Project Report: LinkedIn Job Trend Analysis (Web Scraping)

# 1. Title

Analysis of In-Demand Job Skills Using Web Scraping Techniques

# 2. Objectives

- Automate job listing extraction from the Naukri.com website.

- Clean and parse extracted data, especially skill tags.

- Analyze and visualize the top skills demanded across cities.

- Generate heatmaps showing skill trends by job title.

# 3. Tools and Technologies

- Language: Python

- Libraries:

- Selenium: For web automation and scraping dynamic content

- BeautifulSoup (optional for static parsing)

- Pandas: Data manipulation

- Matplotlib & Seaborn: Visualization

- Web Platform Scraped: Naukri.com instead of LinkedIn because it does not allow direct web scraping.

# 4. Methodology

4.1 Web Scraping:

- Selenium with headless Chrome used to open job listing pages.

- Extracted job title, company name, location, and skills.

4.2 Data Cleaning:

- Converted skill strings to lowercase.

- Split and stripped individual skills for uniformity.

4.3 Data Analysis:

- Calculated frequency of each skill.

- Bar chart shows top 10 most in-demand skills.

- Heatmap visualizes relationship between job titles and required skills.

# 5. Results

Top 10 Skills:

- Example: Python, SQL, Excel, Machine Learning (may vary with input).

Heatmap:

- Displays job title vs skill frequency.

- Useful for visualizing city-specific market demand.

# 6. Deliverables

|  |  |
| --- | --- |
| **Deliverable** | **Status** |
| Job Titles, Skills and Locations | Completed |
| Skill Tags Cleaned and Parsed | Completed |
| Excel Output File | Generated |
| Top 10 Skills Chart | Completed |
| Heatmap of Skills by Job Title | Completed |

# 7. Limitations

- Layout changes on the Naukri site could break scraping logic.

- Skill parsing is literal, no semantic grouping (e.g., 'Python' vs 'Python 3').

- Results depend on real-time listings and may change daily.

# 8. Future Scope

- Apply NLP to group similar or related skills.

- Scrape multiple job platforms for a broader view.

- Develop a dashboard for interactive live monitoring.

# 9. Conclusion

The project effectively demonstrates the use of web scraping and Python-based analysis

to extract valuable insights from job listings. It aids in understanding market demand

for specific skills and provides useful direction for job seekers and recruiters.