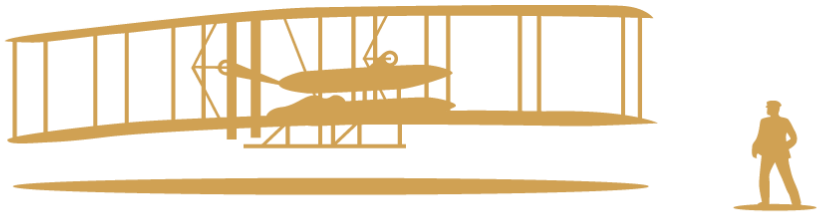
Skill-Based Course Recommender Using AI



WRIGHT STATE UNIVERSITY

Code Crafters

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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**

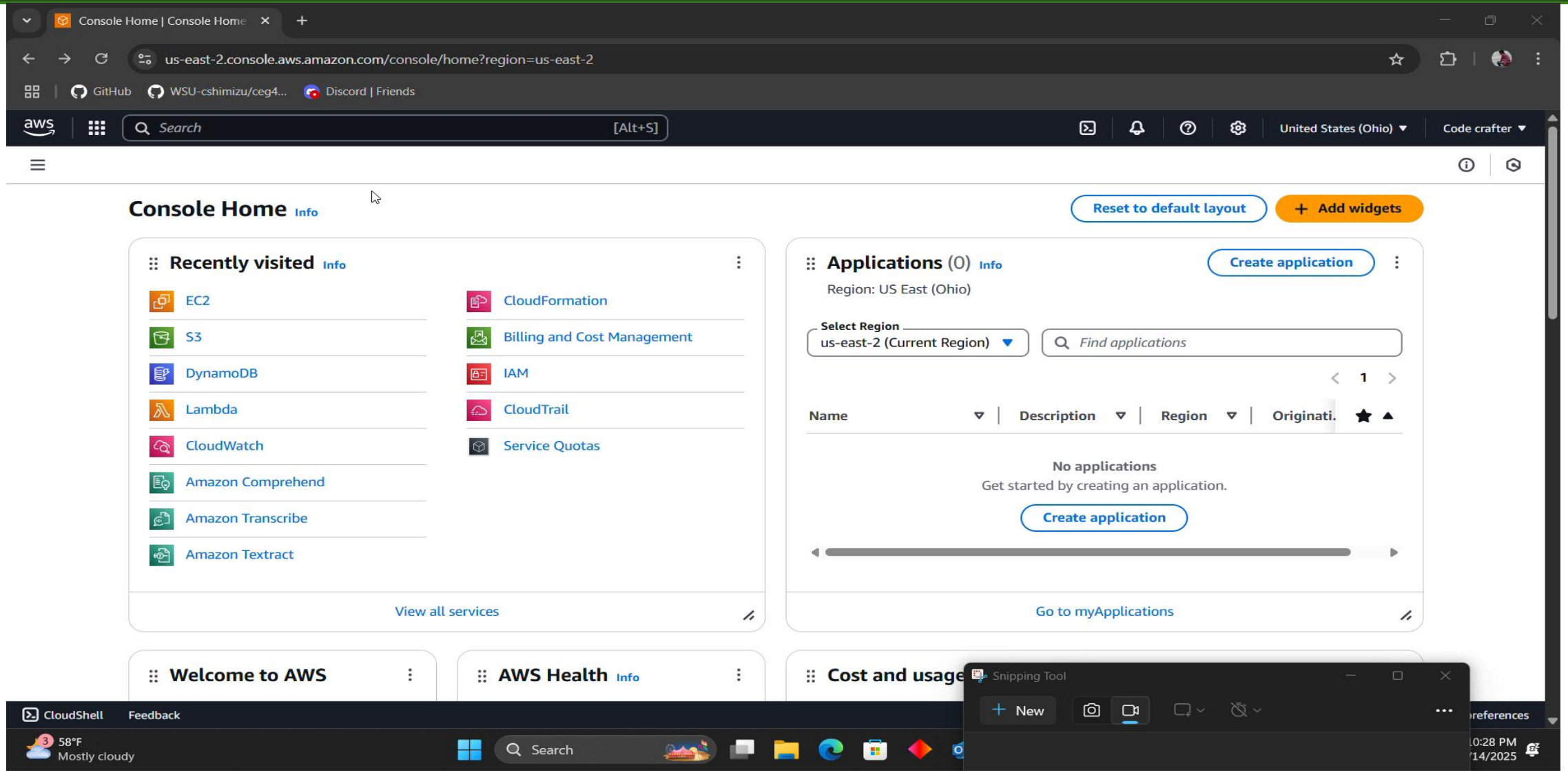
Working Demo Highlights

