**Workforce Analysis Recruitment Trends**

**Executive Summary**

The Recruitment Pipeline Analysis project aims to uncover insights from a dataset of over 73,000 candidates by examining the relationships between education levels, employment rates, skills, and salaries. This analysis explores key trends and identifies factors contributing to employment outcomes, providing actionable insights for recruitment strategies and workforce planning.

The dataset originates from the annual StackOverflow Developer Survey, which collects insights on employment trends in the tech industry. This dataset serves as a foundation for analyzing key aspects of the recruitment process, uncovering trends, and addressing potential disparities in employment outcomes.

**Objectives**

* **Analyze Employment Trends:** Assess employment rates by education level and country.
* **Evaluate Skill Distribution:** Explore skill diversity among employed and unemployed candidates.
* **Examine Salary Variations:** Analyze salary distributions by education level and gender.
* **Provide Actionable Insights:** Offer data-driven recommendations to improve recruitment strategies.

**Dataset Overview**

**Key Features:**

* **Total Entries:** 73,462
* **Key Columns:**
  + EdLevel – Education levels of candidates (e.g., No Higher Ed, Undergraduate, Master, PhD).
  + Employed – Employment status (binary: 1 = Employed, 0 = Unemployed).
  + HaveWorkedWith – Technologies candidates have experience with.
  + PreviousSalary – Last recorded salary of candidates.
  + Country, Gender, YearsCode, YearsCodePro, and more.

**Summary Statistics:**

|  |  |
| --- | --- |
| **Metric** | **Value** |
| Average Skill Count | 13.43 |
| Max Skill Count | 107 |
| Average Salary | $67,750.26 |

**Key Findings**

**Employment Rate by Education Level**

* **Key Insight:** Employment rates vary significantly by education level:
  + **No Higher Education:** 58.9%
  + **PhD:** 28.6%
* **Implications:** Lower education levels exhibit higher employment rates, potentially driven by demand in certain skill-based industries.

**Employment Rate by Country**

* **Top Countries by Employment Rate:**
  + **Italy:** 60.7%
  + **United States:** 55.1%
  + **Brazil:** 54.8%
* **Implications:** Regional differences in employment highlight varying economic conditions and job market demands.

**Skill Count Distribution**

* **Key Findings:**
  + The average number of skills per candidate is **13.43**.
  + Higher skill counts are correlated with employment.
* **Top Skills Among Employed Candidates:**
  + **JavaScript, HTML/CSS, Docker, SQL, Git**

**Salary Analysis**

**Salary by Education Level**

* **Key Findings:**
  + Salaries increase with education level, reaching a maximum of **$96,150.61** for PhDs.
  + Candidates with "No Higher Education" earn **$55,456.74** on average.

**Salary Distribution by Gender**

* **Key Insights:**
  + Male candidates earn the highest average salary ($63,469), followed by non-binary ($57,588) and female candidates ($54,000).
  + Gender disparities are observed across salary distributions.

**Methodology**

1. **Exploratory Data Analysis (EDA):**
   * Handled missing values and outliers.
   * Analyzed relationships between skills, salaries, and education.
   * Created visualizations to illustrate trends.
2. **Visualization Tools:**
   * **Matplotlib & Seaborn** for initial plotting.
   * **Tableau** for dashboard creation.
3. **Statistical Insights:**
   * Correlation analysis revealed no significant relationship between skill count and salary (r = 0.03).
   * Education level showed a strong influence on salary and employment outcomes.

**Recommendations**

1. **Skill Development Programs:**
   * Focus on in-demand skills like **JavaScript, Docker, and SQL** to enhance employability.
2. **Targeted Recruitment:**
   * Tailor recruitment strategies to regions with higher employment rates, such as **Italy** and the **United States**.
3. **Diversity Initiatives:**
   * Address gender disparities in salary by implementing equitable pay policies.
4. **Education Partnerships:**
   * Collaborate with institutions to support skill-building among higher education candidates.

**Next Steps**

1. **Embed Tableau Dashboard:** Insert the interactive dashboard into this document to enhance data accessibility.
2. **Deliver Final Report:** Format and finalize the document for stakeholder review.

**Appendix**

* **Code Files:**
  + EDA Script
* **Datasets:**
  + Recruitment Data

**Tableau Dashboard & Link**

**A screenshot of a graph

AI-generated content may be incorrect.**

Link: https://public.tableau.com/views/Recruitment\_Analysis\_Pipeline/RecruitmentPipelineAnalysis?:language=en-US&:sid=&:redirect=auth&:display\_count=n&:origin=viz\_share\_link