Analysis of IT technology trends based on the Stack Overflow survey

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IBM Developer

SKILLS NETWORK

OUTLINE

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EXECUTIVE SUMMARY

- An analysis of current and future trends in programming languages and databases shows that JavaScript and HTML/CSS are currently the most widely used, while Python is gaining in popularity for the future.
- MySQL is the most widely used database, but PostgreSQL and Redis are increasingly in demand.
- The highest average annual salaries are associated with with Swift, Python, C++ and JavaScript indicating a strong demand for these skills in the industry.

INTRODUCTION

The project aims to analyze the technology sector in order to keep abreast of the latest developments, emerging and declining technologies, and to understand future trends in the sector with a focus on Programming Languages and Databases. This analysis will identify the skills currently most in demand and future career opportunities, and provide informed recommendations to the various stakeholders.

Project objectives:

- Develop recommendations to guide developers in their choice of skills and career path.
- Help academics update educational programs in line with market needs.
- Facilitate the reorientation of careers towards the opportunities offered by information technologies.
- Inform political decision-makers to develop appropriate education and training policies.
- Support skills development organizations in designing market-relevant training programs.

METHODOLOGY

Data source:

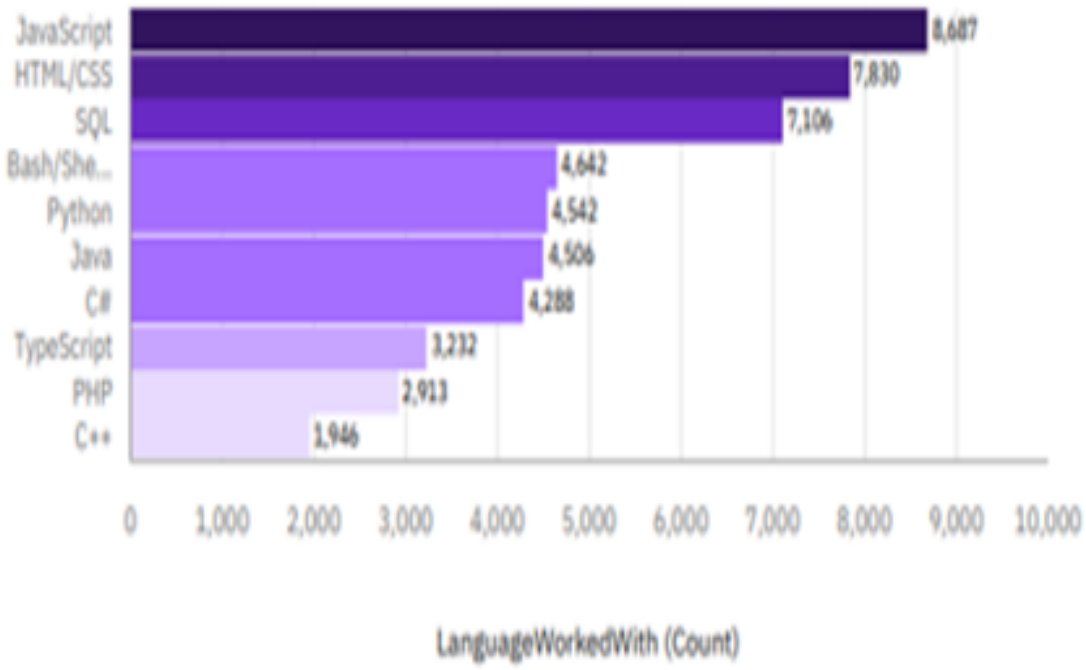
- The The data used for this project comes from Stack Overflow's annual survey and is collected via an online survey open to all Stack Overflow users and any other interested parties.

Methodology:

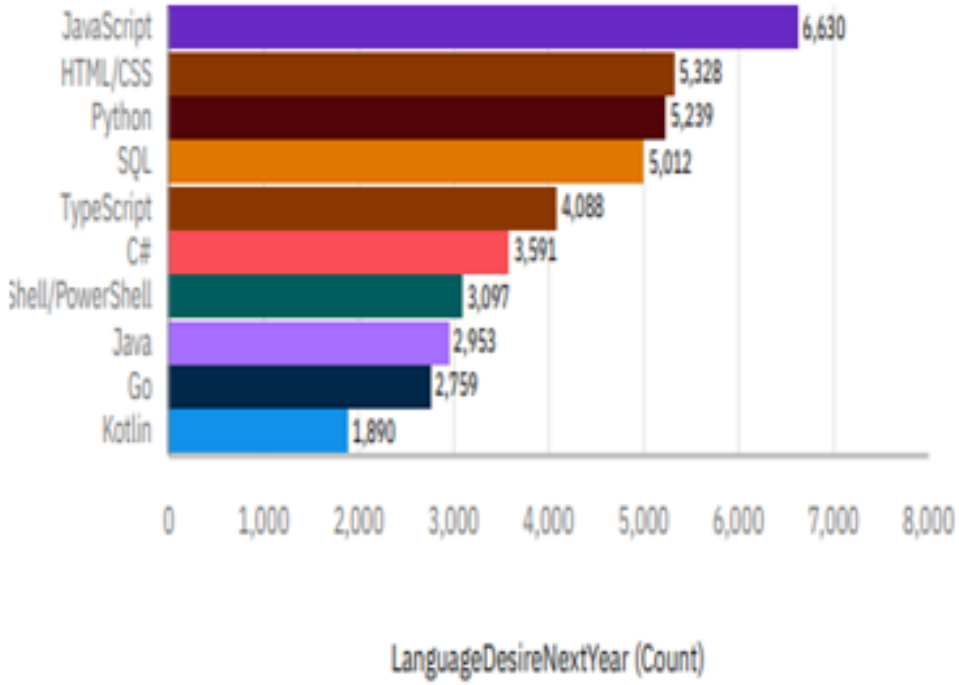
- To highlight developments in this sector, we will use a variety of visualization techniques, including graphs, maps, scatterplots and word clouds of points to represent data in a clear and understandable way. These tools will enable us to quickly identify significant trends and changes in the technology sector.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

