

# Product Requirements Document (PRD): Pathfinder AI

**Project Name:** Pathfinder AI: The Personalized Career and Skills Advisor

**Document Version:** 1.0

## 1. Introduction & Executive Summary

This document outlines the product requirements for "Pathfinder AI," an innovative, AI-powered career and skills advisor designed for Indian students. The objective is to create a dynamic platform that moves beyond generic, marks-based advice to provide personalized, culturally-resonant, and actionable career guidance. This solution will leverage Google Cloud's generative AI to address the systemic challenges of career guidance in India, including a severe shortage of qualified counselors, overwhelming societal pressures, and a lack of awareness of emerging career paths.<sup>1</sup>

## 2. Problem Statement

Indian students face a critical gap between their academic potential and the demands of the modern job market.<sup>4</sup> The existing guidance infrastructure is plagued by a scarcity of professional counselors and a reliance on outdated, marks-based evaluations.<sup>5</sup> Decisions are often driven by parental and peer pressure, which favors a limited number of "secure" careers, leading to widespread stress and underutilization of talent.<sup>5</sup> There is a pressing need for a scalable, accessible, and intelligent tool that can provide a comprehensive, data-driven roadmap for a student's career journey.<sup>4</sup>

## 3. Target Audience

The primary user base for the Pathfinder AI platform is:

- **Students (High School to University):** Seeking clarity on a career path that aligns with their interests, skills, and aptitudes.<sup>7</sup>
- **Recent Graduates & Early Professionals:** Looking to enter the workforce, enhance their skills, or make an informed career change.<sup>7</sup>
- **Educators & Parents:** Who need a reliable tool to support students in their career decision-making process.<sup>8</sup>

## 4. Key Features & User Journey

The user experience is designed as a phased journey, moving from self-discovery to career

readiness.

#### 4.1. Core Features

- **Intelligent Onboarding & Profile Creation:** The platform will begin with a comprehensive, interactive questionnaire.<sup>7</sup> It will collect data on academic achievements, interests, personality traits (using frameworks like the Big Five Factor Model), work preferences, and values.<sup>7</sup>
- **AI-Powered Career Matching:** The system will process user data to generate a detailed profile and intelligently recommend a range of suitable career paths.<sup>7</sup>
  - **Recommendation Engine:** This will use machine learning algorithms, such as decision trees and neural networks, to analyze behavioral patterns and match user profiles to career paths.<sup>8</sup>
- **Personalized Career Roadmaps:** For a selected career path, the AI will generate a tailored, step-by-step roadmap.<sup>7</sup>
  - **Skill Gap Analysis:** The roadmap will highlight specific skill gaps and recommend actionable steps to bridge them.<sup>8</sup>
  - **Learning Resources:** It will suggest relevant certifications, courses, and learning modules (e.g., from platforms like Coursera or Udemy).<sup>7</sup>
- **Dynamic Market Insights:** The platform will incorporate real-time job market data, including emerging roles, required skills, and salary information, to ensure recommendations are current and relevant.<sup>13</sup>

#### 4.2. Future Features (Beyond Hackathon MVP)

- **Resume and Cover Letter Enhancement:** A tool that analyzes a user's resume and a specific job description to suggest improvements and create tailored documents.<sup>15</sup>
- **LinkedIn Integration:** An AI-powered co-pilot to suggest high-impact posts and networking actions to boost a user's professional presence.<sup>17</sup>
- **Gamified Assessments:** Interactive and gamified tasks to evaluate cognitive abilities, personality traits, and problem-solving skills, providing an engaging user experience.<sup>8</sup>

### 5. Technical Architecture & Google Cloud Integration

The solution will be built on a scalable and robust cloud architecture, leveraging Google Cloud services.

- **Data Collection & Storage:** User-provided data (e.g., academic records, resumes) will be ingested and stored in Cloud Storage and BigQuery for analysis.<sup>15</sup>
- **AI & Machine Learning:** The core recommendation engine will be powered by Google Cloud's generative AI services.<sup>18</sup>
  - **Gemini API:** Will be used to process natural language input from the user questionnaire and provide conversational career support.<sup>7</sup>
  - **Vertex AI:** The platform will use Vertex AI for training, managing, and deploying

machine learning models.<sup>20</sup> It will specifically leverage

Vertex AI Search for a fully managed, state-of-the-art personalization engine.<sup>18</sup>

- **Backend & Application Logic:** The application will be built using a scalable framework (e.g., Python with FastAPI/Uvicorn) and hosted on services like App Engine or Cloud Run.<sup>15</sup>

## 6. Ethical Considerations & Responsible AI

The platform will be built with a strong focus on ethical principles to mitigate potential risks.

- **Algorithmic Bias:** The system will be designed to avoid reinforcing existing biases, such as those related to gender or caste in the Indian context.<sup>22</sup> It will be trained on diverse and representative datasets to ensure fairness.<sup>22</sup>
- **Data Privacy & Security:** The platform will adhere to strict data security measures, including strong authentication, data encryption, and transparent policies on data collection and usage.<sup>23</sup> Only the minimum amount of necessary data will be collected.<sup>24</sup>
- **Transparency & Explainability:** To foster user trust, the AI will provide a clear rationale for its recommendations, explaining how a user's profile aligns with a suggested career path.<sup>23</sup>
- **Human-in-the-Loop:** The AI is designed to augment, not replace, human guidance. The platform will include features that allow for human oversight, which is critical for interpreting nuanced situations and providing emotional support.<sup>22</sup>

## 7. Success Metrics (MVP)

- **User Engagement:** Number of completed questionnaires and time spent on the platform.
- **Recommendation Accuracy:** Percentage of users who rate their career recommendations as "relevant" or "highly relevant."
- **User Feedback:** Qualitative feedback on the usefulness of the personalized roadmaps.
- **Scalability Test:** The ability of the platform to handle a large number of concurrent users during the hackathon.

