Analyzing Emerging Technology and Skills Trend

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IBM Developer

SKILLS NETWORK

OUTLINE

- Executive Summary
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- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

EXECUTIVE SUMMARY

- **Staying Competitive in IT Industry**
- **Study Overview:**
  - Utilizes data analytics and spotlights present and projected trends in coding languages, databases, and tech areas.
  - Delves into demographics of technology professionals.
- **Data Sources:**
  - Stack Overflow survey, IBM website, Job postings on GitHub.
- **Data Analysis Process:**
  - Collection -> Cleaning -> Exploratory analysis -> Visualization through dashboards
- **Key Findings:**
  - JavaScript reigns as the most popular programming language and it is also most sought out in future.
  - MySQL is currently the most utilized database. While, demand for PostgreSQL is expected to increase.
- **Demographics of Technology Professionals:**
  - Majority is male and belongs to the USA with average age of 28 years

INTRODUCTION

- This analytical presentation delves into the contemporary and prospective trajectories of skill demand within the realms of programming languages, databases, platforms, and web frameworks, utilizing the tools of data analytics.
- The inquiry pursued within this study encompasses several pivotal questions:
  - Which programming languages currently command the highest demand?
  - What constitutes the most sought-after database proficiencies?
  - Which prevailing Integrated Development Environments (IDEs) or web frameworks is famous?
- With an intended audience spanning IT professionals, HR managers, and individuals with a vested interest in the IT sector, this research endeavors to elucidate the premier, future-proof IT competencies within their respective domains of expertise.

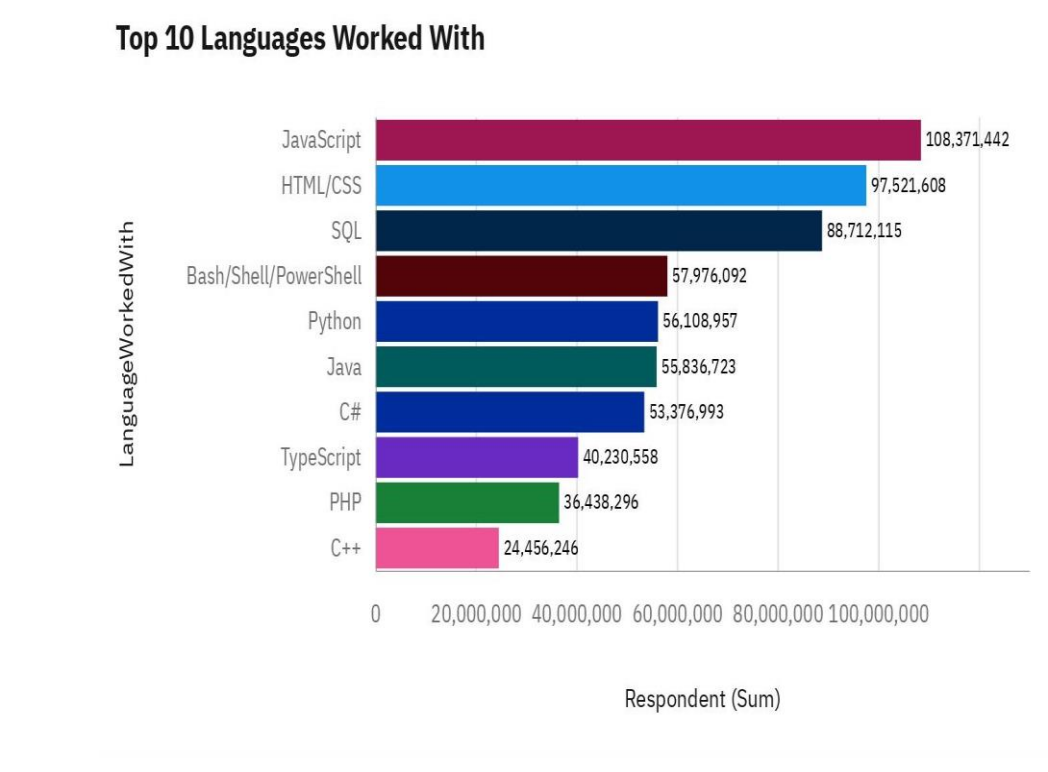
METHODOLOGY

- **Data Collection:**
- Gathered survey and website data through web scraping and APIs using the Request library in Python.
- **Data Wrangling:**
- Performed data wrangling tasks such as remove unnecessary separators, handling missing values either by removing them or using other criterions.
- **Exploratory data Analysis:**
- Analyzed data distribution, handling outliers, and identifying correlations.
- **Data Visualization:**
- Visualized the collected data to highlight distribution, relationships, composition, and comparisons using various visualization techniques.
- **Dashboards :**
- Developed interactive dashboards to present the analyzed data in a user-friendly and insightful manner.

