, and adaptable tech stack.

Describe the Solutions Architecture (500 words)

Our platform is designed with a modular, scalable, and inclusive architecture to support job seekers across different connectivity levels. The system consists of three core interfaces—**Web App, Mobile App, and Voice/ SMS System**—which connect to a backend powered by **open-source AI models** and microservices. Here's how it all fits together:

1. Web Application

- Built using **React Native** (Frontend) for cross-platform support **Python** (Backend)
- Allows users to upload resumes and specify desired job roles
- Displays job suggestions, skill gap analysis, and personalized course dashboard

2. Mobile Application

- Built using **React Native** for cross-platform support
- Supports both online and offline modes
 - **Offline Mode:** Uses **ONNX/ TensorFlow Lite** to load the models which is used to analyze resumes locally
 - **Online Mode:** Syncs with backend APIs for real-time recommendations and course updates

3. Voice/SMS System

- Users can:
 - Call a number and speak their skills/job interests (handled via **Speech to text engine**)
 - Send SMS/MMS with text or resume
- **Twilio** handles call routing, transcription, and SMS
- Parsed inputs are sent to backend for processing

4. Analysing Resume using AI

- Uses **pdfplumber** to extract data from the Resume.
- Which is then given to **AI model** to extract Technical skills, Soft skills, Work experience and Education.

5. Skill Gap Analyzer & Job Finder: Uses **Llama** model by Meta to compare the skills and job description and find skill gaps along with relevant jobs.

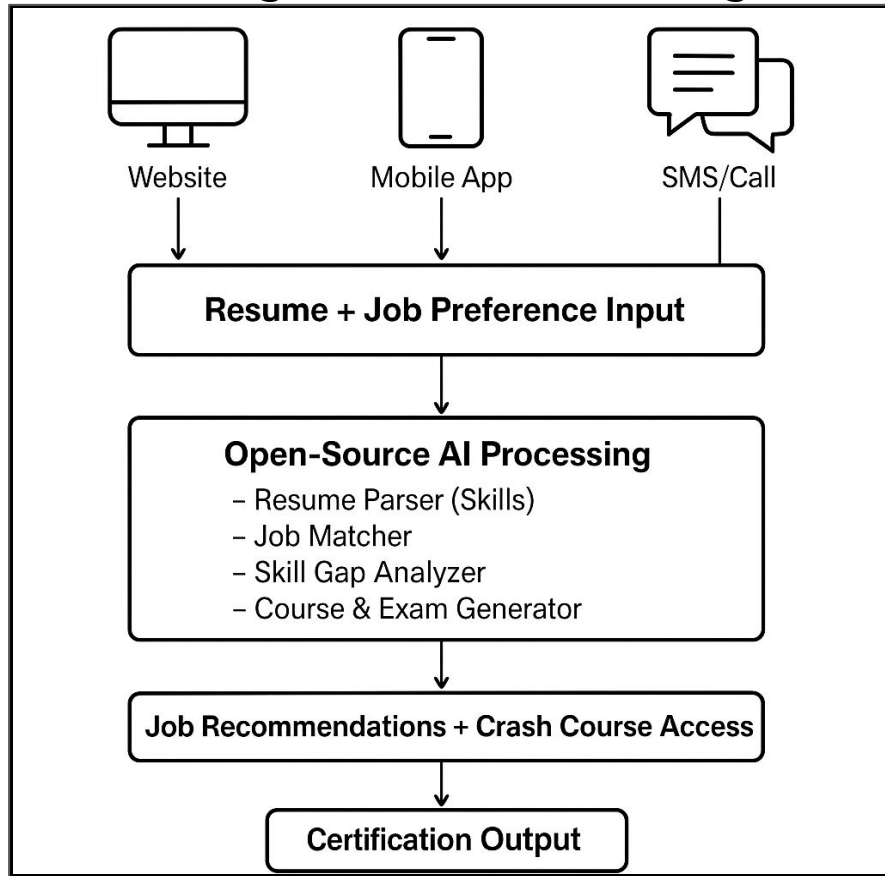
6. Course & Exam Generator

- Uses **AI model** by Meta to:
 - Generate personalised crash courses (**content, quizzes**)
 - Create a tailored **AI-generated** exam at the end
- Generates certificates based on their **certification** course test result.

