DATA ANALYST CAPSTONE PROJECT

Tech Trends - Past & Future

Arthi Prasad

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IBM Developer

SKILLS NETWORK

OUTLINE

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

- Tech(IT) Sector has been analysed using global data to understand change in trends by surveying IT professionals (demographic data) regarding languages and databases used by them
- Data was gathered from various sources such as
  - Stack overflow survey
  - Github job postings
  - IBM site
- Insight is gained into the emerging trends that show demand in terms of jobs in certain locations/for certain skillsets(languages/databases/IDE's)
- Javascript is the most popular language and will continue to be according to survey respondents
- Majority of respondents are males in the 20-40 age group

INTRODUCTION

- This report uses data analytics to analyse past and future trends in programing language skills, databases knowledge and webframes used.
- This report is useful to IT professionals, hiring managers and industry watchers to get an insight into Tech Trends
- The investigation were along the lines of
- Demographics(Age/Gender/Education/Background), Location, Renumeration, Hours Worked
  - What programming languages are in demand?
  - What are the database skills are most marketable?
  - What are the popular IDE’s or Webframes?

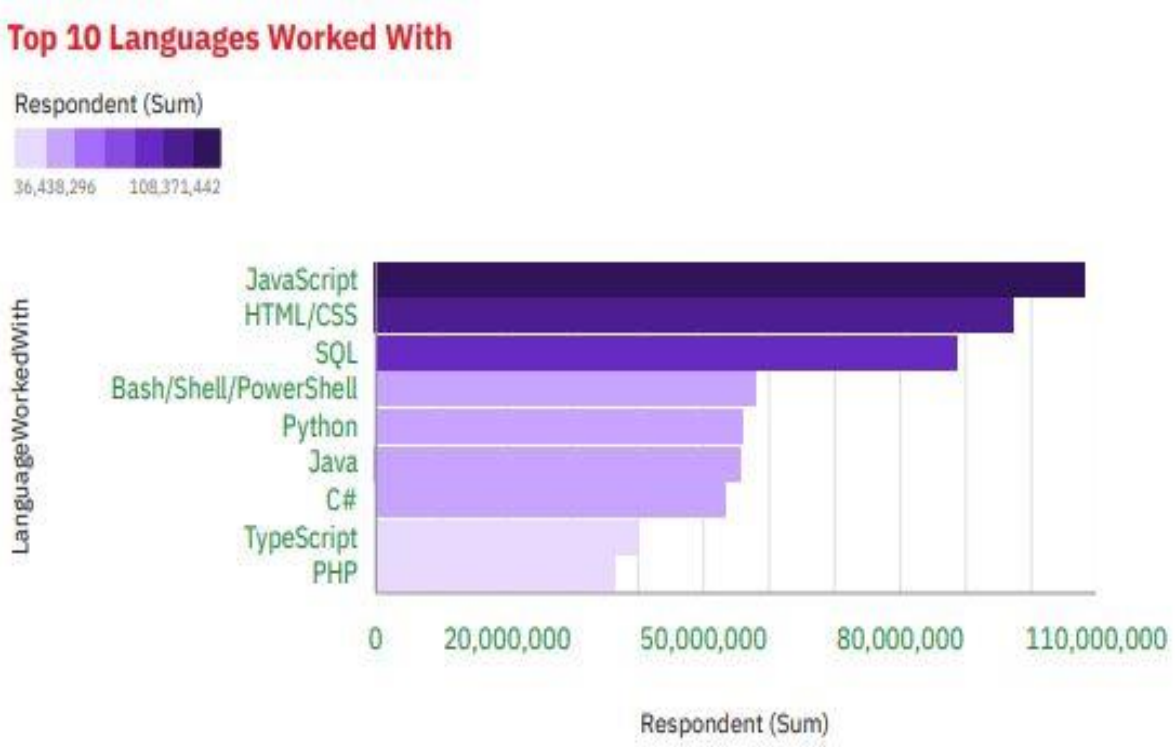
METHODOLOGY

- Data for Jobs available (Number/ Technlogies/ Locations) was gathered using the Github Jobs API on Python
- Programming Languages and Yearly wages were found by Web Scraping the IBM Website Dataset – from the 2019 Stack Overflow Survey
- The data was cleaned, manipulated and analysed using python to correct for missing values and outliers. Various plots were done to understand the data and correlations were observed.
- Visualizations were further done using IBM Cognos to create dashboards