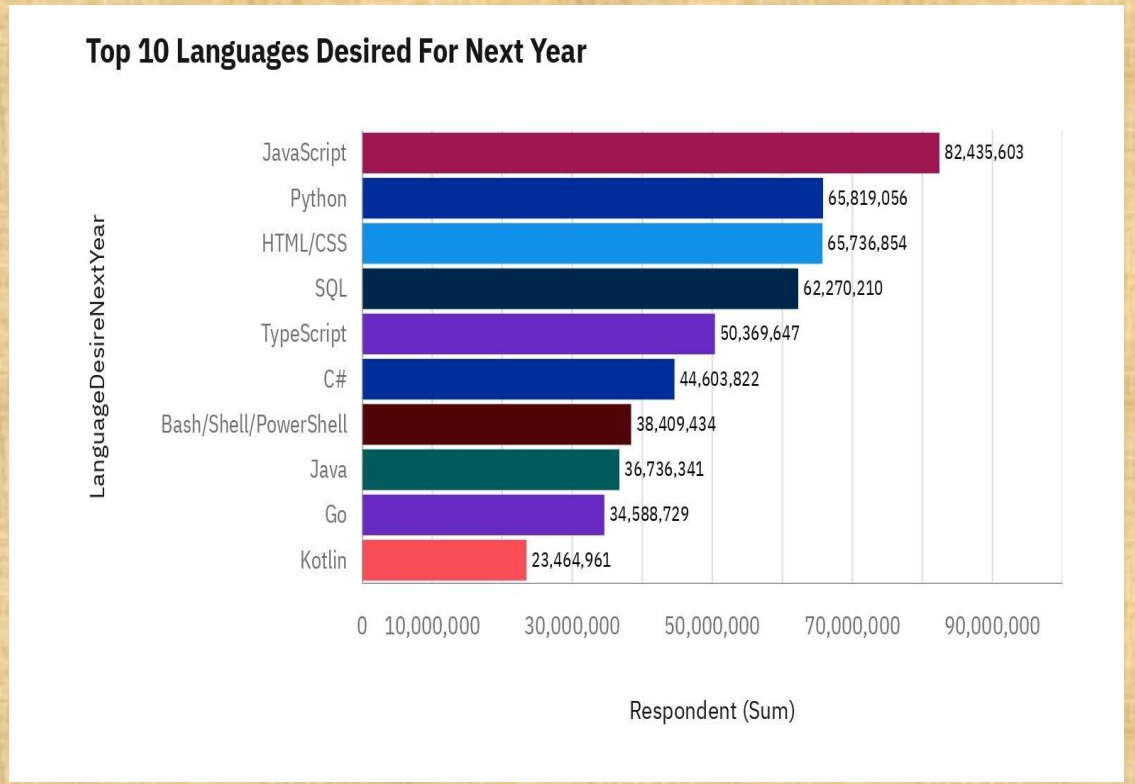
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