Conclusion

This architecture ensures high scalability, accessibility, and personalization. Whether a user is online, offline, or using SMS/voice, they can seamlessly access AI-driven job recommendations, upskill, and earn credentials—all from a single integrated ecosystem.

Provide a high-level architecture diagram or a use-case diagram of your proposed solution





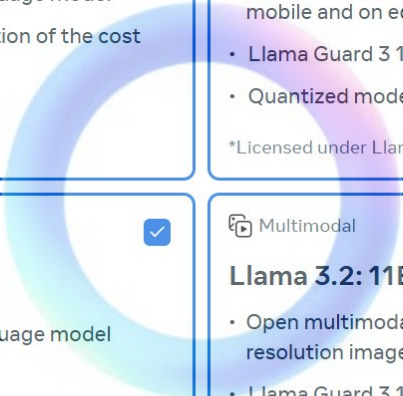
The image displays four wireframe diagrams for a proposed solution, organized into a 2x2 grid. Each diagram is a black-and-white line drawing representing a user interface.

- Website:** A rectangular layout. At the top left is a box labeled "LOGO". To its right is a horizontal line. Below the logo is a large box labeled "Upload Resume" containing a circle with a plus sign and the text "Choose File". Below this is a box labeled "Job Preferences" containing a horizontal line. At the bottom is a box labeled "Job Recommendations".
- Mobile App:** A rounded rectangular layout. At the top is a box labeled "Upload Resume" containing a circle with a plus sign and the text "Choose File". Below this is a box labeled "Job Preferences" containing a horizontal line. At the bottom is a box labeled "Skill Gaps" containing a horizontal line.
- Course Page:** A rectangular layout. At the top left is a box labeled "LOGO". To its right is a horizontal line. Below the logo is a large box containing a square with an 'X' inside. To the right of this box is the text "Lesson Title" followed by four horizontal lines. Below the 'X' box is the text "Lesson 1" followed by three horizontal lines. At the bottom right is a box labeled "Start Exam".
- Voice/SMS Interface:** A layout with rounded rectangular boxes. At the top are two boxes labeled "Call" and "Send SMS". Below these are two horizontal lines. Then, the text "Current Skills" is followed by two horizontal lines. Below that, the text "Job Requirements" is followed by two horizontal lines. At the bottom is a box labeled "Send MMS".



What datasets will your solution use? Are they publicly available, synthetic, or user-generated?

Using Llama AI Models



<p>Text New ✓</p> <p>Llama 3.3: 70B</p> <ul style="list-style-type: none">• State-of-the-art multilingual open source large language model• Experience 405B performance and quality at a fraction of the cost <p>*Licensed under Llama 3.3 Community License Agreement</p>	<p>Lightweight ✓</p> <p>Llama 3.2: 1B & 3B</p> <ul style="list-style-type: none">• Lightweight and most cost-efficient models you can run anywhere on mobile and on edge devices• Llama Guard 3 1B is included• Quantized models available <p>*Licensed under Llama 3.2 Community License Agreement</p>
<p>Text Updated ✓</p> <p>Llama 3.1: 405B & 8B</p> <ul style="list-style-type: none">• State-of-the-art multilingual open source large language model• Llama Guard 3 8B and Prompt Guard are included <p>*Licensed under Llama 3.1 Community License Agreement</p>	<p>Multimodal ✓</p> <p>Llama 3.2: 11B & 90B</p> <ul style="list-style-type: none">• Open multimodal models that are flexible and can reason on high resolution images and output text• Llama Guard 3 11B Vision is included <p>*Licensed under Llama 3.2 Community License Agreement</p>

No ML datasets are being used.*

Does your solution require cloud-based computation, or can it work with on-device processing? If cloud-based, how do you plan to address connectivity challenges and cost constraints?