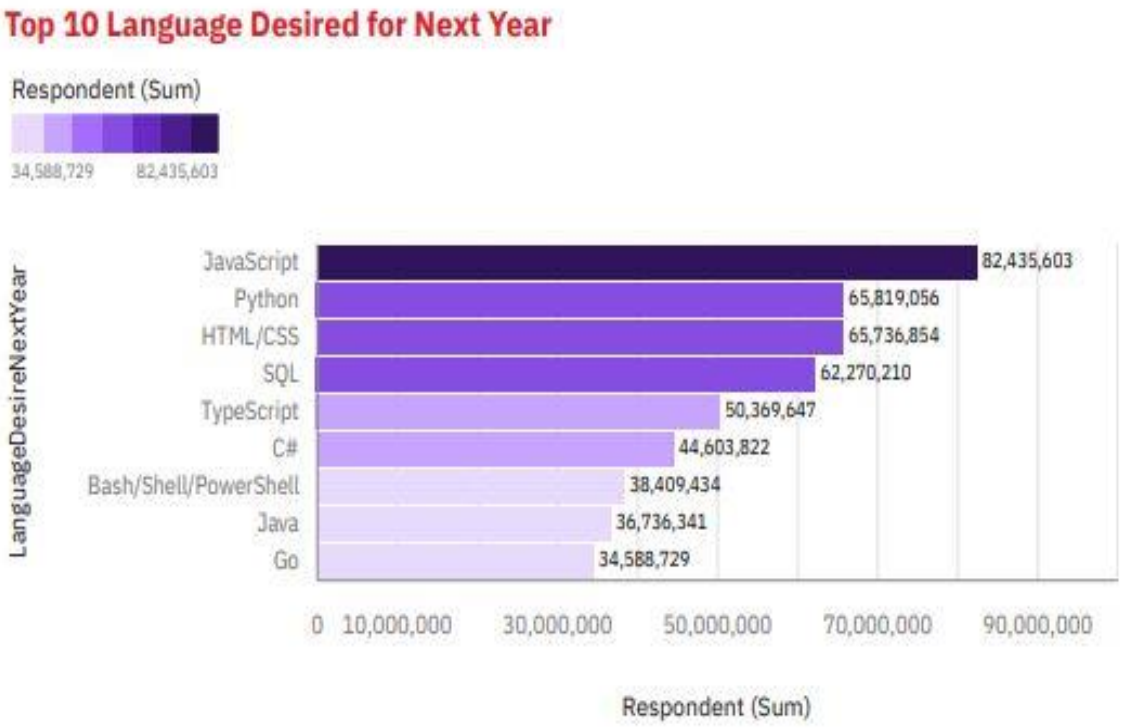
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

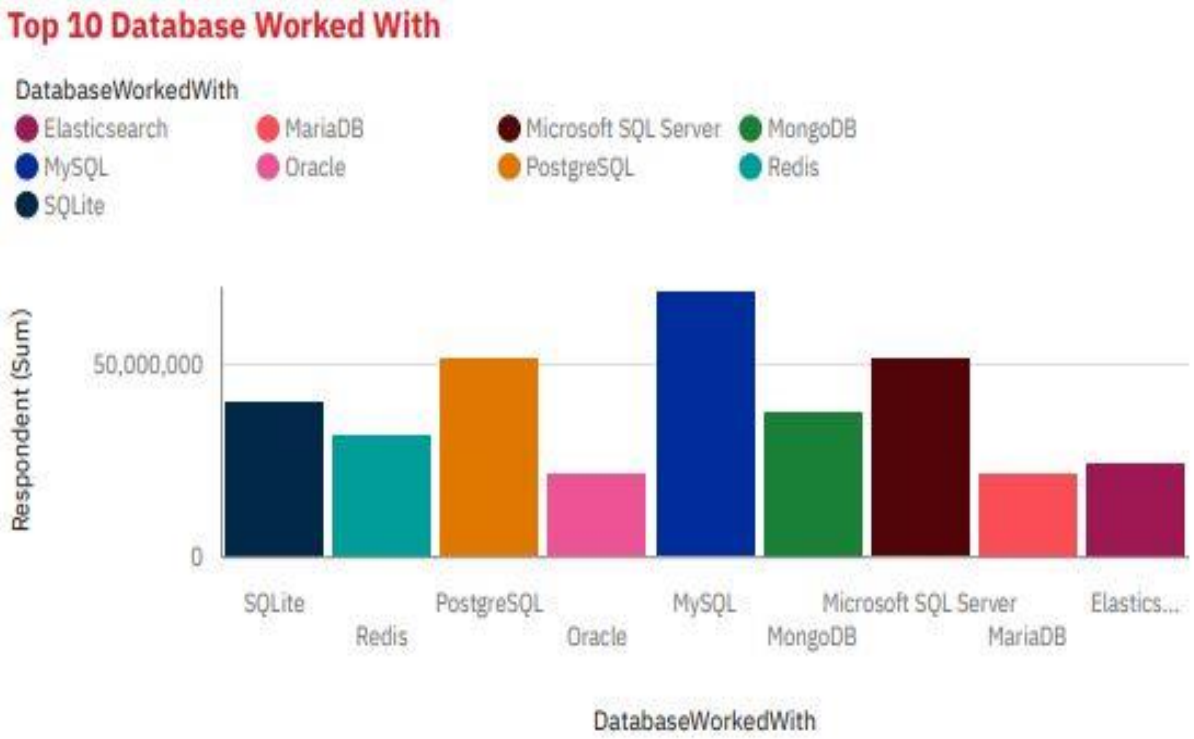
- Javascript,HTML/CSS, SQL, Bash/Shell/PowerShell and Python are the Top 5 languages currently
- The Top 3 languages have around 100,000 or more users each
- Demand for Javascript remains steady whereas demand for Python seems to be growing