➢ Findings

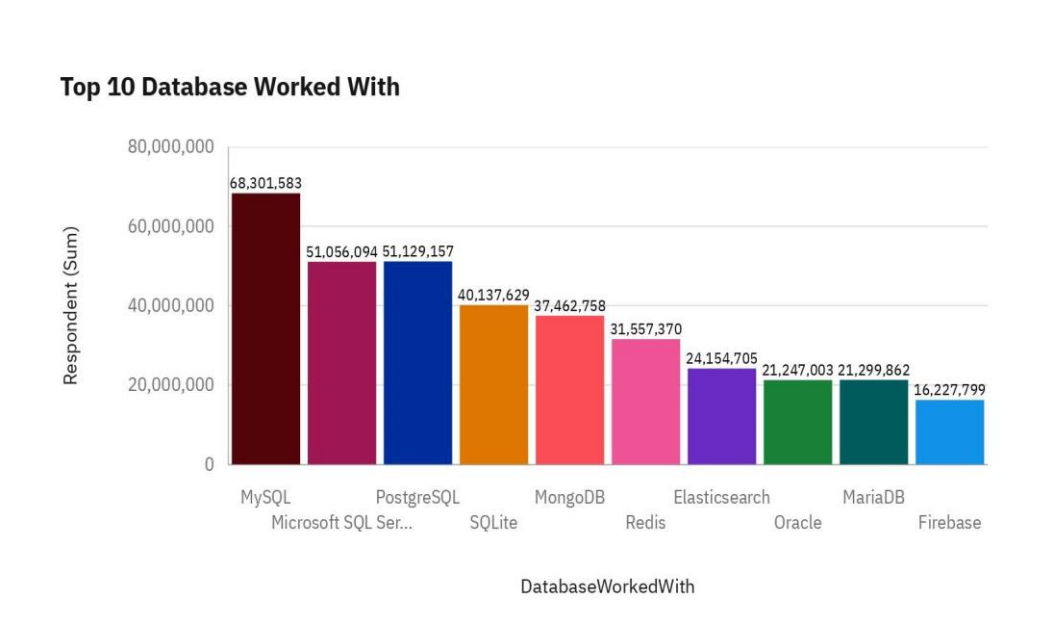
- Currently, the most famous languages are HTML/CSS, JavaScript, SQL, Python, and Shell Languages.
- JavaScript, HTML/CSS, Python, SQL, and TypeScript are most desired languages for future.
- Python is growing at faster pace than SQL.

➢ Implications

- JavaScript and HTML/CSS are popular due to high demand of web development. Also, TypeScript is getting attention of masses.
- Python growth is associated with Artificial Intelligence and Machine Learning. Modeling and model training is quite fast with it.
- SQL, despite loosing its demand to Python in future, is still valuable for Data Professionals like Data Analysts, Data Scientists, etc.

DATABASE TRENDS

Current Year



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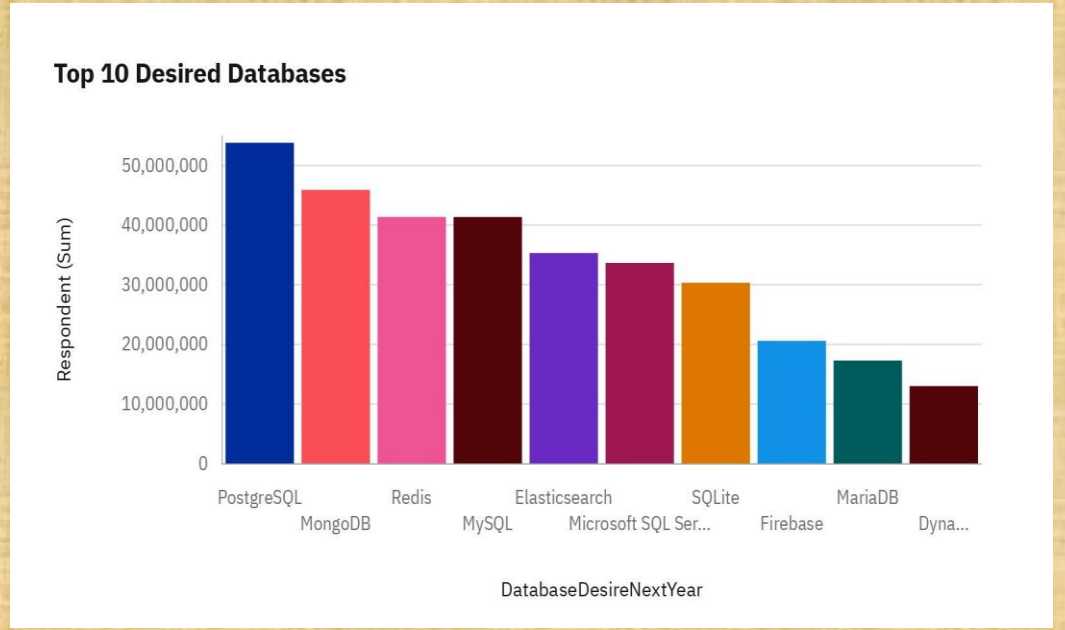

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

➢ Findings

- MySQL is the most preferred database currently.
- Demand for Microsoft SQL Server and SQLite is declining.
- PostgreSQL and MongoDB are most desired in the future.