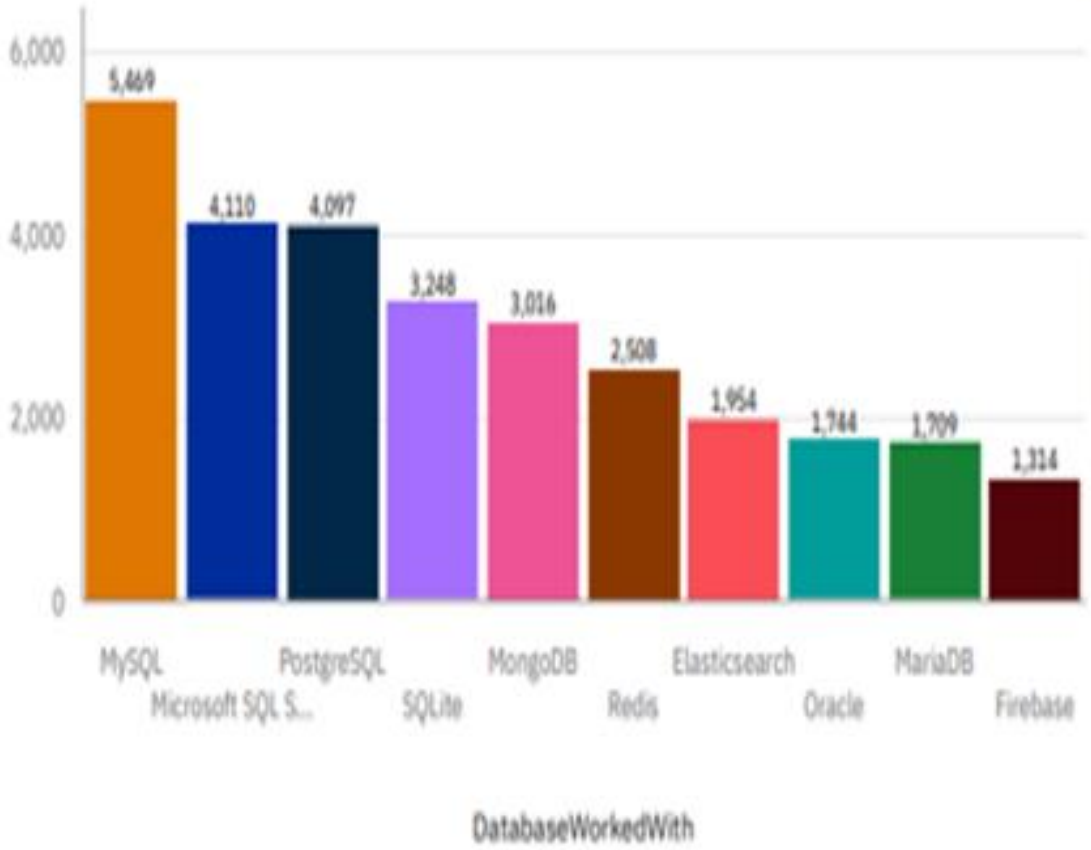
- **Finding 1** : JavaScript, HTML/CSS, and SQL are the most widely used programming languages today, with JavaScript in the lead.
- **Finding 2** : JavaScript and HTML/CSS remain the most desired languages for next year, confirming their continued popularity.
- **Finding 3** : Python is both a popular language today and a much-desired one for next year.

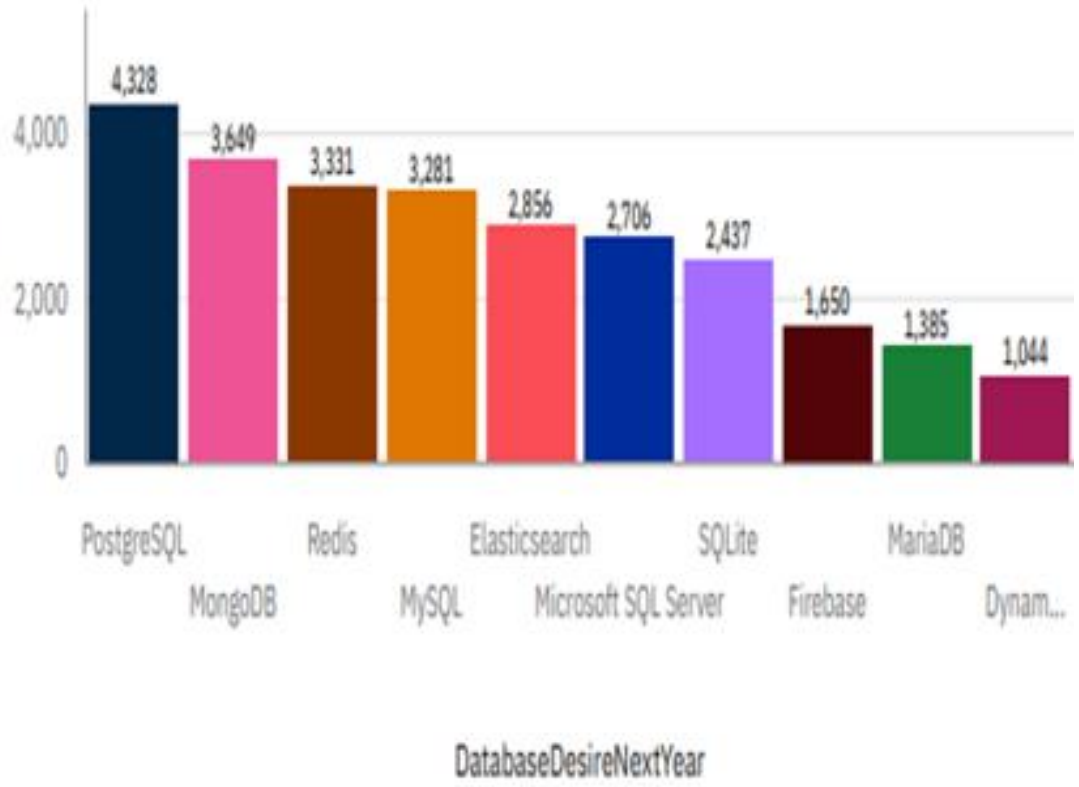
Implication 1: Strengthen ***training and skills development*** in the JavaScript and HTML/CSS development teams, and increase training in Python to meet growing demand.