This PRD provides a comprehensive blueprint for developing a robust and impactful AI career advisor.

## Works cited

1. Indian Students and Their Career Choices - MetaApply Career Counselling, accessed September 11, 2025, <https://metaapplycareercounselling.io/blogs/career-choice-solution/>
2. Influence Of Parental Pressure In Career Choice Among Secondary School Students - IJCRT.org, accessed September 11, 2025, <https://ijcrt.org/papers/IJCRT2502539.pdf>
3. CHALLENGES OF CAREER COUNSELING IN SCHOOLS: A ..., accessed September

- 11, 2025, <https://oaji.net/pdf.html?n=2023/1174-1722512452.pdf>
4. Why Career Guidance In Indian Schools Needs More Emphasis: Unraveling The Challenges : Dheya, accessed September 11, 2025, <https://www.dheya.com/career-guidance-in-indian-schools/>
  5. Challenges Facing Career Counselling and ... - jivacareer.org, accessed September 11, 2025, <https://jivacareer.org/wp-content/uploads/2023/01/5-Sudha-Bhogle.pdf>
  6. Bharat Career Aspirations Report 2024 - Knowledge @ UNICEF, accessed September 11, 2025, <https://knowledge.unicef.org/resource/bharat-career-aspirations-report-2024>
  7. careerwise ai | Gemini API Developer Competition | Google AI for ..., accessed September 11, 2025, <https://ai.google.dev/competition/projects/careerwise-ai>
  8. Personalized Career Guidance System for Students, accessed September 11, 2025, <https://ijarsct.co.in/Paper23904.pdf>
  9. Mindler | India's Best Career Counselling & Guidance Platform, accessed September 11, 2025, <https://www.mindler.com/>
  10. Career Compass: AI Based Career Counselling - IJIRT, accessed September 11, 2025, [https://ijirt.org/publishedpaper/IJIRT174684\\_PAPER.pdf](https://ijirt.org/publishedpaper/IJIRT174684_PAPER.pdf)
  11. Phenom Career Pathing, accessed September 11, 2025, <https://www.phenom.com/career-pathing>
  12. Top 10 Apps for Career Development - CareerScope, accessed September 11, 2025, <https://careerscope.com/top-10-apps-for-career-development/>
  13. AI Career Guidance Agents Transforming 2025 - Rapid Innovation, accessed September 11, 2025, <https://www.rapidinnovation.io/post/ai-agents-for-career-guidance>
  14. Getting a Job in Tech in India in 2025: The Complete Guide - Nucamp, accessed September 11, 2025, <https://www.nucamp.co/blog/coding-bootcamp-india-ind-getting-a-job-in-tech-in-india-in-2025-the-complete-guide>
  15. Building Your First LLM Career Assistant: A Beginner's Guide - CodeCurated, accessed September 11, 2025, <https://www.codecurated.com/blog/building-your-first-llm-career-assistant-a-beginners-guide/>
  16. Your personalized job application coach based on LLM - Cognitive Class, accessed September 11, 2025, <https://cognitiveclass.ai/courses/your-personalized-job-application-coach-based-on-llm>
  17. AI career platform OutSpark surpasses 200,000 paid users, reaching ..., accessed September 11, 2025, <https://timesofindia.indiatimes.com/technology/tech-news/ai-career-platform-outspark-surpasses-200000-paid-users-reaching-rs-30-crore-arr/articleshow/123759621.cms>
  18. Recommendations AI | Google Cloud, accessed September 11, 2025, <https://cloud.google.com/use-cases/recommendations>
  19. Generative AI | Google Cloud, accessed September 11, 2025,

- <https://cloud.google.com/ai/generative-ai>
20. Create a custom training job | Vertex AI - Google Cloud, accessed September 11, 2025, <https://cloud.google.com/vertex-ai/docs/training/create-custom-job>
  21. Google Cloud Skills Boost, accessed September 11, 2025, <https://www.cloudskillsboost.google/>
  22. Artificial Intelligence in Career Coaching and Development: Personalized Guidance and Ethical Considerations, accessed September 11, 2025, [https://asiapacificcda.org/wp-content/uploads/2025/07/apcda\\_cp0002\\_04.pdf](https://asiapacificcda.org/wp-content/uploads/2025/07/apcda_cp0002_04.pdf)
  23. Algorithmic Bias in AI Employment Decisions, accessed September 11, 2025, <https://jtip.law.northwestern.edu/2025/01/30/algorithmic-bias-in-ai-employment-decisions/>
  24. Safeguarding Student Data: Data Privacy in Education - Frax - ExploreLearning, accessed September 11, 2025, <https://frax.explorelearning.com/resources/insights/edtech-data-security-challenges>
  25. Empowering Student Agency in the Digital Age: The Role of Privacy in EdTech, accessed September 11, 2025, <https://www.newamerica.org/education-policy/briefs/empowering-student-agency-in-the-digital-age-the-role-of-privacy-in-edtech/>