➢ Implications

- Microsoft SQL Server and SQLite are losing the market attention leading to decline in their utility.
- PostgreSQL and MongoDB has captured the market attention which leads them as market most desired in near future.

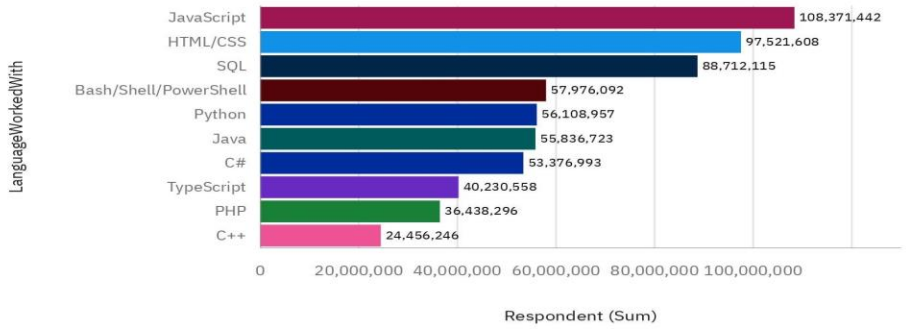
DASHBOARD

https://ap1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FCapstone%2Bdashboard&action=view&mode=dashboard&subView=model0000018e186ec3b8_00000000