Implications

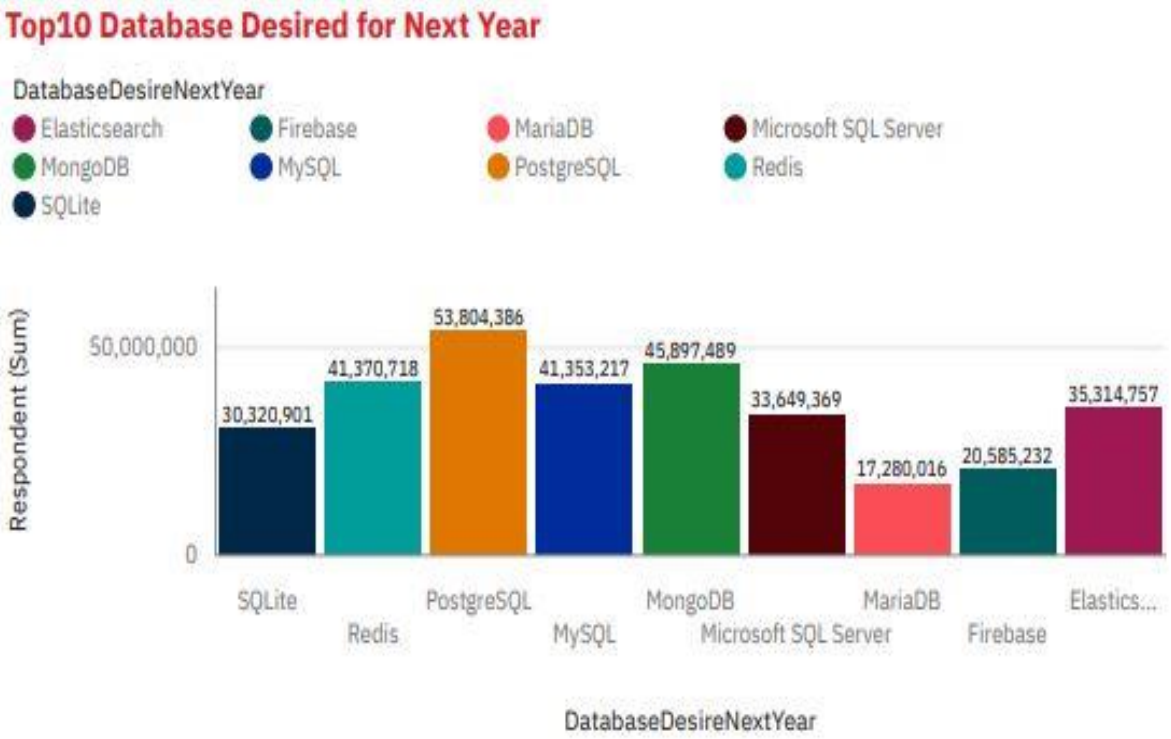
- Javascript will remain the most popular language
- Most respondents want to learn python, HTML/CSS, SQL also – these are the languages likely to be most in demand
- Typescript and PHP are not likely to remain in the top 10 next year so demand for these are declining

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- All SQL based databases like MySQL, MicrosoftSQL and PostgreSQL are the top 3 most popular databases
- Maximum users predict PostgreSQL to be popular next year also

