

**IS-5960-04: MRP**

**Employability Analytics Project**

**Week 1 Deliverable:**

**Problem Description Statement**

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## **Problem Description Statement**

### **Overview:**

Our team is embarking on a transformative project to enhance the decision-making capabilities of FutureWorks Solutions. The recruitment and workforce consultancy industry are evolving rapidly, and decision-makers are now expected to make precise, data-driven decisions to remain competitive. To address this need, we propose the development of an **Employability Analytics Application**. This tool will provide real-time insights, predictive analytics, and personalized recommendations to streamline recruitment strategies and career planning. The application aims to tackle challenges such as data integration, limited market insights, lack of personalized services, and outdated technology, ensuring FutureWorks stays ahead in the dynamic job market.

### **Description of a Decision-Maker**

#### **Career Advisors**

We think that the career advisors are critical stakeholders in the employability ecosystem. They guide students and recent graduates toward rewarding career paths by offering tailored recommendations based on market trends, skill gaps, and individual goals. These professionals often face challenges due to a lack of real-time data and actionable insights, making it harder to align career advice with current industry demands. With this application, career advisors can:

- Access up-to-date job market trends.
- Identify skill gaps specific to individual profiles.
- Provide data-backed guidance on career transitions and future opportunities.

### **Problem Statement:**

The primary objective of the project is to design an Employability Analytics Application that equips career advisors with advanced tools to deliver personalized, data-driven career guidance. By integrating real-time labor market insights, skill trends, and salary benchmarks, the application will enable advisors to empower job seekers with accurate and relevant career recommendations. This will ensure students and graduates are better prepared to navigate the complexities of the evolving workforce.

### **Challenges:**

#### **1. Data Integration:**

One of the critical challenges is consolidating diverse data sources such as job portals, industry reports, and educational databases into a single, unified system. Currently, these data

sources are often siloed, making it difficult to access comprehensive insights. By integrating these data streams, the application will enable career advisors to have a holistic view of the job market, reducing redundancy and improving data reliability.

## **2. Insights Generation:**

Developing accurate predictive models is a major challenge. These models need to analyze historical and current data to identify trends in emerging skills, salary benchmarks, and future job market demands. The complexity lies in ensuring that the models are robust, adaptable to evolving trends, and capable of generating actionable insights for career advisors. Incorporating machine learning algorithms and advanced analytics will be pivotal in overcoming this challenge.

## **3. Personalized Recommendations:**

Career advisors often face difficulties in providing tailored advice due to a lack of individualized insights. The challenge is to create an application that not only analyzes broad market trends but also narrows down the data to provide personalized, role-specific, and skill-specific recommendations for everyone. This requires a balance between macro-level analytics and micro-level personalization.

## **4. Technology Modernization:**

The outdated systems currently in place limit scalability, integration, and the delivery of real-time insights. Building a modern, user-friendly platform involves addressing challenges such as ensuring scalability to handle large datasets, maintaining security for sensitive information, and designing an intuitive interface that enhances user experience. The platform must also support dynamic updates to keep pace with the rapidly changing job market.

### **Information Needs:**

To fulfill its purpose, the Employability Analytics Application must provide comprehensive, actionable insights that cater to the needs of career advisors and other decision-makers. This includes:

#### **1. Job Market Trends:**

The application will deliver detailed insights into current and emerging roles, industries, and skill demands. This includes understanding which industries are growing and the skills they prioritize.

It will also project future opportunities using labor market data to help career advisors anticipate shifts in demand and guide job seekers toward future-proof career paths.

#### **2. Salary Benchmarks:**

The tool will provide granular data on salary ranges, segmented by role, industry, and geography. This ensures that career advisors can recommend competitive compensation packages to job seekers and help them evaluate job offers realistically.

### 3. Skill Gap Analysis:

The application will analyze certifications, technical skills, and soft skills that are in high demand across various sectors. It will highlight gaps between job market expectations and the skills possessed by job seekers, enabling targeted skill development plans.

### 4. Recruitment Patterns:

The tool will provide a dual view of historical hiring trends and real-time recruitment data. This helps anticipate employer needs, understand seasonal or industry-specific hiring peaks, and identify patterns in candidate preferences and employer expectations.

#### Data Sources:

The application will draw insights from the following data sources:

- **Job Portals:** Platforms like LinkedIn and Indeed to aggregate job postings and skill requirements.
- **Industry Reports:** Research from trusted organizations like PwC and Deloitte to identify market trends.
- **Labor Market Surveys:** Data on employment patterns and salary benchmarks.
- **Educational Institutions:** Skill profiles and career outcomes of students and graduates.
- **Recruitment Feedback:** Employer reviews and data on hiring trends and demands.

#### Data Presentation:

To ensure usability and accessibility, the application will present data in the following formats:

- **Interactive Dashboards:** Allow users to explore insights using bar charts, line graphs, and heatmaps.
- **Predictive Models:** Offer projections for skill trends and job market changes.
- **Custom Reports:** Provide detailed summaries in PDF or Excel formats tailored to specific use cases.
- **Tables:** Organized, sortable, and searchable data for comparison and detailed examination.
- **Notifications:** Alerts about significant changes in the job market, such as new in-demand skills or salary trends.

#### Interactive Elements and Affordances:

- **Dynamic Filters:** Allow users to drill down into data by industry, location, job role, and skill.
- **Search Functionality:** Enable quick retrieval of specific information.
- **What-If Analysis:** Support decision-makers in simulating different scenarios (e.g., changes in salary or skill requirements).
- **Personalized Recommendations:** Tailored career paths, recruitment strategies, or role-specific trends.

**References:**

- *Future of Work* / McLean & Company. (2025). <https://go.mcleanco.com/future-of-work-g/a1Na7000000JNvNEAW?>
- PwC. (2017). Workforce of the future: The competing forces shaping 2030. In *PwC's global People and Organisation practice*. <https://www.pwc.com/gx/en/services/people-organisation/workforce-of-the-future/workforce-of-the-future-the-competing-forces-shaping-2030-pwc.pdf>
- Woods, B. (2024b, June 27). *Employ Job Seeker Nation Report 2024* / JobVite. Jobvite | Recruiting Software - Applicant Tracking. <https://www.jobvite.com/lp/employ-job-seeker-nation-report-2024/?>