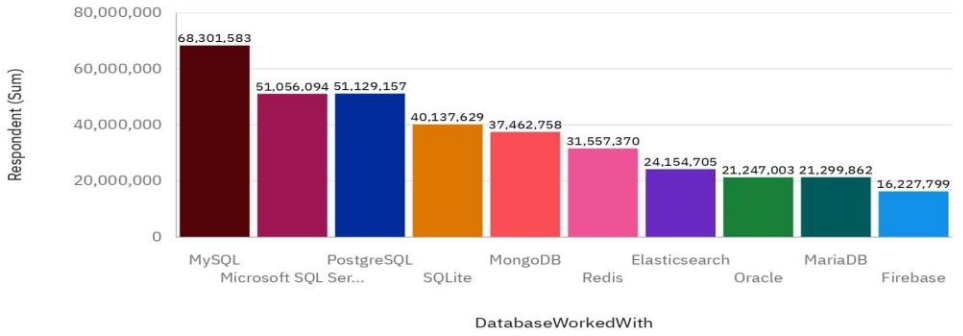
DASHBOARD TAB 1

Current Technology Usage

Top 10 Languages Worked With

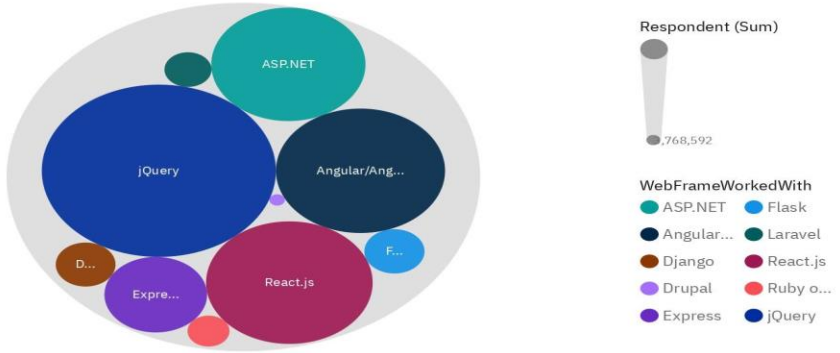


Top 10 Database Worked With



Platforms interacted

Top 10 WebFrames used



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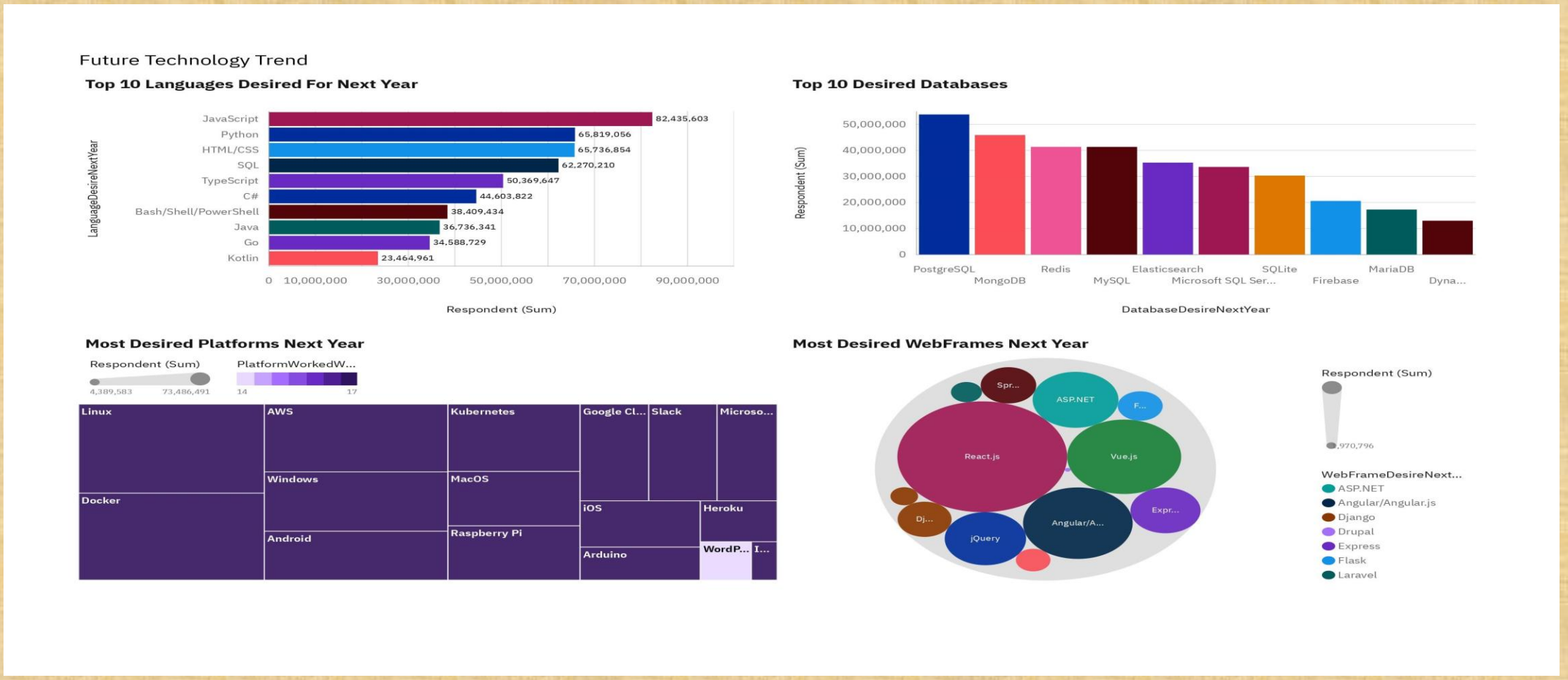
DASHBOARD TAB 2



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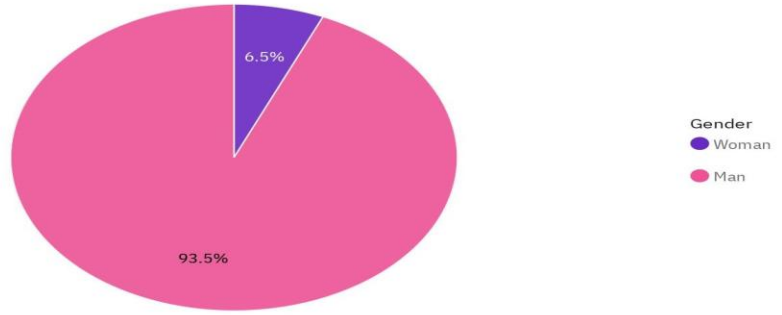
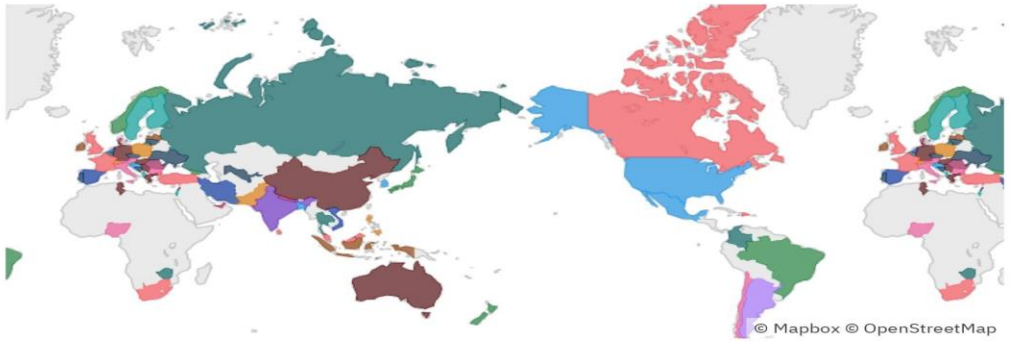
DASHBOARD TAB 3

