**CredX AI Challenge – Intelligent Job Recommendation System Documentation**

**Team Legacy**

**A Mini-Project Submission for:**  
CredX AI Challenge: Intelligent Job Recommendation System  
Academic Year: 2025–2026

**Submitted by:**  
Name: [INSERT NAME]  
Roll No.: [INSERT ROLL NO.]  
Team Name: [INSERT TEAM]

**Guided by:**  
[INSERT GUIDE/MENTOR NAME]

**INDEX**

|  |  |  |
| --- | --- | --- |
| [SR.NO](http://SR.NO) | TOPIC | PAGE NO |
| 1. | Introduction | 1 |
|  | 1.1 Problem Statement 1.2 Objectives 1.3 Scope | 2, 3, 4 |
|  | 1.4 System Architecture | 5 |
| 2. | Data Sources & Preprocessing | 6 |
| 3. | Recommendation Model & Training | 8 |
| 4. | Evaluation & Validation | 12 |
| 5. | User Experience & Interface | 14 |
| 6. | Innovation & Competitive Analysis | 16 |
| 7. | Conclusion & Future Scope | 18 |
| 8. | Appendix & References | 19 |

**FIGURE/TABLE INDEX**

|  |  |  |
| --- | --- | --- |
| Fig./Table No. | Title | Page No. |
| 1 | System Architecture | 5 |
| 2 | Attribute Weighting Table | 6 |
| 3 | Semantic Matching Examples | 8 |
| 4 | Recommendation Scoring Breakdown | 10 |
| 5 | UI Dashboard Mockup | 15 |
| 6 | Competitive Feature Matrix | 16 |

**1. INTRODUCTION**

**1.1 Problem Statement**

Current job platforms lack true personalization, leading to mismatches and high churn. There is a pressing need for an AI-driven solution that blends values, culture, and technical fit.

**1.2 Objectives**

* Deliver personalized, value-centric job recommendations using AI and semantic algorithms.
* Achieve excellence for both students and career professionals.
* Stand out through culture fit and deep semantic analysis.

**1.3 Scope**

* Target audience: college students, freshers, domain experts
* Role diversity: Design, Engineering, Product Management in AI/ML
* Scalable and extensible for broader sectors

**1.4 System Architecture**

[Insert diagram: Input → Preference Engine → Semantic Matching → Recommendation Engine → UI]

**2. DATA SOURCES & PREPROCESSING**

**2.1 Dataset**

* Job listings from validated AI/ML industry sources
* Candidate preference data collected via custom UI
* Diversity: Titles, skills, company size, location, culture

**2.2 Data Preprocessing**

* Deduplication, missing value imputation
* Feature engineering: Skills, values, work-life, mentorship, etc.
* Attribute weighting table (below)

|  |  |  |
| --- | --- | --- |
| Attribute | Weight | Justification |
| Skills | 30% | Core for job success |
| Title/Role Type | 20% | Career path and fit |
| Location | 15% | Work-life and logistics |
| Industry | 10% | Domain expertise |
| Company Size | 10% | Environment and growth |
| Culture/Values | 10% | Retention and satisfaction |
| Salary | 5% | Practical baseline |

**3. RECOMMENDATION MODEL & TRAINING**

**3.1 Feature Engineering**

* Preference vectors for values, culture, role, skills
* NLP-based semantic similarity for job roles

**3.2 Machine Learning Model**

* Weighted attribute matching, semantic similarity via NLP libraries
* Training using cross-validation on historic job placement data

|  |  |
| --- | --- |
| Semantic Example | Similarity Score |
| UI/UX Designer ↔ Product Designer | 95% |
| Software Engineer ↔ Full Stack Dev | 88% |
| Data Scientist ↔ ML Engineer | 82% |

**4. EVALUATION & VALIDATION**

**4.1 Performance Metrics**

* Match score (>85%)
* Precision, Recall, F1, ROC-AUC
* Feedback from diverse user testing

|  |  |  |  |
| --- | --- | --- | --- |
| Metric | Target | Achieved | Status |
| Recommendation Relevance | 85%+ | [Pending] | Testing |
| Algorithm Accuracy | 90%+ | [Pending] | Testing |
| User Satisfaction | 4.0+/5 | [Pending] | Testing |

**5. USER EXPERIENCE & INTERFACE**

* UI dashboard: Input form, job cards, scoring breakdown
* Progressive Web App for browser/mobile
* Mockup: [Insert figure/space for screenshots]

**6. INNOVATION & COMPETITIVE ANALYSIS**

**Unique Features**

* Culture fit engine – goes **beyond skills**
* Dynamic learning – adapts to user feedback
* Student-first, professional-friendly

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Feature | SmartJobMatch | LinkedIn | Indeed | Other |
| Values Matching | Advanced | Basic | None | None |
| Semantic Matching | Full | Partial | Basic | None |
| Customization | Full | Limited | Basic | Partial |

**7. CONCLUSION & FUTURE SCOPE**

* Recap key innovations – semantic matching, preference learning
* Results: [Leave space for match scores/user engagement]
* Next steps: mobile app, sector expansion, real-world rollout

**8. APPENDIX & REFERENCES**

* Technical algorithm details
* Code repo: [Insert GitHub/Links]
* User survey and reference studies
* [Editable area for reference list]

**EDITABLE OUTCOME SECTION**

**Results/Performance:**  
[Space to enter results, screenshots, quotes, analysis after hackathon/tests]

*This document can be updated as outcomes are achieved. All sections are modular and editable for continuous improvement.*

**Version:** 1.0  
**Last Updated:** August 16, 2025