Emerging Technology Trends – Key Findings

Vadim Savenkov

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IBM Developer

SKILLS NETWORK

OUTLINE

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

EXECUTIVE SUMMARY

- **Current Technology Trends By:**
  - Language
  - Database
  - Platform
  - Web Frameworks
- **Future Technology Trends By:**
  - Language
  - Database
  - Platform
  - Web Frameworks
- **Demographic Trends By:**
  - Age
  - Gender
  - Education
- **Key Findings**

INTRODUCTION

- **Identifying technology trends for future skill requirements.**
- **Collecting data from various sources and identifying trends for this year's report on emerging skills from:**
  - Job postings
  - Training portals
  - Surveys
- **Analyzing the data and identifying insights and trends including:**
  - The top programming languages in demand
  - The top database skills in demand
  - The popular IDEs
- **Building dashboards to visualize insights and trends to bring findings for developers, recruiters, educators, and policymakers**

METHODOLOGY

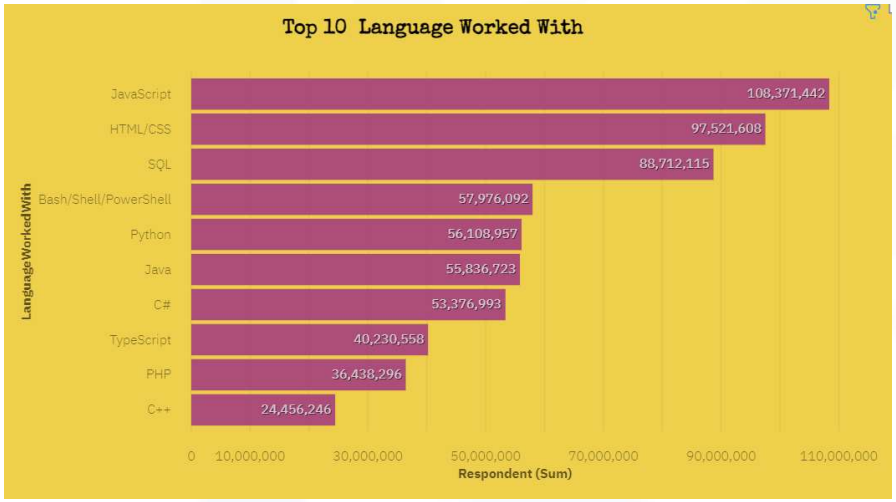
- Data Sourcing and Collection
- Data Wrangling and Cleaning
- Exploratory Data Analysis
- Data Visualization and Comparison
- Dashboards by IBM Cognos Analytics

RESULTS OVERVIEW

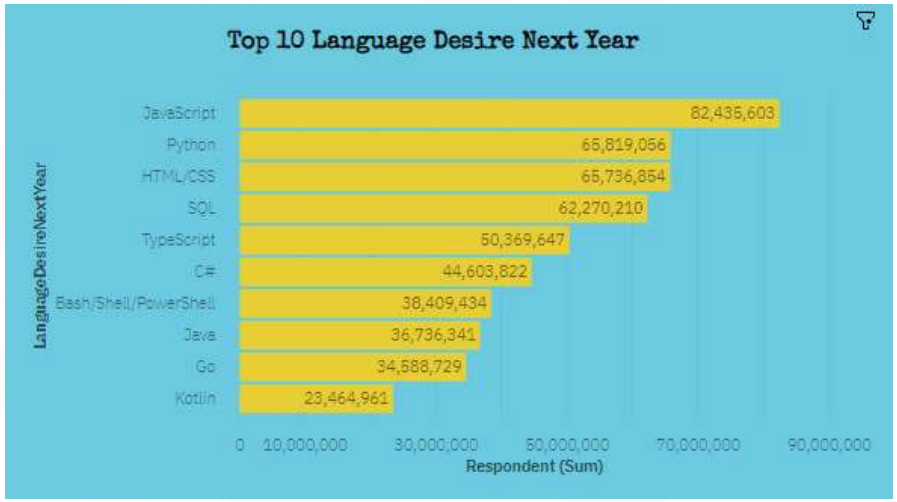
- Programming Language Trends
- Database Management Systems Trends
- Software Platform Technology Trends
- Software Framework Technology Trends
- Demographic Trends