Cloud-based computation may be used to host the website, but it is not essential and will not be utilized during the development phases.

We also provide SMS/Voice call feature which solves the connectivity challenges.



Extracting Skills from Resume Using AI |

```
==== RESTART: P:\Chaitanya\Projects\Pragati_AI_Hackathon\Code\skills_Read.py ===  
Enter path to the resume PDF: Example.pdf
```

Extracted Skills using AI:

****Technical Skills:****

- * Python
- * JavaScript (Node.js, React)
- * C++
- * Java
- * HTML5
- * CSS3
- * React
- * Express.js
- * MySQL
- * MongoDB
- * Firebase
- * Git
- * Docker
- * AWS
- * Linux
- * VS Code
- * REST APIs
- * CI/CD
- * Flask
- * Chart.js
- * GPT-4
- * Django
- * Flutter
- * Twilio
- * Heroku
- * MongoDB Atlas

****Soft Skills:****

- * Detail-oriented
- * Passionate
- * Creative problem-solving
- * Collaboration
- * Communication (implied through cross-functional team collaboration and daily standups)
- * Time management (implied through project completion and internship)
- * Agile/Scrum methodologies
- * Test-Driven Development

```
>>> |
```

Generating Questions for Course Exam using AI
(Correct answer Marked with *)

```
===== RESTART: P:\Chaitanya\Projects\Pragati_AI_Hackathon\Code\generate.py  
Enter a topic: Python
```

Generated MCQs:

Q1. What is the correct way to print "Hello, World!" in Python?

- A. ``print("Hello, World!")`*`
- B. ``console.log("Hello, World!")``
- C. ``System.out.println("Hello, World!")``
- D. ``printf("Hello, World!")``

Q2. Which data type is used to store a sequence of characters in Python?

- A. integer
- B. float
- C. string*
- D. boolean

Q3. What is the output of the following code: ``print(type(3.14))``?

- A. ``<class 'int'>``
- B. ``<class 'float'>`*`
- C. ``<class 'str'>``
- D. ``<class 'bool'>``

Q4. Which keyword is used to define a function in Python?

- A. ``func``
- B. ``function``
- C. ``def`*`
- D. ``define``

Q5. What does the ``len()`` function return?

- A. The data type of an object
- B. The number of items in an object*
- C. The memory address of an object
- D. The value of an object

Q6. Which of the following is NOT a valid loop in Python?

- A. ``for``
- B. ``while``
- C. ``do-while``
- D. ``while-else``

Resume Upload, Job Description Website Prototype

Your Resume

Upload Resume

Upload your resume in PDF or text format.



Drag & drop your file here

or

Browse Files

Or Paste Resume Text

Paste the content of your resume here.

Paste your resume text here...

Job Description

Upload Job Description

Upload the job description in PDF or text format.



Drag & drop your file here

or

Browse Files

Or Paste Job Description

Paste the content of the job description here.

Paste job description text here...

Course Website Prototype

Learn a Course

Complete a course and get a free Certificate for your Dream Job

Web Development

Learn HTML, CSS, JavaScript, and modern frameworks to build full-stack web apps.

[View Course](#)

Python Programming

Master Python from scratch and use it in data science, AI, and web dev projects.

[View Course](#)

Machine Learning

Explore supervised & unsupervised learning, regression, classification, and more.

[View Course](#)

Cybersecurity Basics

Understand security principles, ethical hacking, encryption, and real-world threats.

[View Course](#)

Web Development Certification Test

complete the exam with a high score to earn your certificate

1. What does HTML stand for?

- ☐ Hyper Trainer Marking Language
- ☐ Hyper Text Markup Language
- ☐ Hyperlinks and Text Markup Language

2. Which tag is used for inserting an image?

- ☐ <pic>
- ☐
- ☐ <image>

3. Write a short explanation of what CSS is.

[Submit Exam](#)

Certification Test Website Prototype



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THANK YOU