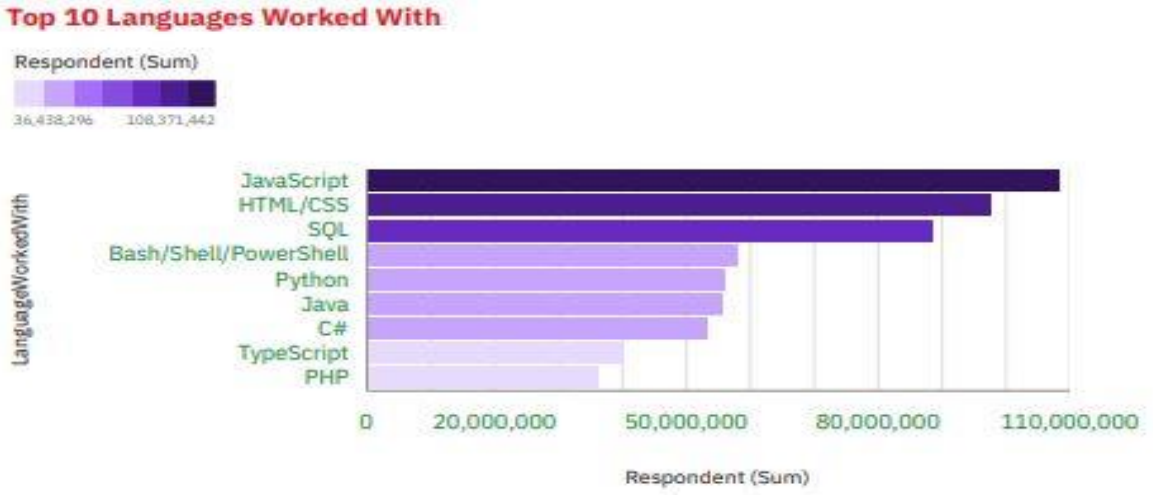
Implications

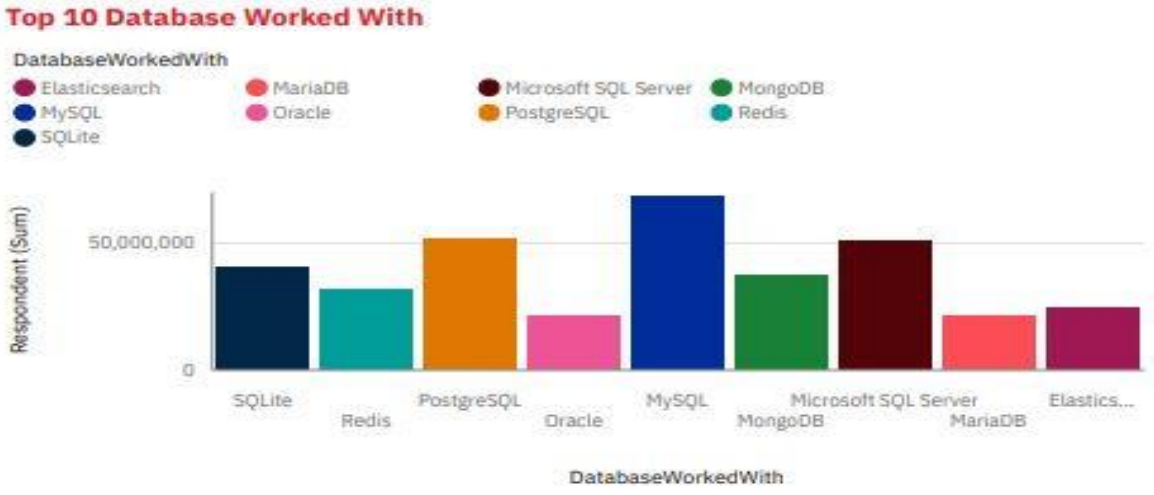
- While the use case for SQL databases and others like MongoDB, ElasticSearch and Redis are growing or MariaDB are predicted to remain constant,
  - Oracle is not in the top 10 for next year
- Firebase is a new entrant

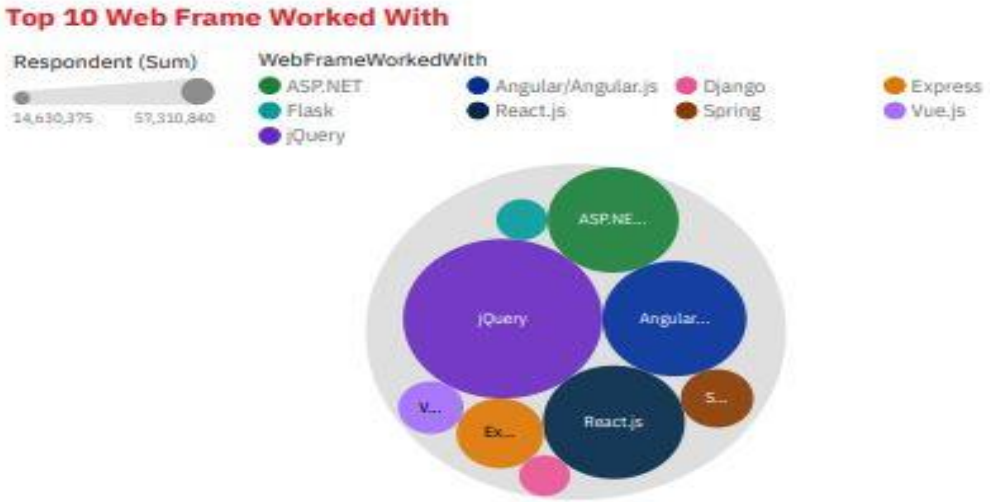
DASHBOARD

https://github.com/arthiprasad/arthirepo/blob/ea93b382f5f71e8975f2eede7b05f9aaadee3298/5.%20Cognos%20Analytics%20Project%20Dashboard.pdf