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

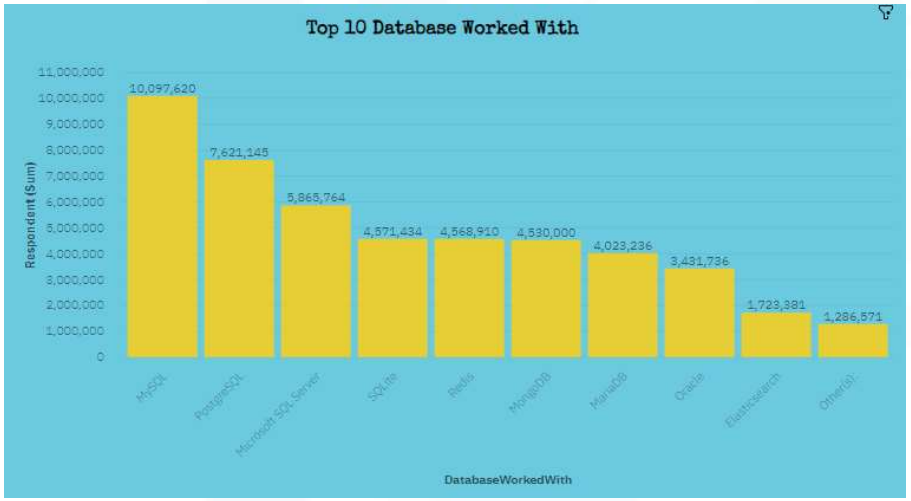
- JavaScript is the most popular language for software development today.
- HTML/CSS remains one of the top front-end languages
- SQL stays popular as a main language to manage relational databases.
- PowerShell/Bash is among the top 5 languages used for system administration.
- Python keeps climbing to the top.

Implications:

- JavaScript and HTML/CSS will continue to dominate in web development.
- The interest in open-source TypeScript has increased as larger applications are required to be developed and maintained.
- SQL will remain the main relational DB querying language for the time being.
- Python's popularity keeps growing with the recent extensive development of AI, ML, and neural network applications.

DATABASE TRENDS

Current Year



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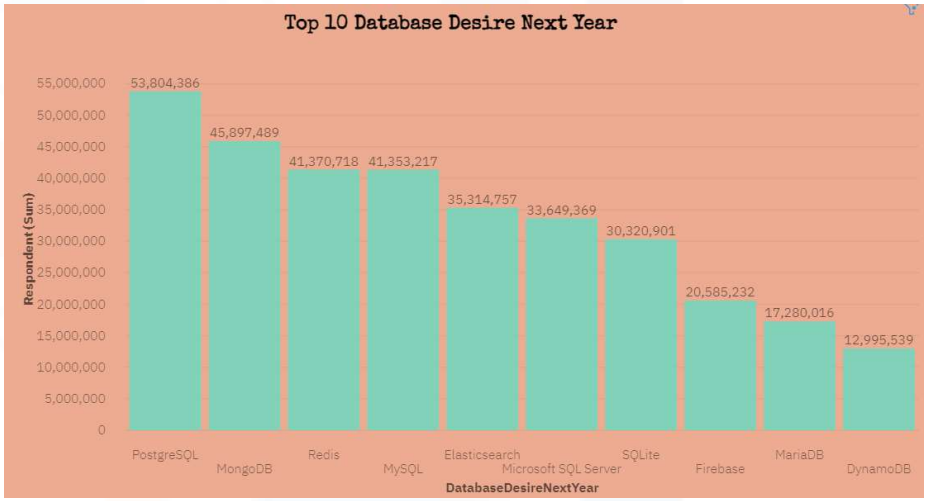


DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- MySQL, PostgreSQL, and MS SQL Server are the top 3 programming languages to store and process information in a relational database.
- MongoDB is among 5 database management programs. It stays popular as an alternative to traditional relational databases.
- SQLite stays popular as a C-language library that implements a small, fast, high-reliability SQL database engine.

Implications:

- PostgreSQL has become the most popular database management program as an object-relational database to manage more complex data types.
- MongoDB has gained more popularity, as a non-relational document database that provides support for JSON-like storage.
- There is a growing demand to manage unstructured data and document-oriented databases like Elasticsearch get more popular.

