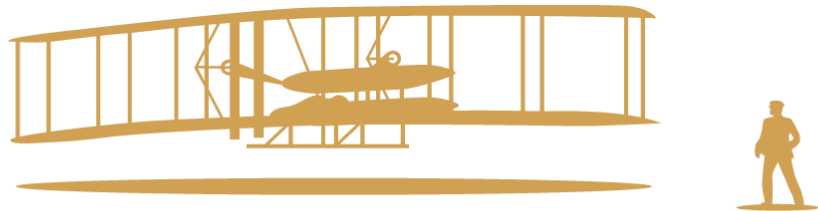


# Skill-Based Course Recommender Using AI



**WRIGHT STATE  
UNIVERSITY**

## **Code Crafters**

- Sachin Patel
- Abhik Ashwinkumar Patel
- Dhruv Alpeshkumar Patel

# Pain we are addressing

- Students need a clear understanding of the specific skills required for different job roles to avoid spending time on unrelated or unhelpful topics.
- To avoid wasting time on irrelevant learning, students must clearly understand which skills are essential for the careers they're targeting.
- Personalized career advice is necessary, as current platforms don't guide students in finding the best job opportunities for them.
- Without proper guidance, students struggle to stand out among thousands of applicants.

# How We Fix It Using AI & Distributed Computing

- AI extracts skills from resumes using Natural Language Processing (NLP).
- Compares student skills with job requirements and identifies missing skills.
- AI recommends courses and certifications to bridge skill gaps.

# Key Winning Features

- **Personalized Course Recommendations:** For effective upskilling, it proposes structured learning pathways depending on skills that are missing.
- **Time Saver:** Removes the need for manual resume review by automating the process of skill extraction and job comparison.
- **Accurate Skill Matching:** Uses Amazon Textract to accurately identify skills.
- **User Friendly:** Easy-to-use interface that provides immediate resume insights without requiring manual work.
- **Scalability:** using AWS robust infrastructure.

# Capabilities

- **AI-Driven Resume Analysis:** Utilising Amazon Textract & to extracts skills from resumes.
- **Job Description Fetching:** 4-5 job descriptions are retrieved via APIs.
- **Automated Skill Identification:** employs NLP models to evaluate and extract required skills.
- **Missing skill analysis:** finds the skills that are missing by comparing resume skills with job requirements.
- **Customised Learning Path Recommendations:** suggests recommendation

# Justification

- **Efficient Solution:** Completely automated, saving time on tedious resume reviews.
- **AI-Powered Accuracy :** AI-powered NLP skill extraction guarantees accurate outcomes.
- **User Friendly Design:** Simple to use UI offers quick insights.
- **Market Relevance:** skills are kept inline with industry demands through real-time job description analysis.
- **Upskilling Recommendation:** not only skill matching but also provides upskilling recommendation.

# Current Status / Initial Prototype Update this to show:

- **What We Have Completed**

- Frontend built using **React.js** with file upload and skill display interface
- Backend API developed with **AWS Lambda + Python** for skill extraction
- Resume parsing using **AWS Textract**, storing data in **DynamoDB**
- Course and skill data seeded using **sample\_data.py**

## **Working Demo Highlights**

- Users can **upload resumes (PDF)**
- System automatically **extracts skills from resume text**
- Compares with **job role skills** fetched via API
- Shows **matched, missing skills, and recommended courses**

# Current Status / Initial Prototype Update this to show:

- **Initial Testing**
- Tested with 5+ sample resumes across domains
- Verified accurate parsing and course matching
- Frontend connected to deployed backend on **AWS EC2**



# Recorded Demo Video

The screenshot displays the AWS Management Console Home page for the us-east-2 region. The browser address bar shows the URL `us-east-2.console.aws.amazon.com/console/home?region=us-east-2`. The console header includes the AWS logo, a search bar, and navigation links for GitHub, WSU-cshimizu/ceg4..., and Discord. The main content area is titled "Console Home" and includes a "Reset to default layout" button and an "Add widgets" button. The "Recently visited" section lists services such as EC2, S3, DynamoDB, Lambda, CloudWatch, Amazon Comprehend, Amazon Transcribe, and Amazon Textract. The "Applications" section shows a "Create application" button and a message stating "No applications. Get started by creating an application." The bottom of the screen shows a Windows taskbar with a weather widget (58°F, Mostly cloudy), a search bar, and a Snipping Tool window.