Implication 2: Prioritize ***technological investments in tools and frameworks*** supporting JavaScript and HTML/CSS, and adopt Python in new projects, particularly in data analysis and web development.

Implication 3: Target **recruitment of JavaScript and Python-savvy developers** to ensure we have the talent to meet current and future needs.

DATABASE TRENDS





DATABASE TRENDS - FINDINGS & IMPLICATIONS

- **Finding 1**: MySQL is currently the most widely used database (5,469 users), but its desire for next year is relatively lower (3,281 respondents).
- **Finding 2**: PostgreSQL is the most desired database for next year (4,328 respondents), and is also widely used at present (4,097 users).
- **Finding 3**: Redis shows growing popularity, with 2,508 current users and a high future desire (3,331 respondents), indicating strong adoption ahead.

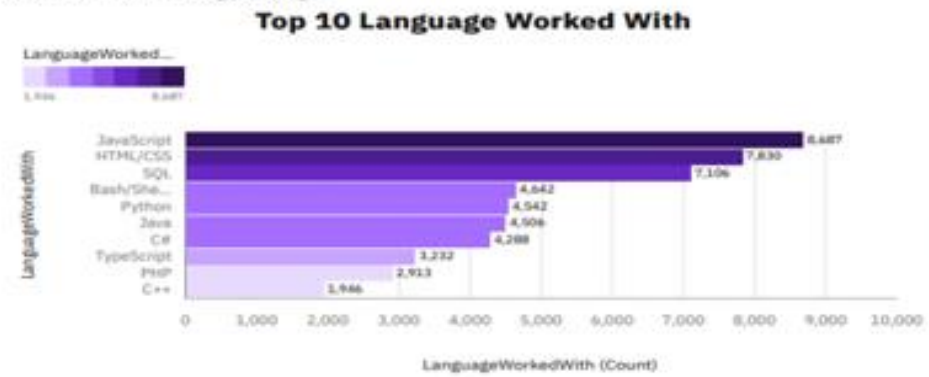
- **Implication 1**: Strengthen training and skills developmentin MySQL to maintain current efficiency, while increasing training in PostgreSQL and Redis to meet growing demand and anticipate technological transitions.
- **Implication 2**: Continue Technological Investmentsin MySQL to maintain current operations, while increasing investment in PostgreSQL and Redis to prepare for the transition to these more in-demand technologies.
- **Implication 3**: Recruit professionals with expertise in MySQL to manage current needs, as well as experts in PostgreSQL and Redis to anticipate future growth and technological transitions.

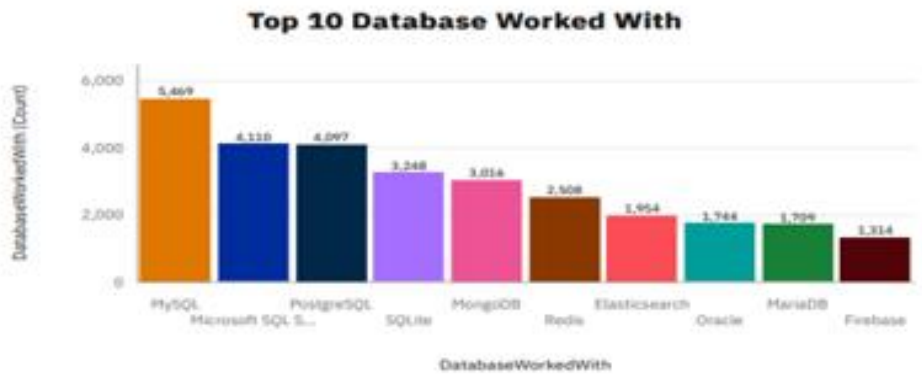
DASHBOARD

Please click **here**.