DASHBOARDS LINKS

Current Technology Trends Dashboard:

https://dataplatform.cloud.ibm.com/dashboards/4757e074-977b-42e6-812c-875bc1be35dd/view/4169f01c2cea3e914be2dce407cd7d027e37245cb0bb840589877b490f367797f06e1597c8264d0bda165732fbbf4458c1

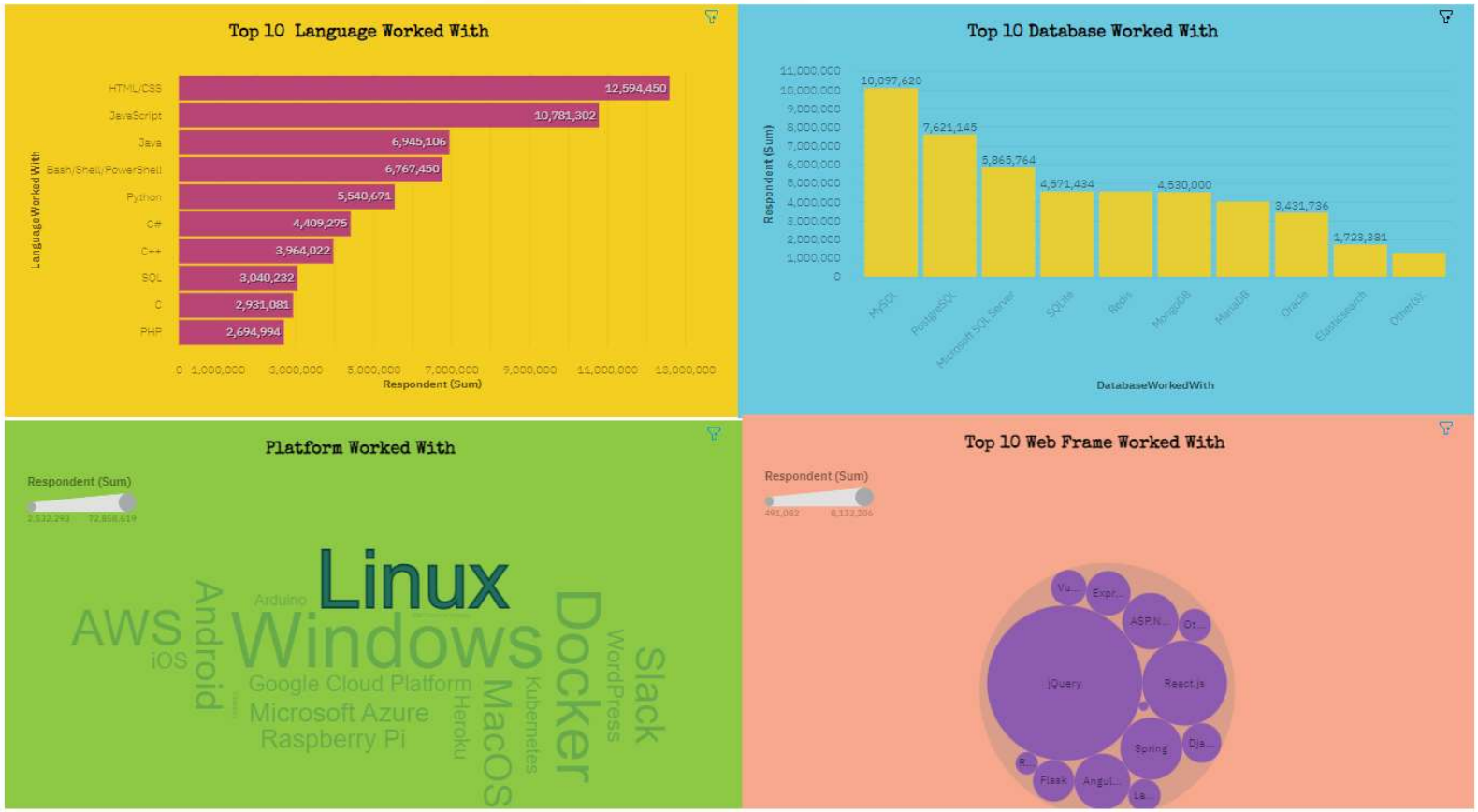
Future Technology Trends Dashboard:

https://dataplatform.cloud.ibm.com/dashboards/3151b53b-40ec-4529-98b1-8fa1d17e1123/view/610ac2031f9d2ec80db6f6e407cd7d027e37245cb0bb840589877b490f367797f06e1597c8264d0bda165732fbbf4458c1