Demographics

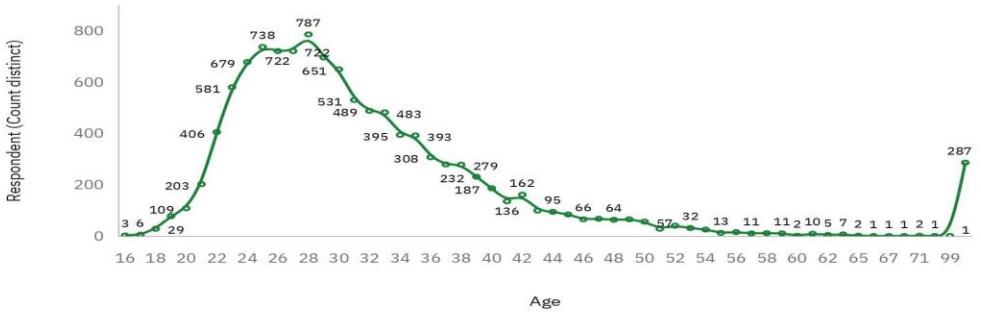
Respondents by Gender



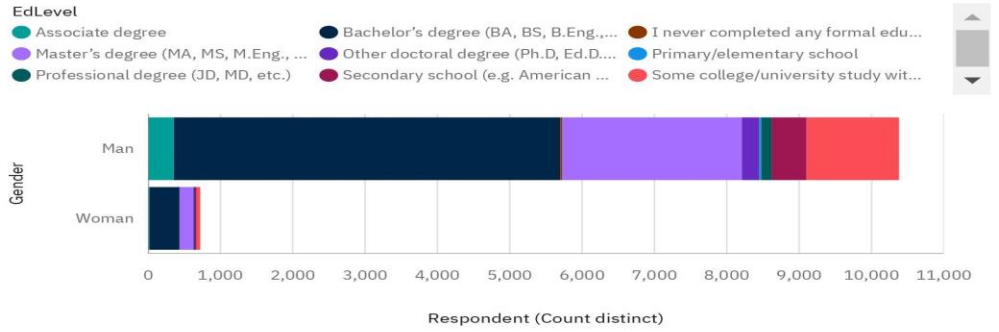
Respondents Locations



Respondents by Age



Respondent by Gender colored by EdLevel



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DISCUSSION

- Evolution is a sure thing even for developers.
- There is huge gender gap in the technology sector which needs to be minimized.
- Most of the developers have undergraduate degree.
- Kotlin is getting more fame due to rise in demand for mobile app development.
- Some of currently used languages and databases may not be relevant in the future as they are today.

OVERALL FINDINGS & IMPLICATIONS

➢ Findings

- Most of the developers are located in the developed countries.
- More than 90% developers are young male.
- JavaScript is widely used and TypeScript is getting fame by every passing day.