DASHBOARD TAB 1

Current Technology Usage



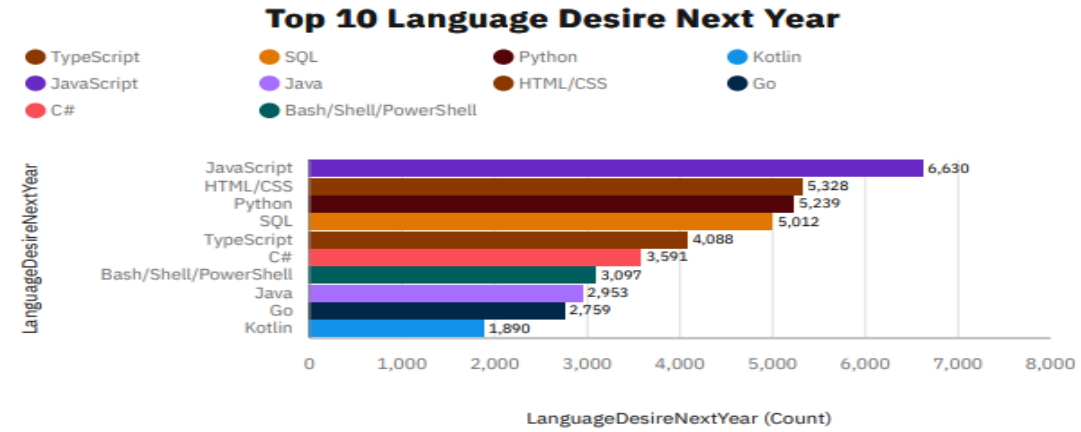


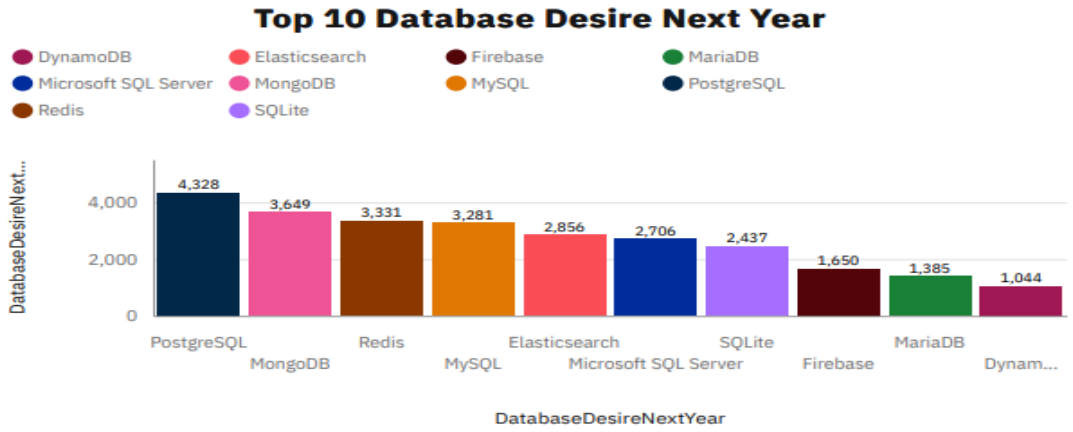
Platform Worked With

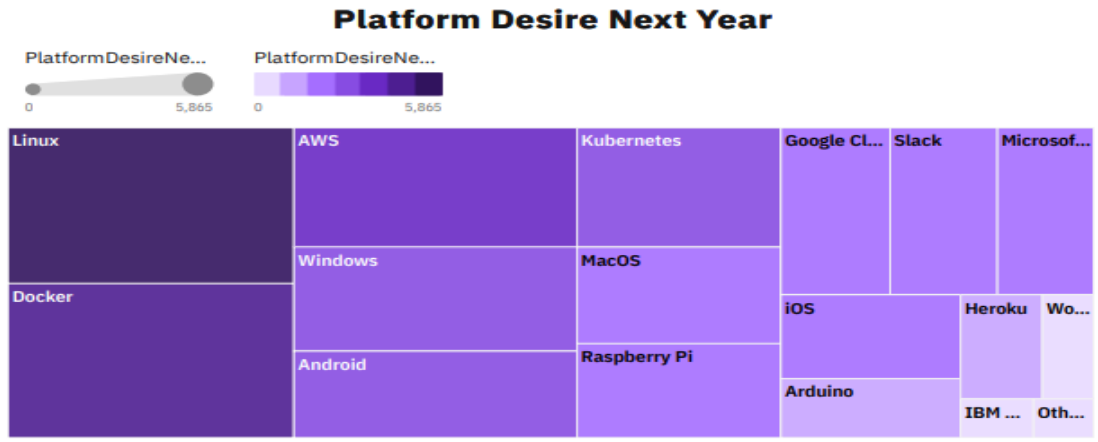
Top 10 WebFrameWorkedWith

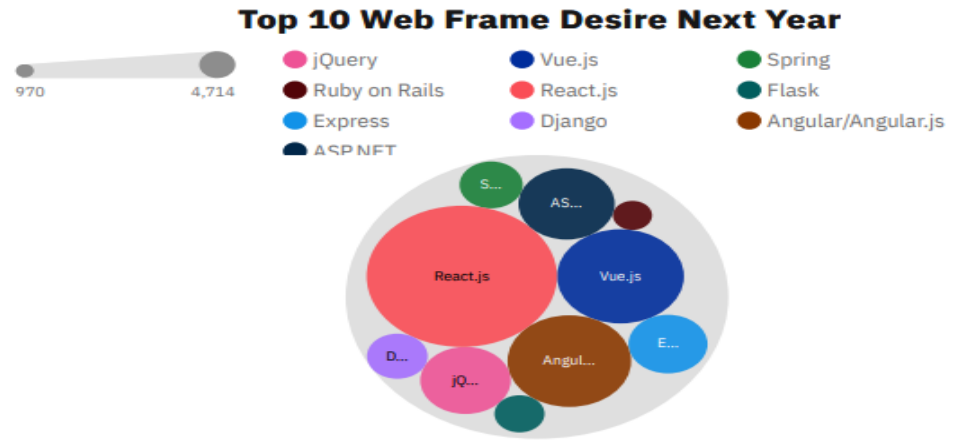
DASHBOARD TAB 2

Future Technology Trend

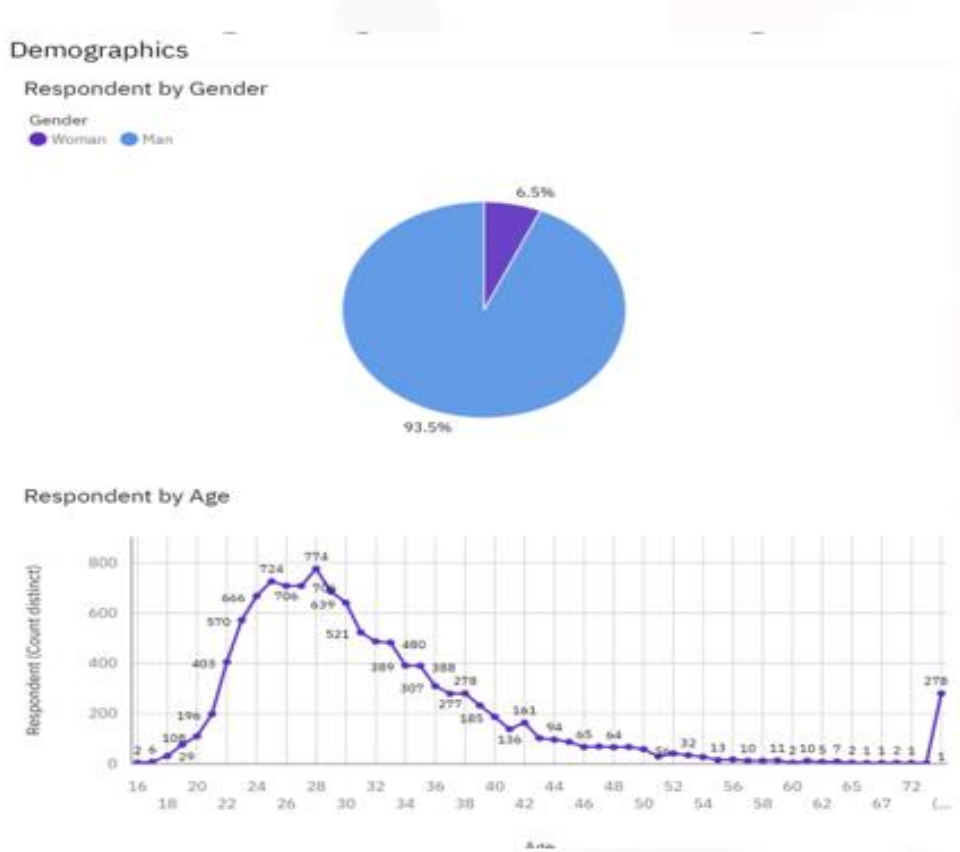