Demographics Dashboard:

https://dataplatform.cloud.ibm.com/dashboards/ba8e311d-ef43-41a6-9d2f-4857a15e5636/view/4761ca2615ed62e563b5c4e407cd7d027e37245cb0bb840589877b490f367797f06e1597c8264d0bda165732fbbf4458c1

DASHBOARD 1 – CURRENT TECHNOLOGY TRENDS



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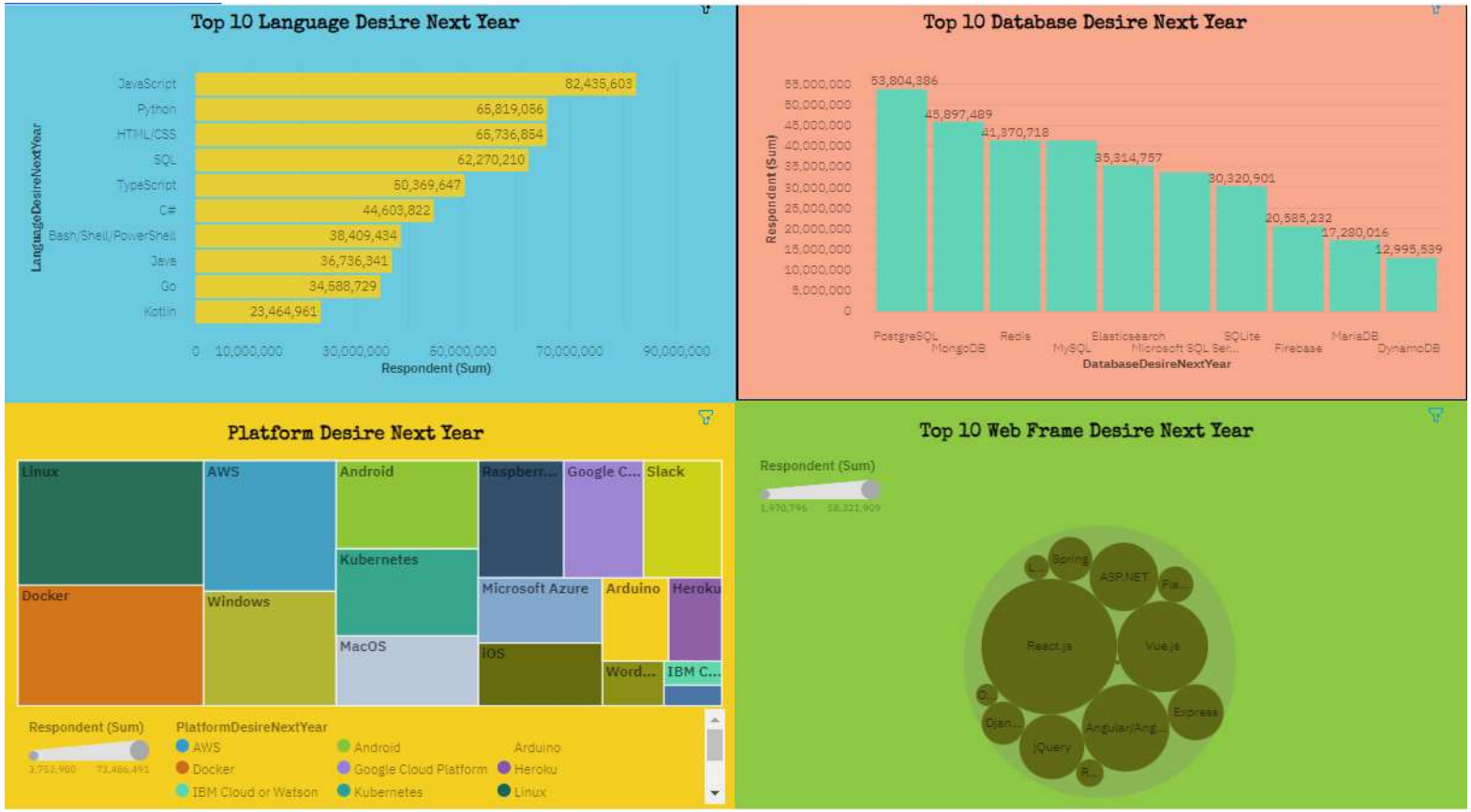
DASHBOARD 2 – FUTURE TECHNOLOGY TRENDS