DASHBOARD Tab1 – Current Technology



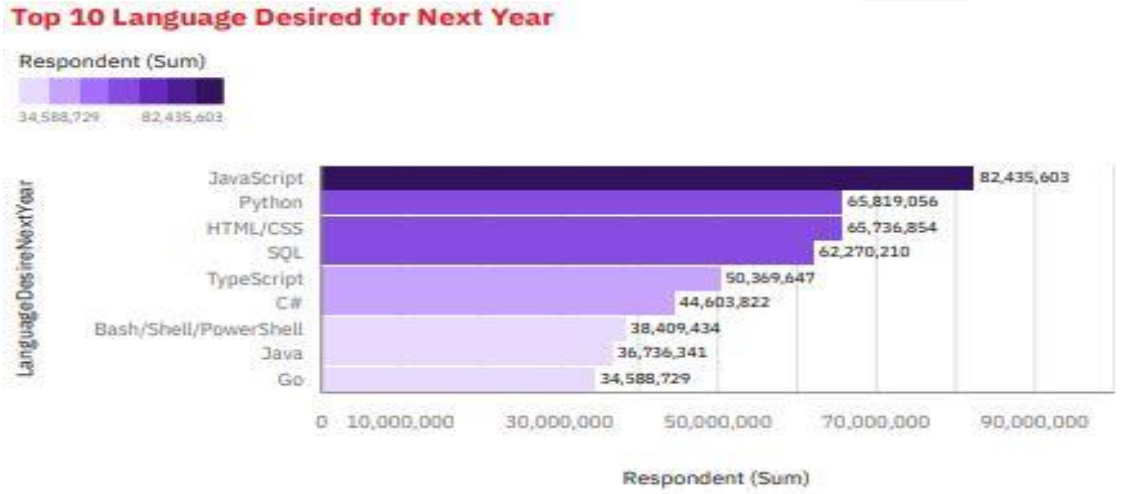


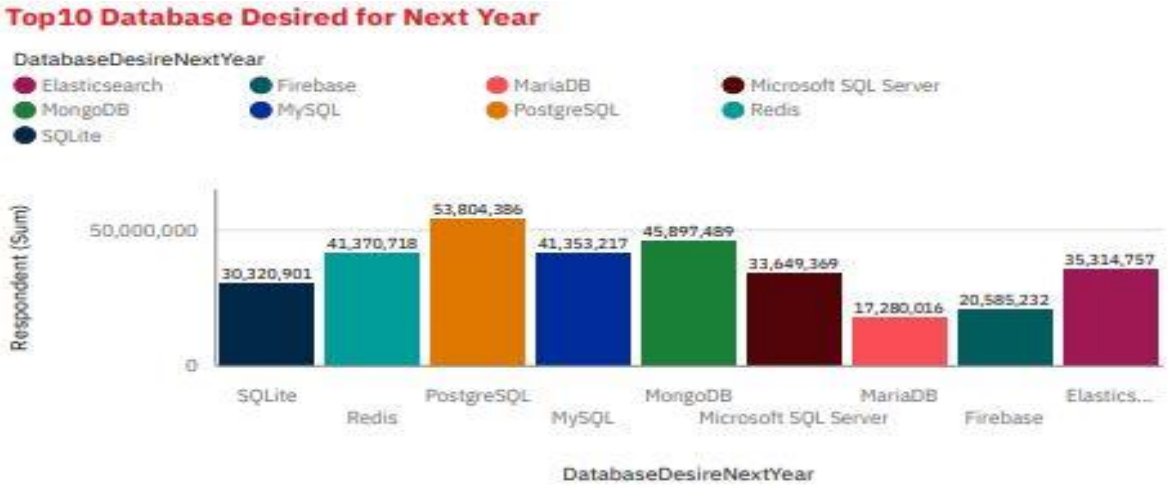


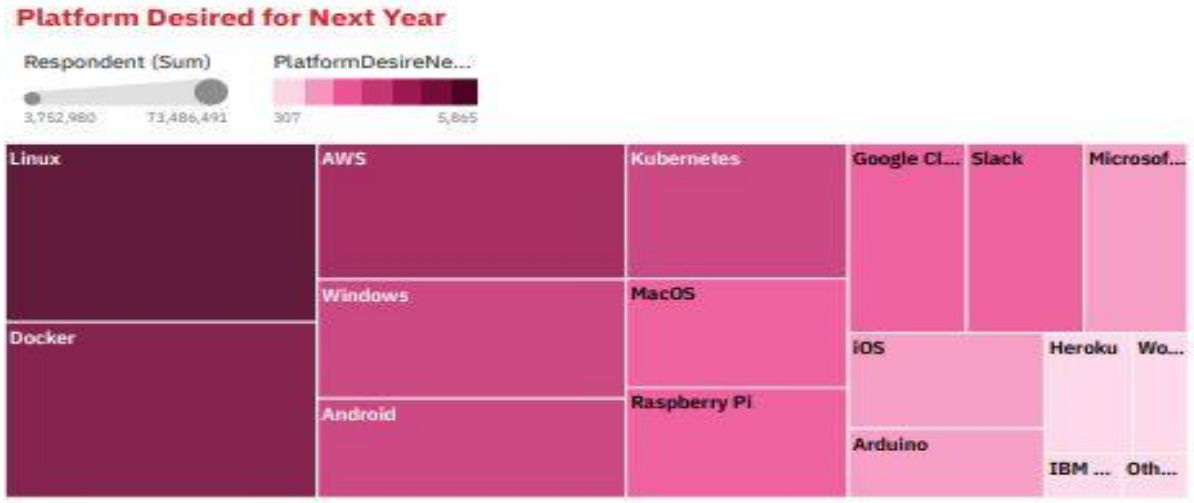
IBM Developer

SKILLS NETWORK

DASHBOARD Tab2 – Future Technology

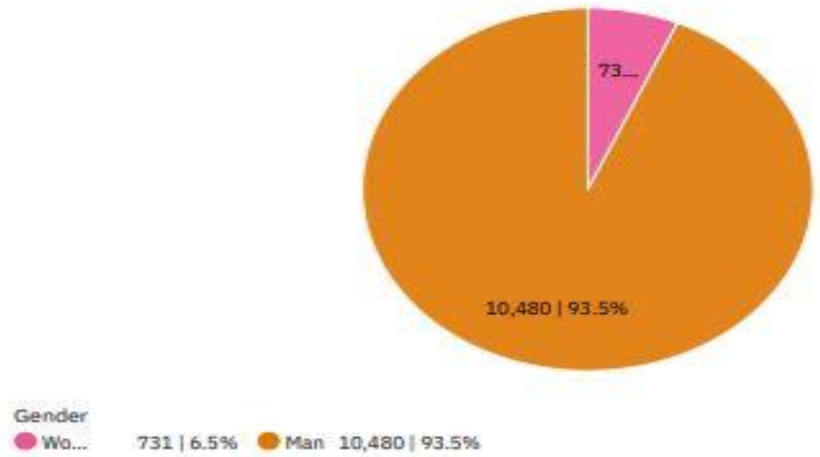






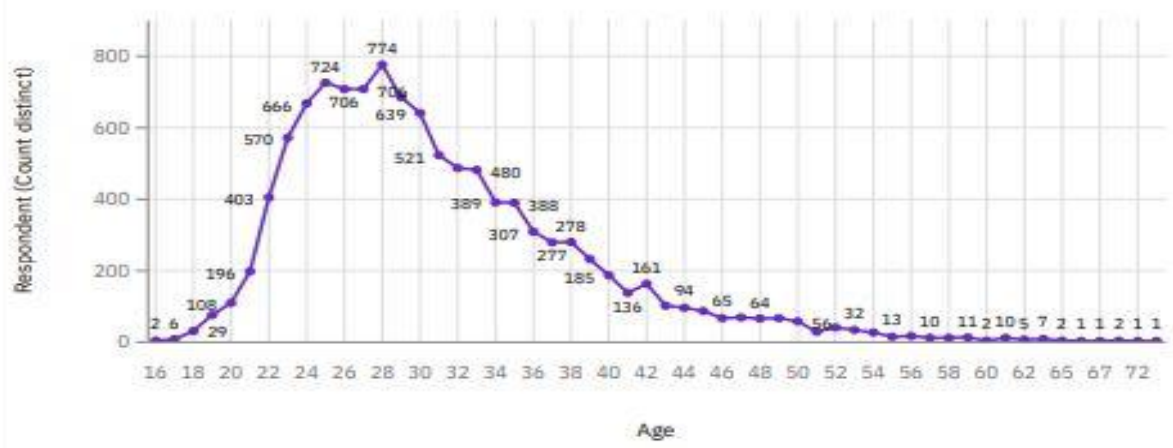
DASHBOARD Tab3 - Demographics

Respondent by Gender

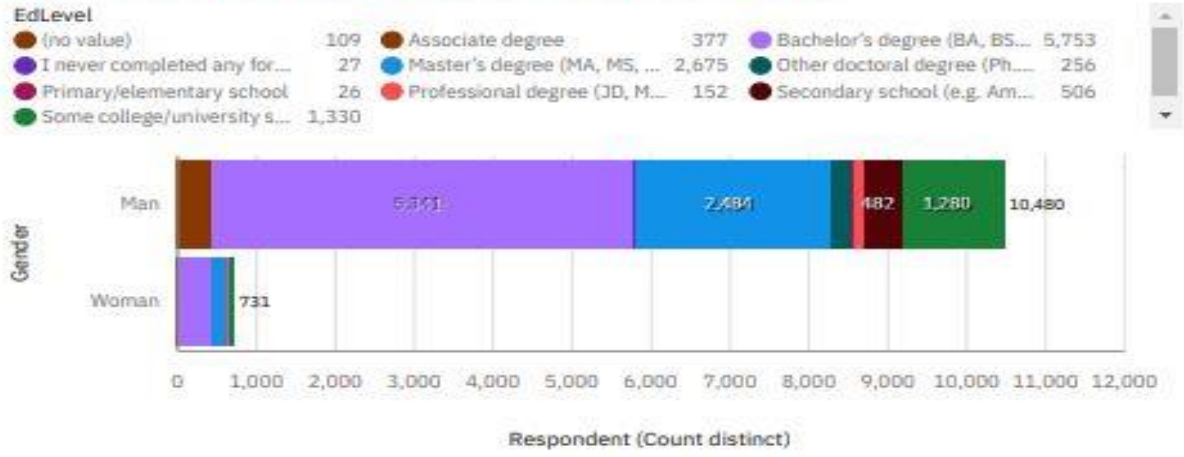


Respondent Count by Country

Respondent Count by Age



Respondent Count by Gender classified by Education Level



DISCUSSION

- Continuous training needed in IT
- Most developers are males in developed world
- Education and skilling opportunities to bridge gender and country gap

OVERALL FINDINGS & IMPLICATIONS

Findings

- Javascript is the most widely used language and will remain so with Python catching up
- SQL Databases are the most popular and PostgreSQL, React JS likely to become more in demand next year
- Most of the IT professionals are developers and are (90%) males in the 20-40 year age group
- Most of the developers are located in developed countries and have a bachelors degree

