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ASCEND – Advanced Support for Career Exploration and Navigating Directions(SIH1666)

Abstract

Career counselling and guidance are crucial for students at every stage of their academic journey, helping them to make informed decisions about their future. However, many students and families in India lack access to proper career guidance, leading to choices based on limited information or on societal pressures. This can result in mismatched skills, job dissatisfaction, and even unemployment. To address this, the National Education Policy (NEP) 2020, emphasizes the importance of guiding students toward suitable career paths by aligning their education with their career goals.

This paper proposes an innovative solution that includes AI-powered platforms, mentorship programs, interactive tools, and resource portals designed to assist students from middle school to postgraduate levels in exploring and choosing careers that match their interests and strengths. These tools will empower students to explore various career opportunities, develop necessary skills, and plan their education accordingly.

Key components of the solution include:

A) AI-Powered Career Guidance Platforms:

These platforms will provide personalized career suggestions based on student's unique interests, strengths, and emerging job trends.

B) Career Mentorship Programs:

Students will connect with professionals from their chosen fields or with a mentor chatbot, giving them real-world insights and guidance.

C) Career Resource Portals:

An extensive online portal will offer resources such as career paths, required skills, educational plans, and job market trends.

D) Resume based interview program:

Students can get questions based on the skills in their resume so that they can appear for Interview with confidence and help them to grow in their career.

E) Semantic Search Interface:

User can search for a skill to learn and get recommendation of courses to register and learn using this search interface.

F) Next Step For Different Courses Available:

Users can learn about different options available to them after completion of their current Education and plan for future which acts as Career Compass for Student Support program.

This solution supports NEP 2020's goal of helping students make informed career choices through personalized guidance, technology-driven tools, and mentorship programs, ensuring that their education aligns with their career aspirations at every academic level.

Modules identified:

1. AI-Powered Career Guidance Platform
2. Career Mentorship Program
3. Career Exploration Tools
4. Career Resource Portal

Features in each Module:

Modules	Features	Description	AI/ML Models & Technologies
AI-Powered Career Guidance Platform	1-Personalized Career Recommendations	Depending upon education background, skills and position (work experience) gives career recommendation	HG Model, HTML
	2-Interview Chatbot	Based upon uploaded resume the bot performs interview and evaluates the answer	Python, Google GenAI
	3-Mentorbot	Guides the user to their queries and provide mentorship about their career	NLP (Tensorflow, Textract, NLTK), Google GenAI
	4-Personalized Job Finder	Depending upon user's field to work, expertise and location. It provides job opening.	HTML, CSS, JS, Rapid API
Career Mentorship Program	5-Mentor Connect	Facilitates real time mentors and their contact details along with their field of expertise	HTML, CSS, JS
	6-Resumed Based Job Role Predictions and their Openings	Based on their applied resume suitable job roles are predicted and their openings are shown.	HTML, CSS, JS, Rapid API, Google GenAI
	7-Learning Resources	Provides relevant learning materials and resources	HG Model, HTML

Interactive Career Exploration Tools	8-Career Compass	Provides the next step career opportunities for students at different education levels.	HTML , CSS , JS
	9- Search and Filter Options	Search job openings with respect skill/role + location That displays openings in that particular location.	RapidAPI , Flask , HTML , CSS , JS
Career Resource Portal	10-Public Pathways	Provides different sectors and different job roles in each sector along with each of its description.	HTML , CSS , JS
	11-Blogs	Blogs from different users that help other to get clarity on their decisions or works.	HTML , CSS , JS , Google firebase(database)
	12-Market Trend and Jobs	Provides trending job roles in current market and their openings to apply.	HTML, CSS, JS
	13-Startups and their Details	Provides information about startups relevant to user's field and also market Trendy startups	HTML , CSS , JS , APIS(News API , Wiki)
	14-Skill Assessment and Learning Plans	ML models analyze industry , department ,role category , skills and recommend suitable job role	ML Algorithms (Scikit-learn, Random Forest), Skill Matching (word2Vec Embedding)
	15 – Explore: Portal for Different Careers.	Provides overview about different career pathways	HTML , CSS , JS
	16 – “Sia”: A Personalized Guide Bot.	A guide bot that helps user about the usage of the website.	HTML , CSS , JS

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