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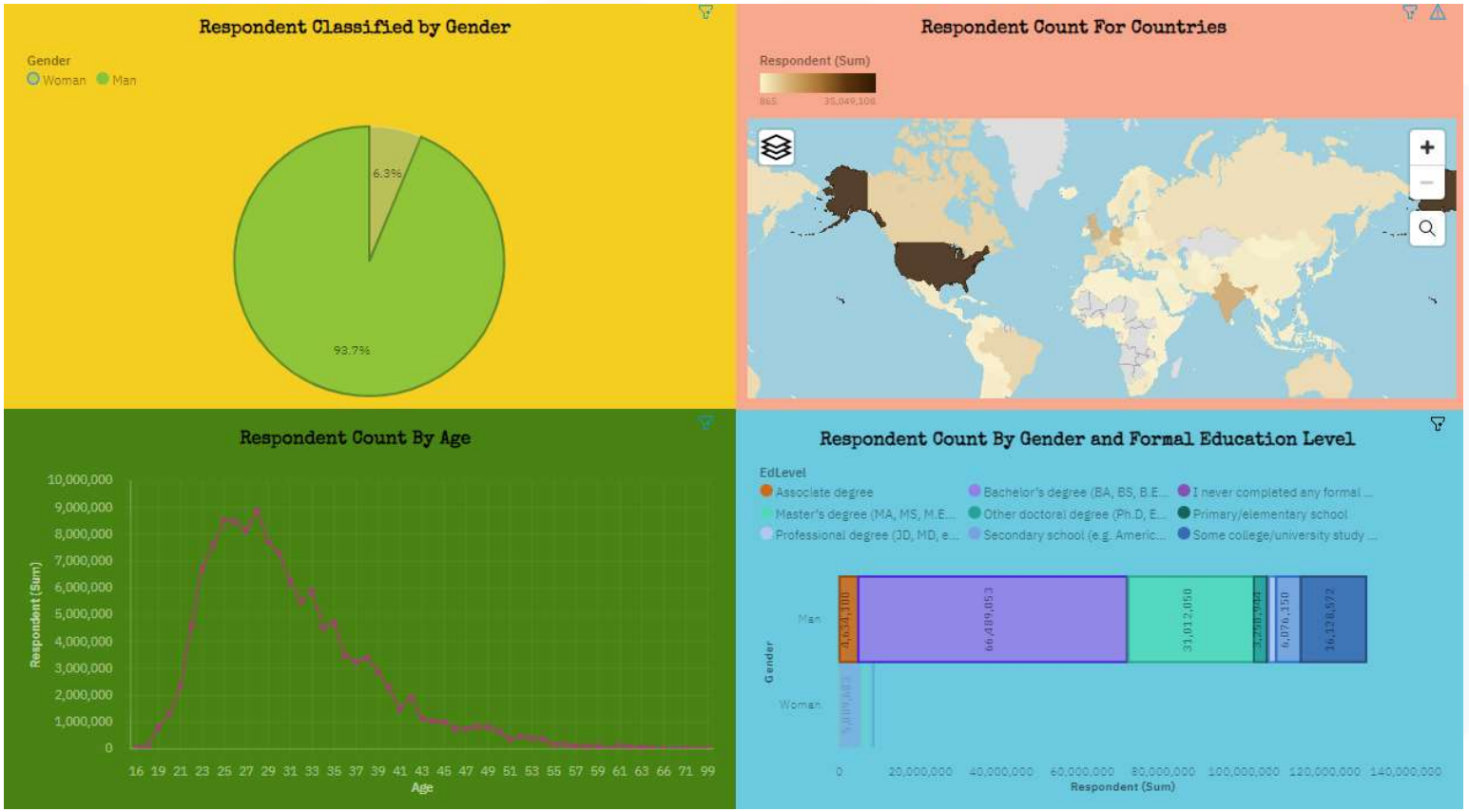
DASHBOARD 3 – DEMOGRAPHICS TRENDS



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DISCUSSION

- Current software development technologies in high demand.
- The growing popularity of some modern programming languages and frameworks for web development.
- New technologies skills to learn in the nearest future for software developers and database administrators.
- Software developer's demographic in terms of age, gender, and education.
- Today's expectations of compensation for full-stack software developers.