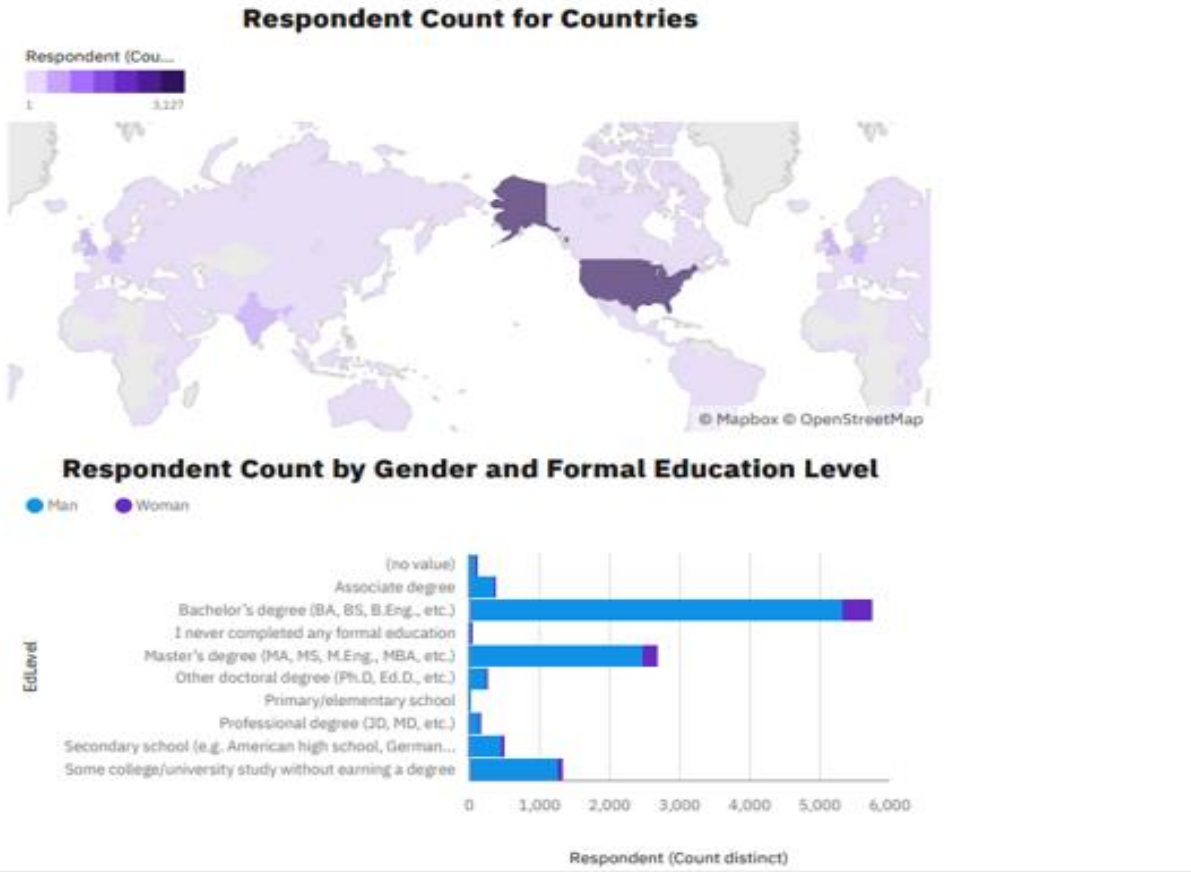






DASHBOARD TAB 3





DISCUSSION

1. For Coders themselves:

- For Current and Future skills, coders must continue to strengthen their JavaScript, HTML/CSS and SQL skills to remain competitive now, while developing Python and PostgreSQL skills to anticipate future needs.