- 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



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

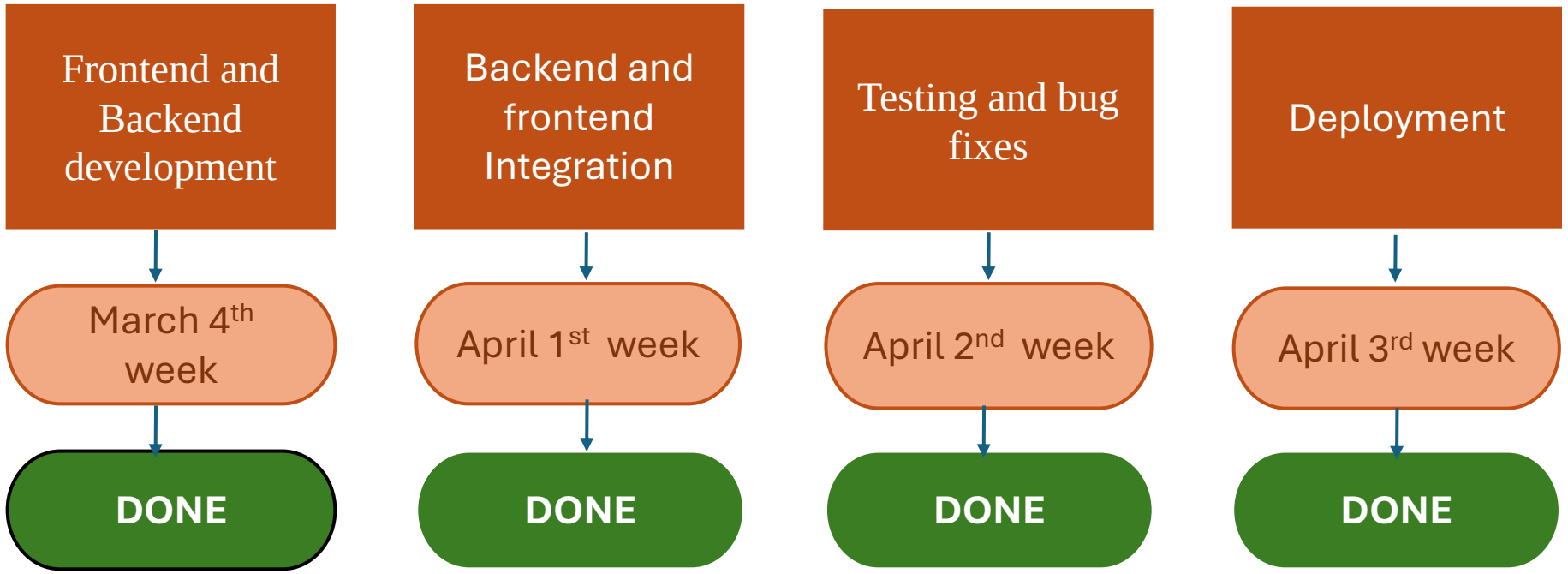
- **Frontend Development:**
  Sachin Patel — React.js, DynamoDB

- **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