OVERALL FINDINGS & IMPLICATIONS

Findings:

- High demand for JavaScript and HTML/CSS programming languages.
- Growing popularity in Python and Typescript.
- High interest in SQL database management programs with MySQL at the top.
- MongoDB stays a great alternative to traditional relational databases.
- Linux and Docker are the most popular platforms

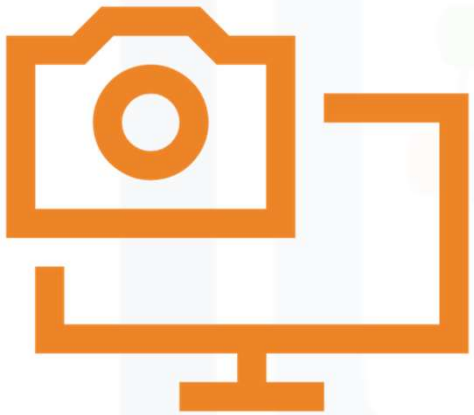
Implications:

- Prospective software developers will have to learn new skills such as Typescript, MongoDB, and React.js.
- Data analysts should become more proficient in Python programing language to handle a larger amount of data for business needs.
- SQL, as well as No SQL competence, is a must for business analysts.
- To adapt to changing technologies and reduce gender and education gaps.

CONCLUSION

- This data analysis allowed us to get valuable insights from the software development technologies.
- It helped to discover trends for future development of critical skills to stay competitive in the volatility of today's market for software developers.
- It provided more clear insights that could help businesses to target new talents, to solve educational complications, and to address gender issues.

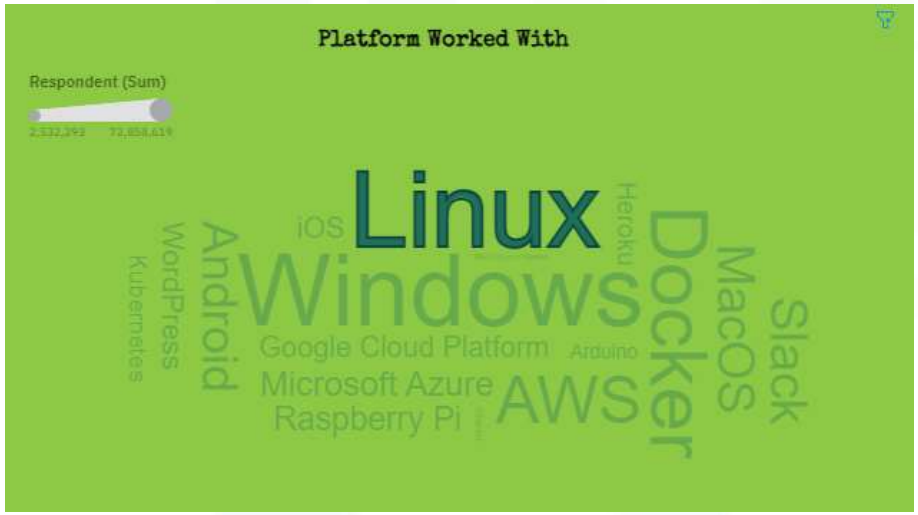
APPENDIX 1 - 3



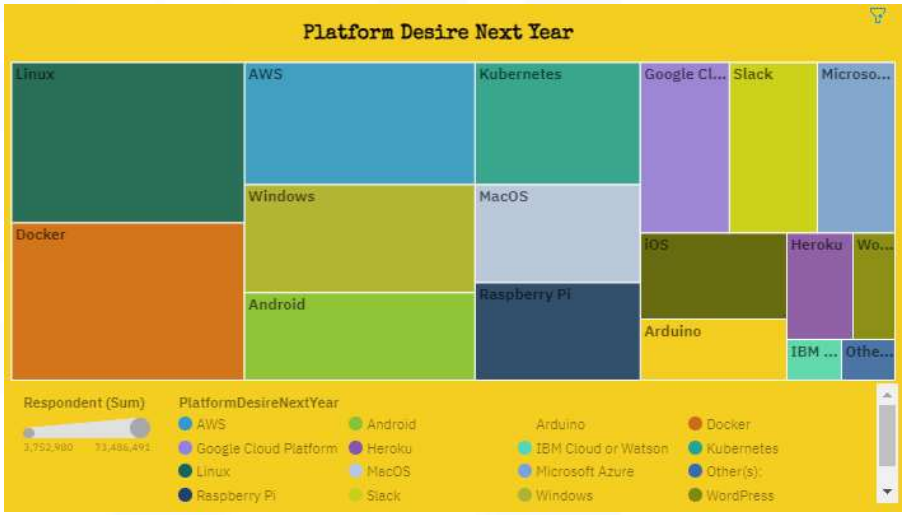
- Platform Technology Trends
- Framework Technology Trends
- Demographics Trends