2. For Career changers:

- People looking to enter the Technology Industry should prioritize learning JavaScript, HTML/CSS, and SQL for immediate opportunities, as well as Python and PostgreSQL for sustainable and future insertion into the job market.
- It's crucial to participate in ongoing training to keep up to date with emerging technologies and market trends.

DISCUSSION

3. For Decision-Makers in Education and Training Policies:

- Education and training programs should be aligned with current and future trends, with an emphasis on JavaScript, HTML/CSS, Python, and PostgreSQL.
- Develop educational policies that anticipate technological change and prepare students for emerging technologies such as Redis and MongoDB.
- Invest in infrastructure and resources to provide up-to-date, practical training in these technologies.

4. For Skills Development Organizations:

- Update curricula to include both technologies currently in use and those in demand for the future.

DISCUSSION

- Work closely with the IT industry to ensure that training courses meet real market needs and include technologies such as PostgreSQL, MongoDB, Python and Redis.

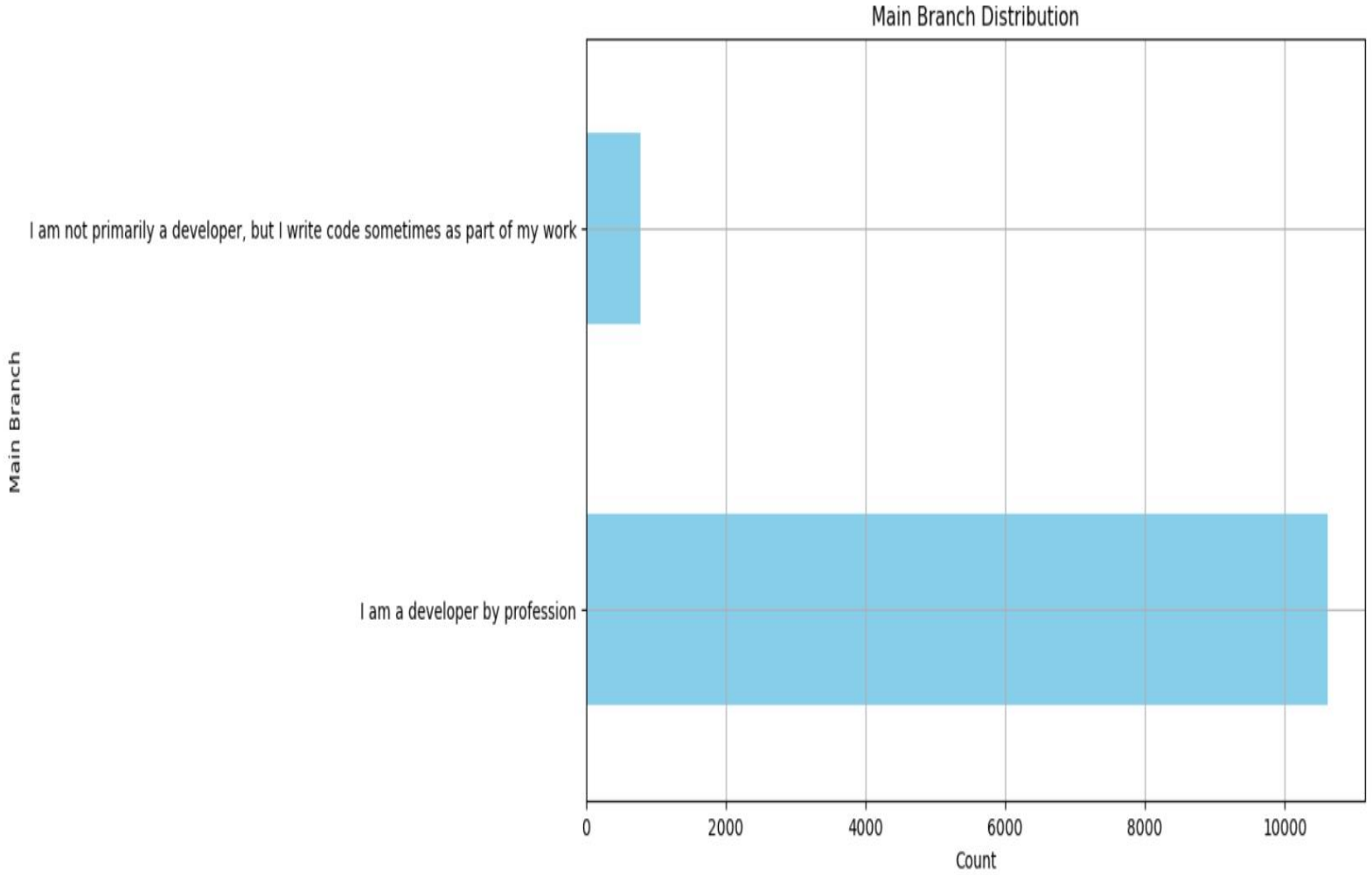
5. For the IT industry:

- The IT industry needs to plan its human and technical resources in line with current and future trends, ensuring it has skills in JavaScript, HTML/CSS, Python, MySQL, and PostgreSQL.
- Encourage innovation and adopt new technologies like Redis and MongoDB to stay competitive and meet growing market demand.
- Invest in ongoing employee training to keep them up to date with technological developments and prepare them for emerging technologies.