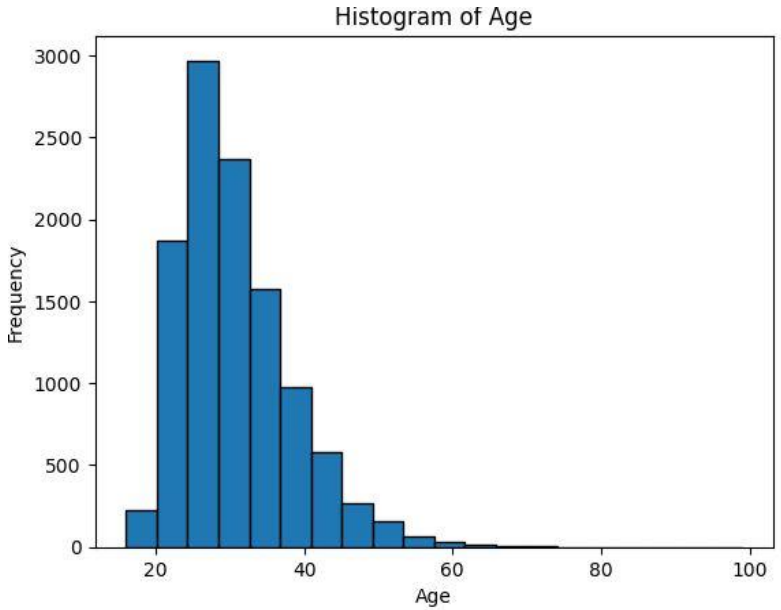
Implications

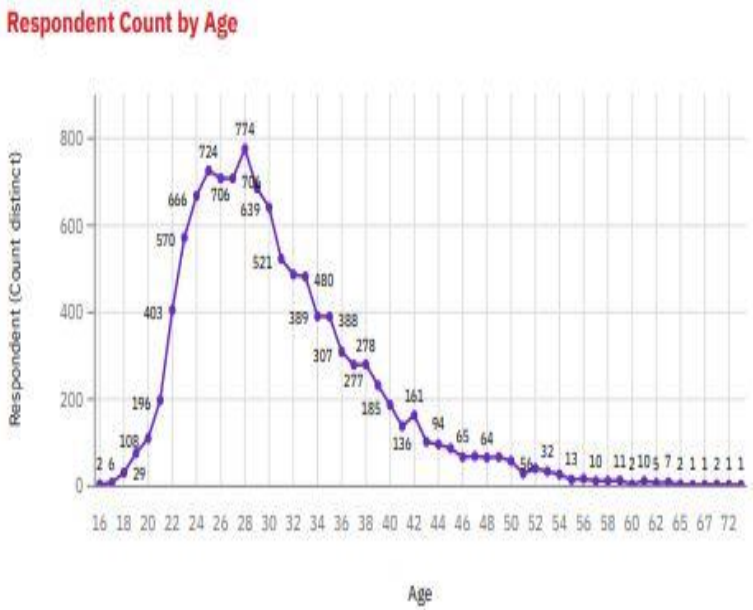
- For those interested in IT, the skills most important to be updated are Javascript, Python, SQL Databases and Web Development
- More skill focused development programmes are needed to address the opportunity gap between genders and for the developing world

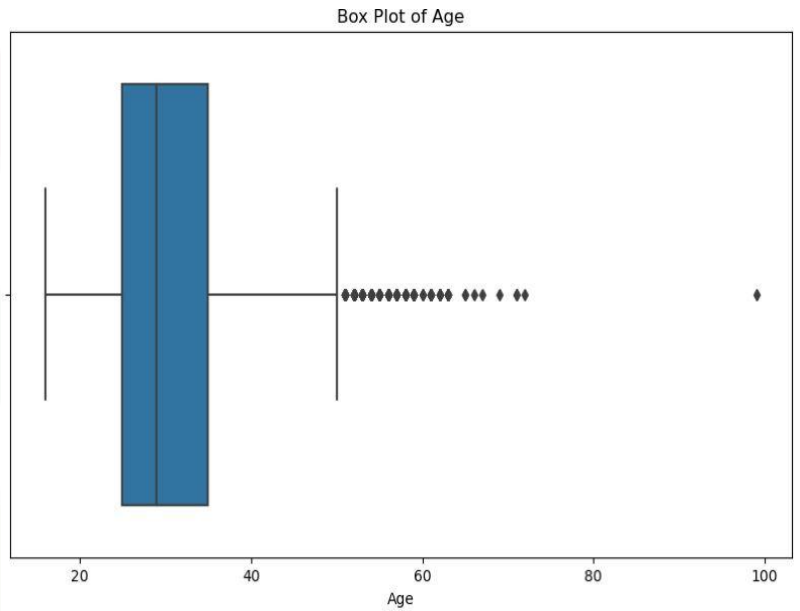
CONCLUSION

- Continuous training is imperative as trends change continuously in IT sector
- Respondent data shows – survey skewed towards younger males in developed world
- Education and skilling opportunities to bridge gap between genders and between developing and developed world