APPENDIX 1 - PLATFORM TRENDS

Current Year



Next Year



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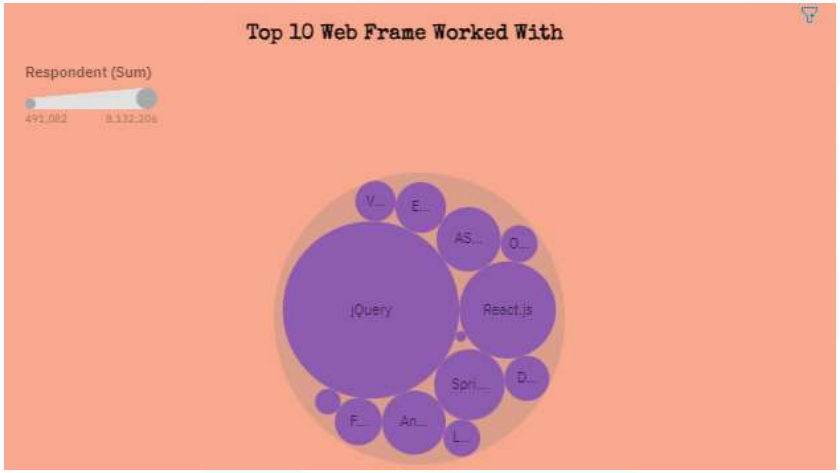
APPENDIX 2 - FRAMEWORK TRENDS

Current Year



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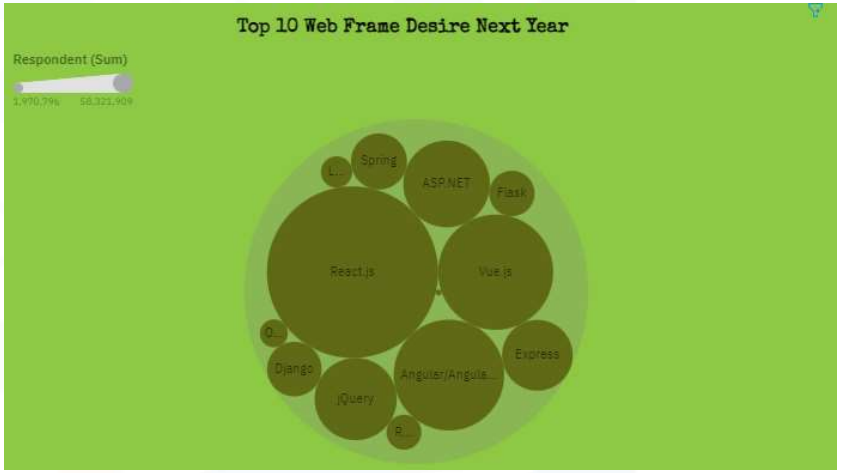

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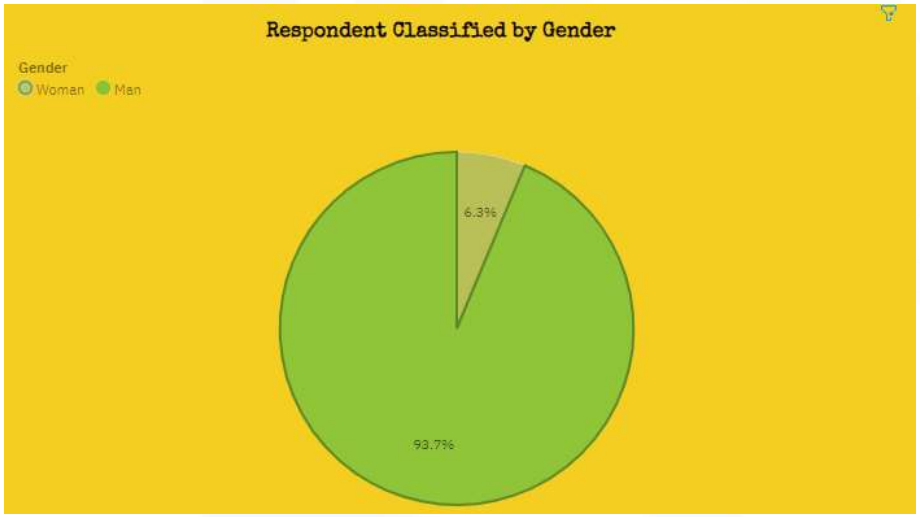
APPENDIX 3 - DEMOGRAPHICS TRENDS