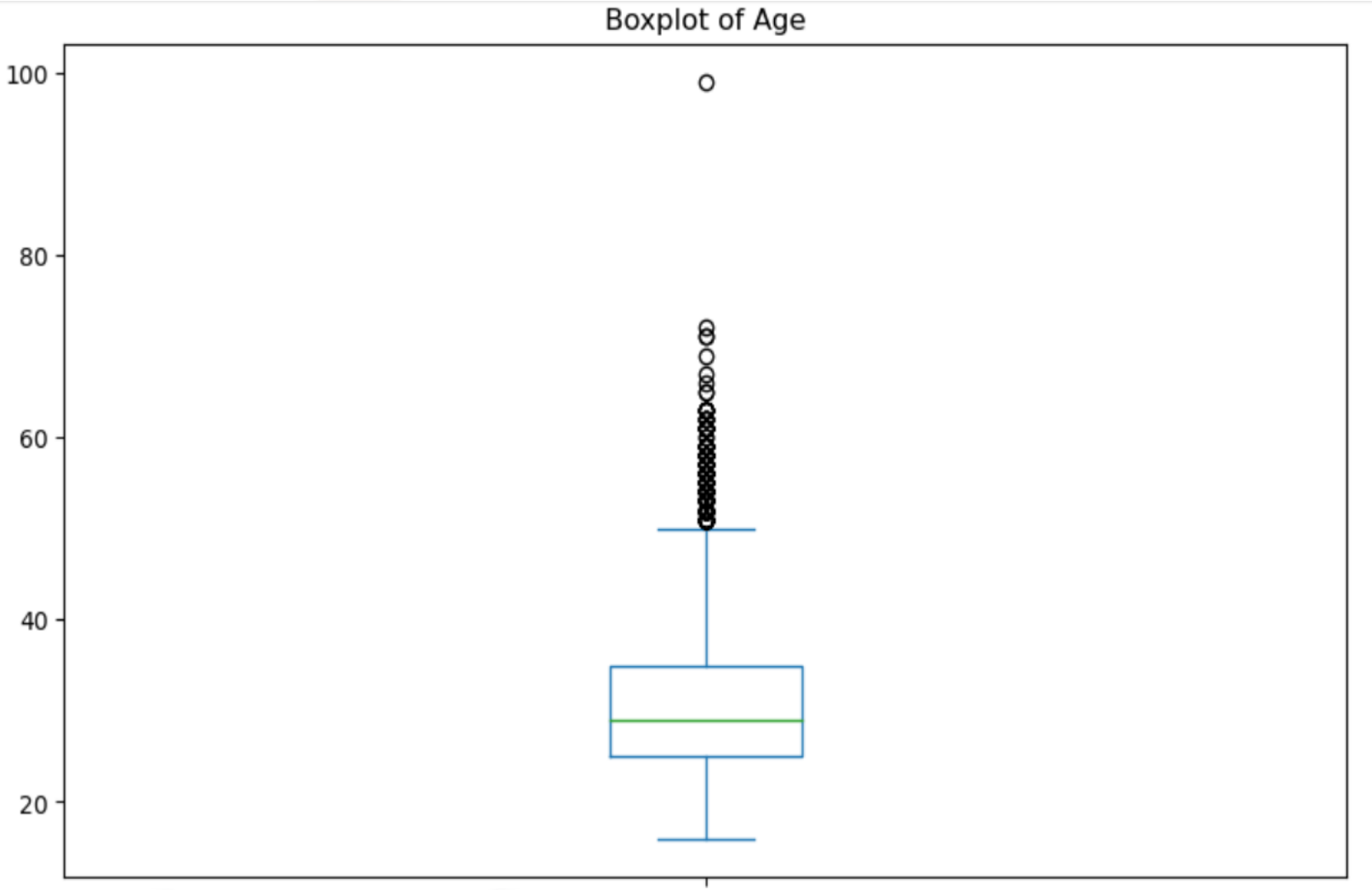
CONCLUSION

- In conclusion, technological trends and associated salaries show a growing demand for specific programming and database management skills, requiring continuous and proactive adaptation by all stakeholders.