Console Home | Console Home x +

us-east-2.console.aws.amazon.com/console/home?region=us-east-2

GitHub WSU-cshimizu/ceg4... Discord | Friends

aws Search [Alt+S] United States (Ohio) Code crafter

Console Home Info

Reset to default layout + Add widgets

Recently visited Info

- EC2
- S3
- DynamoDB
- Lambda
- CloudWatch
- Amazon Comprehend
- Amazon Transcribe
- Amazon Textract

CloudFormation

Billing and Cost Management

IAM

CloudTrail

Service Quotas

View all services

Applications (0) Info

Region: US East (Ohio)

Select Region us-east-2 (Current Region) Find applications

1

Name Description Region Originati. ★ ▲

No applications

Get started by creating an application.

Create application

Go to myApplications

Welcome to AWS

AWS Health Info

Cost and usage

CloudShell Feedback

58°F Mostly cloudy

Search

Snipping Tool

New

10:28 PM 14/2025

# Business Model

## **1) University & Career Center Partnerships**

- In Future Collaborate with colleges & universities to integrate the platform into career services

## **2) Subscription-Based Model**

- Offer monthly/annual premium plans for students & job seekers.
- Free basic version with limited job matches & skill analysis.

# Team Members & Contributions

- **Frontend Development:**

*Sachin Patel* — React.js, DynamoDB

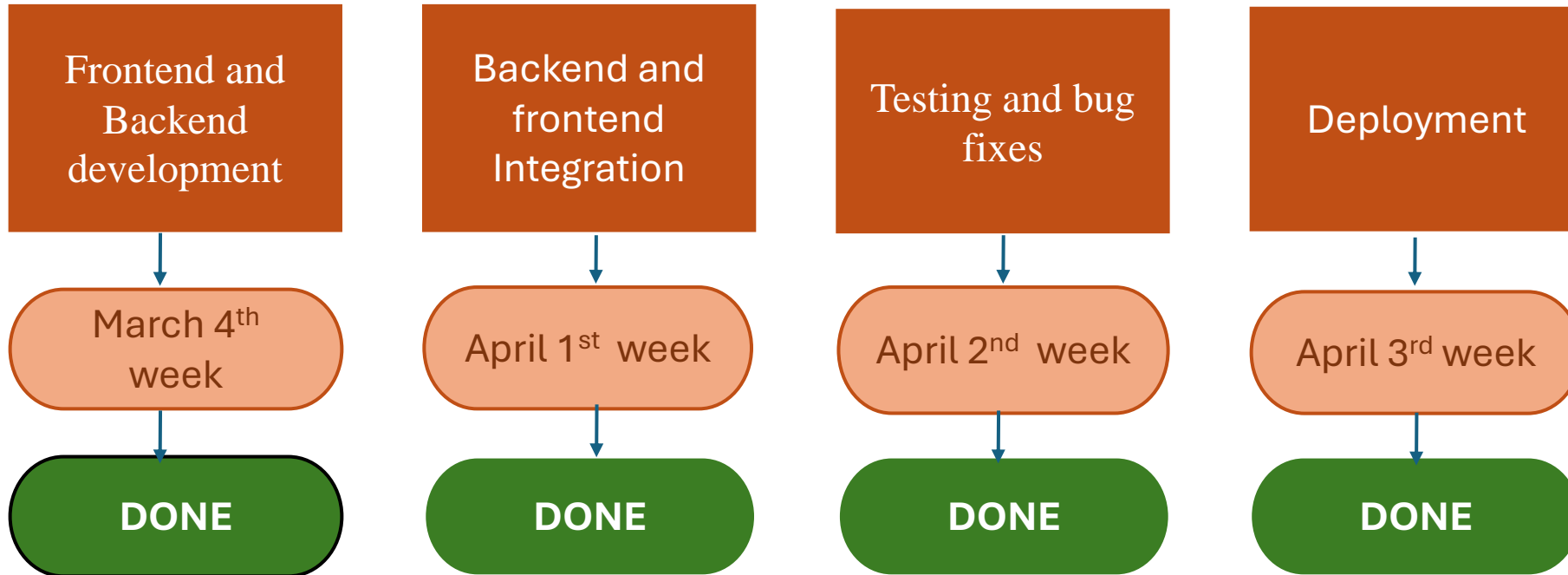
- **Backend & Cloud Integration:**

*Abhik Ashwinkumar Patel* — AWS Textract for Resume Parsing, EC2 Deployment,

- **AI/ML & Resume Analysis:**

*Dhruv Alpeshkumar Patel* — AWS Lambda Functions, REST API Development

# Plan for Implementation phase



# References

AWS Documentation –

*Amazon Textract & AWS Lambda*

<https://docs.aws.amazon.com/textract>

<https://docs.aws.amazon.com/lambda>

ArXiv –

*Using AI for Career Path Recommendations*

<https://arxiv.org/abs/2006.15223>

"Challenges in AI-Powered Job Matching" – ResearchGate

<https://www.researchgate.net/publication/3456789>

<https://www.researchgate.net/publication/3456789>



**Thank you**