By Gender



By Age

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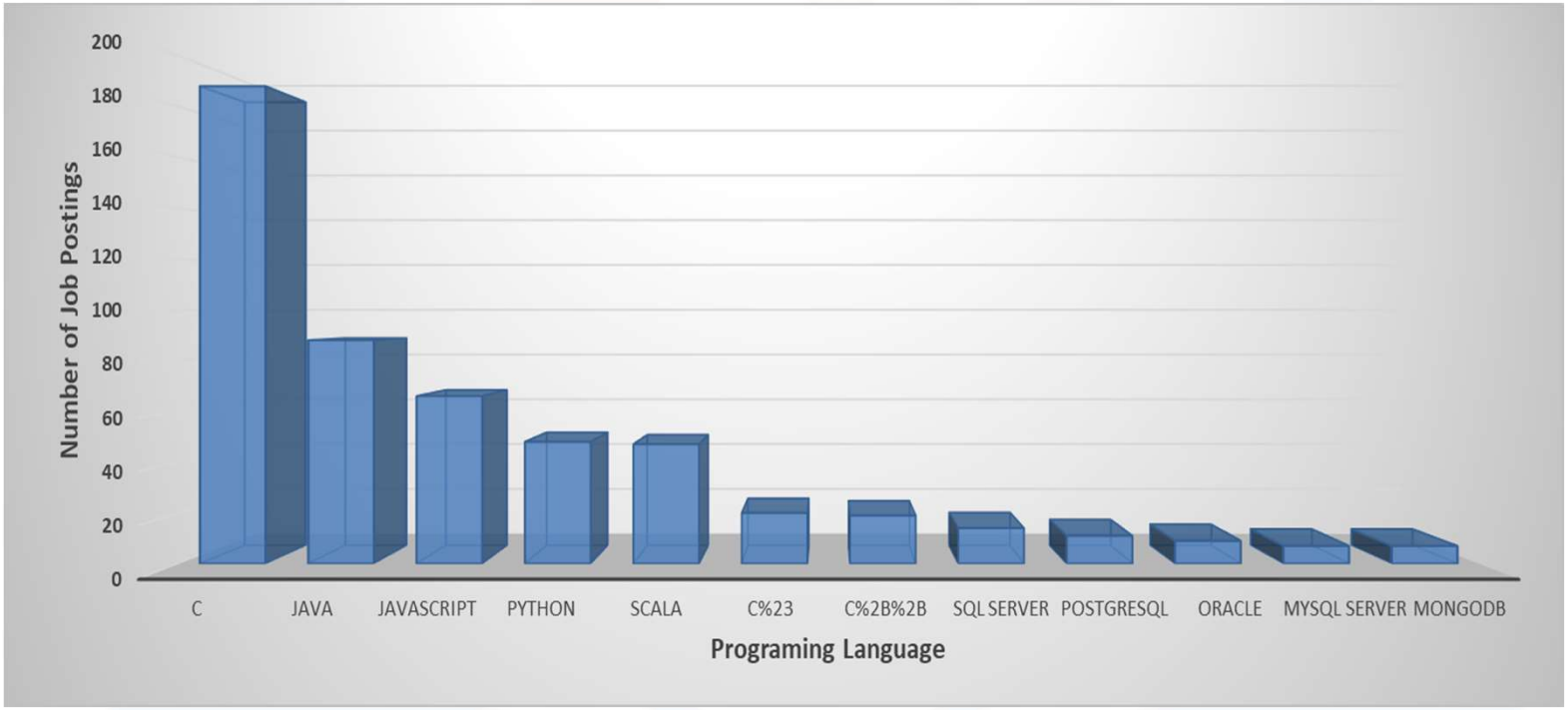
JOB POSTINGS



POPULAR LANGUAGES