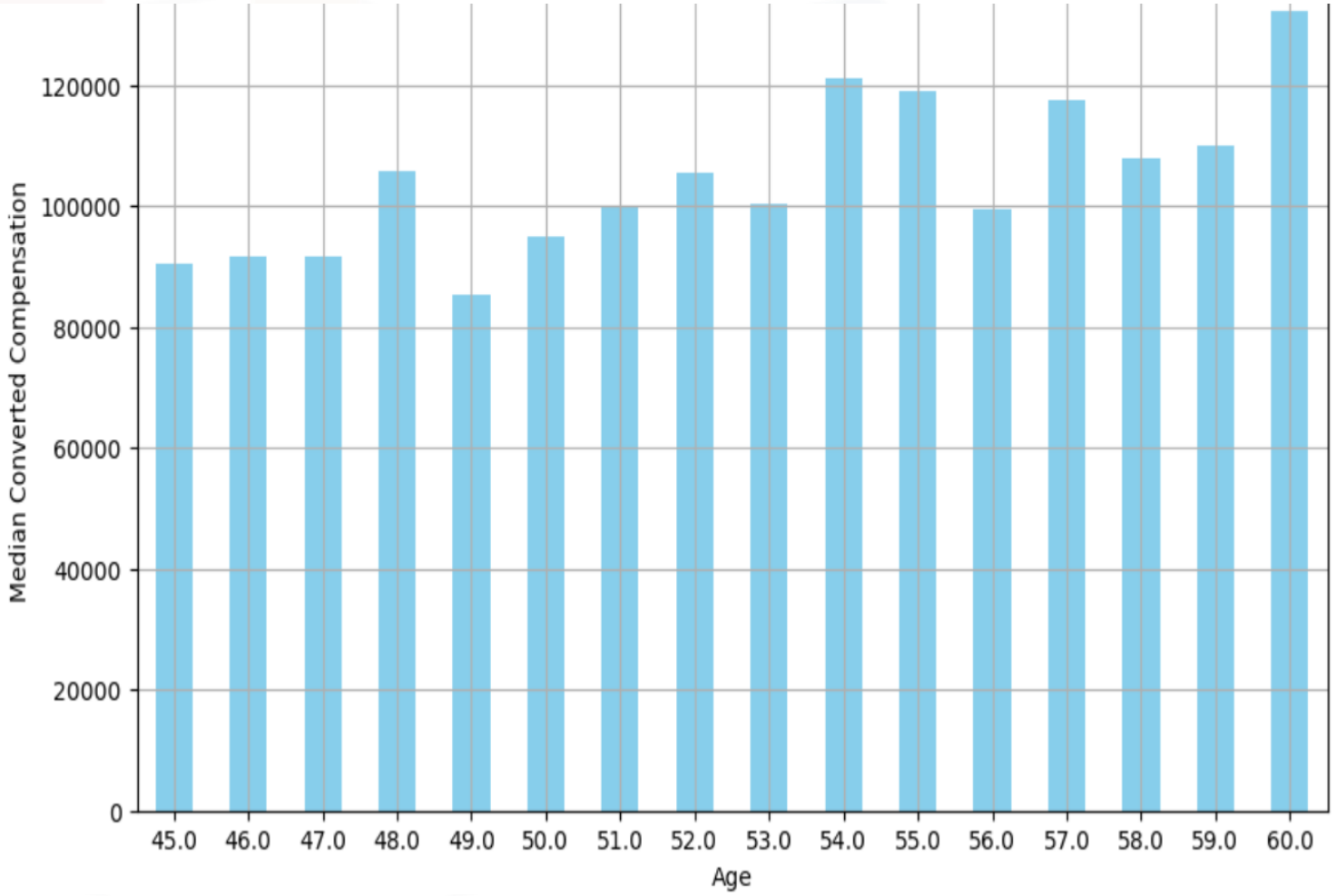
APPENDIX 1


Main Branch Distribution
I am not primarily a developer, but I write code sometimes as part of my work
I am a developer by profession
Main Branch
0
2000
4000
6000
8000
10000
Count

APPENDIX 2



APPENDIX 3


Median Converted Compensation
120000
100000
80000
60000
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20000
0
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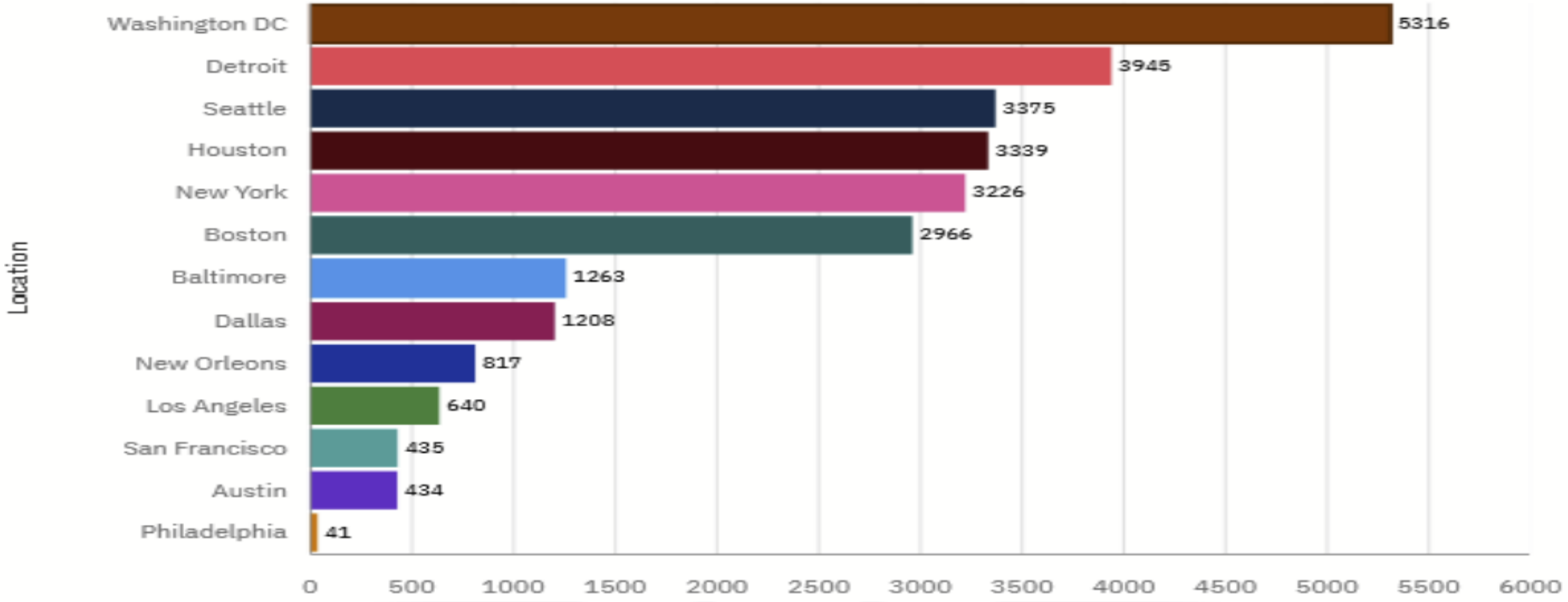
Age

JOB POSTINGS



AVERAGE ANNUAL SALARY of POPULAR LANGUAGES