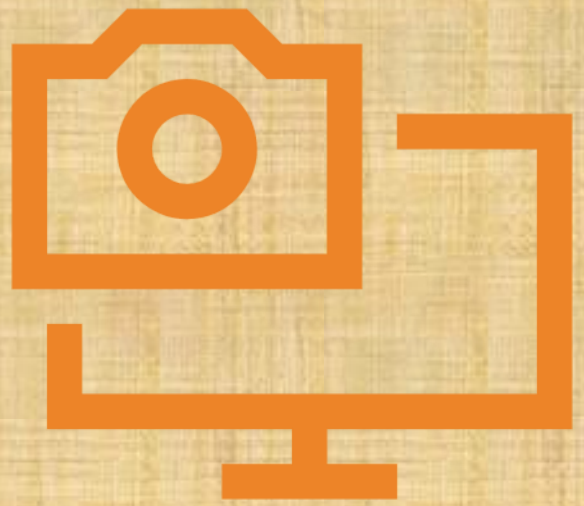
➢ Implications

- Less developed countries need to pay more attention on tech education and skills upbringing.
- There is huge global polarization of developers on the basis of gender and geogrgaphy.
- Developers will have huge work opportunities in Web Development in the future. That’s why, JavaScript and TypeScript are most sught out languages.

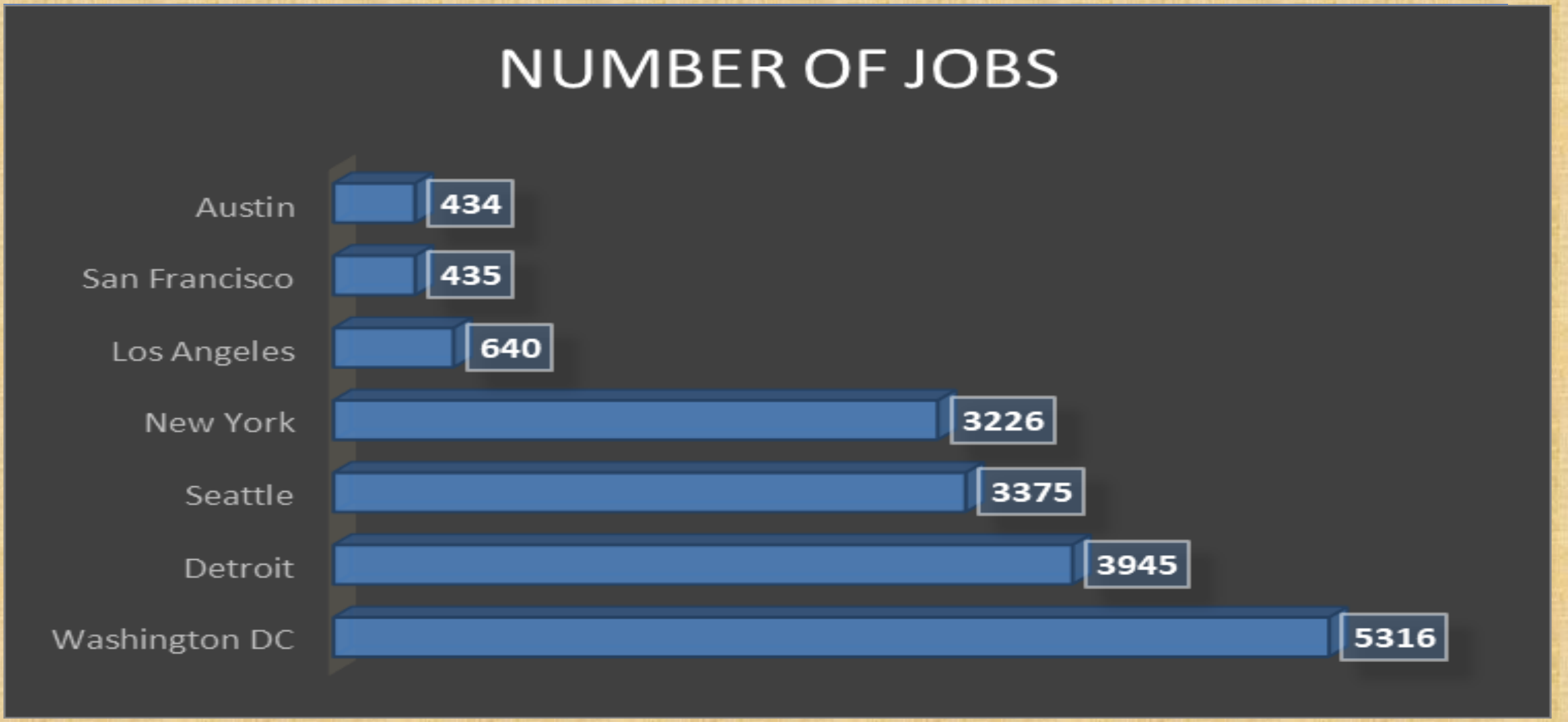
CONCLUSION

- Change is inevitable and the reason for upgradation of skills of developers.
- Market is getting diversified everyday.
- Web Development is quite lucrative field even in the future.
- Masters is not quite necessary as most of the developers have bachelors degree.

APPENDIX



JOB POSTINGS



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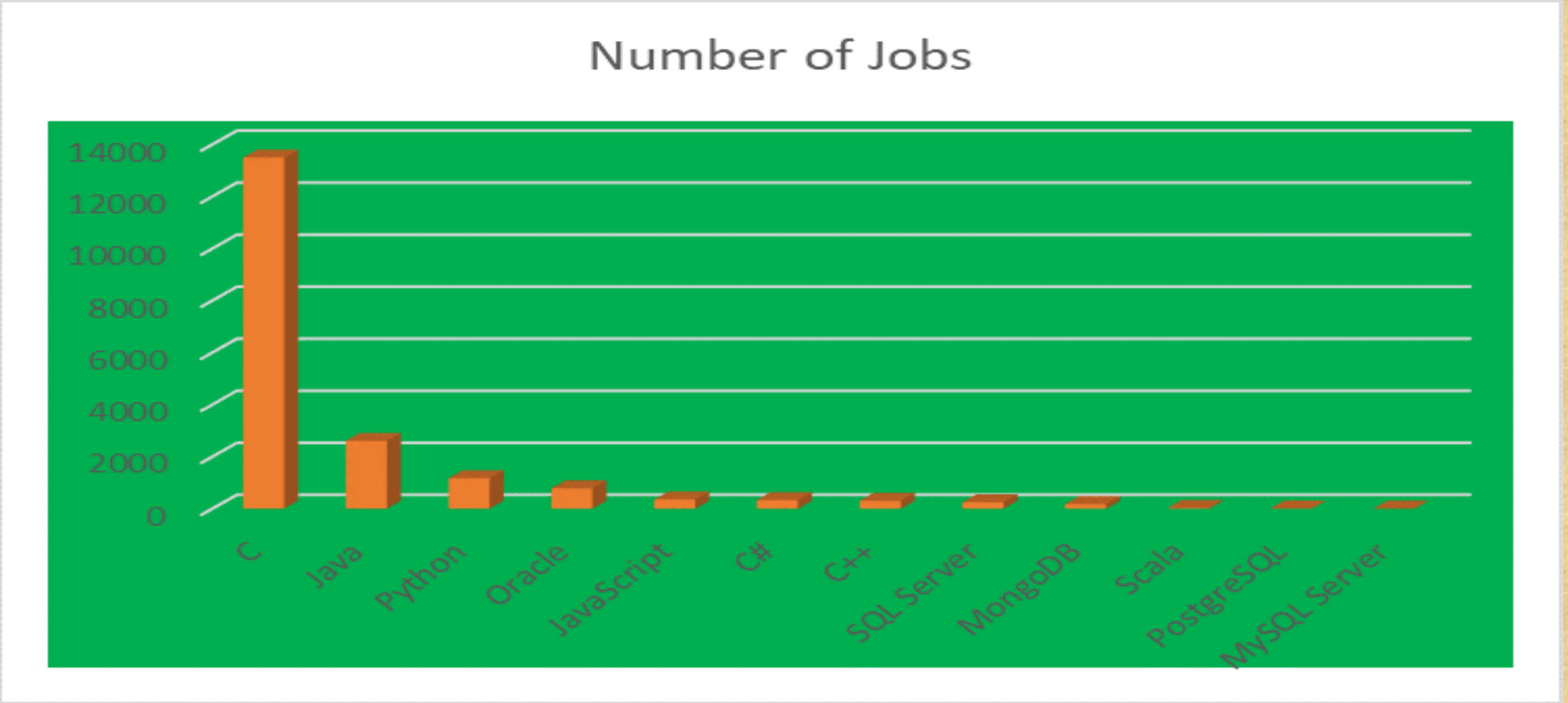
POPULAR LANGUAGES