APPENDIX-1 – Age

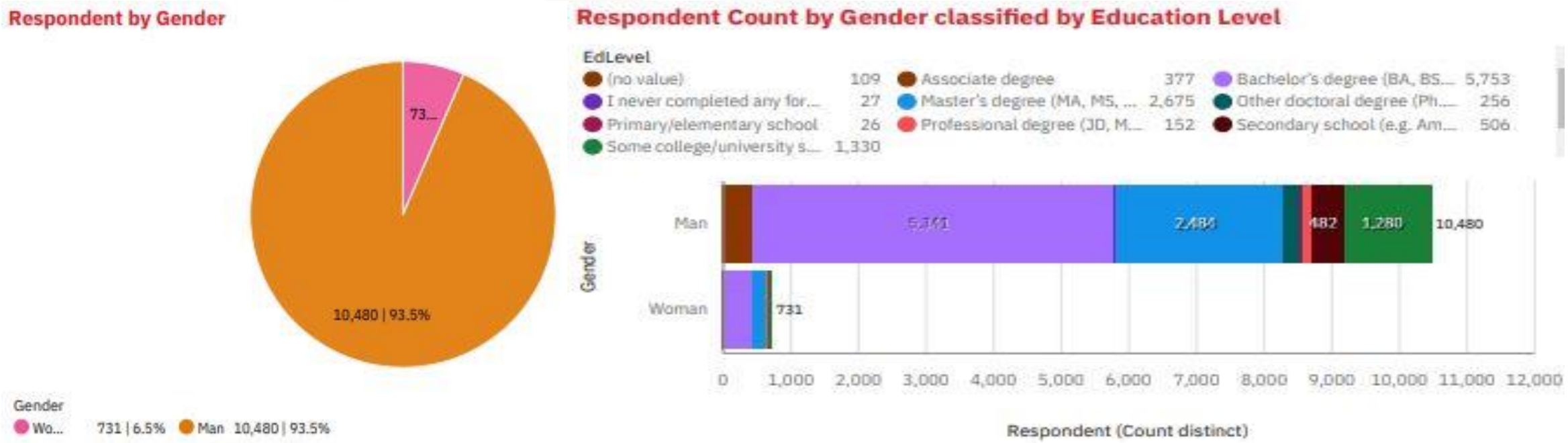






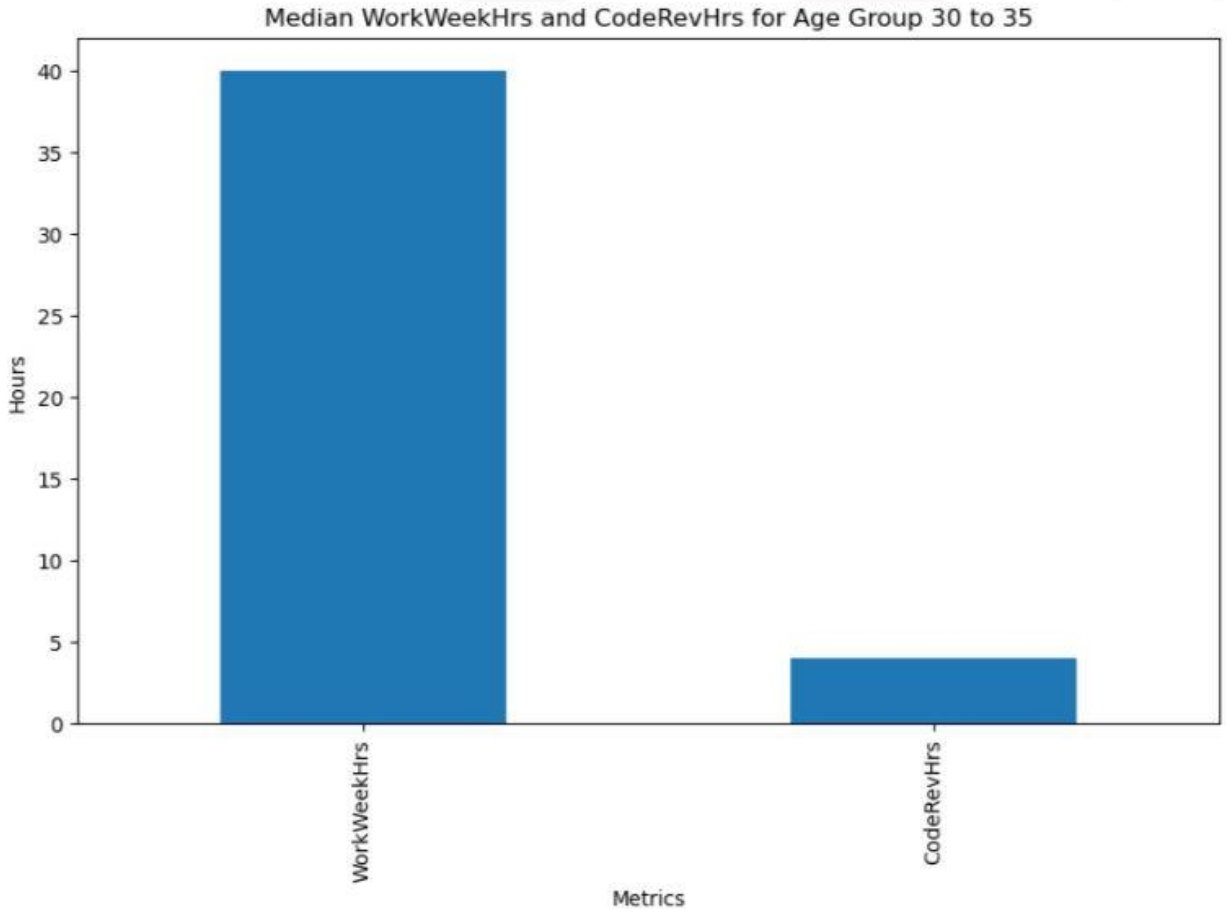
- Most Developers are in the 20-40 years age group.

APPENDIX-2 - Gender



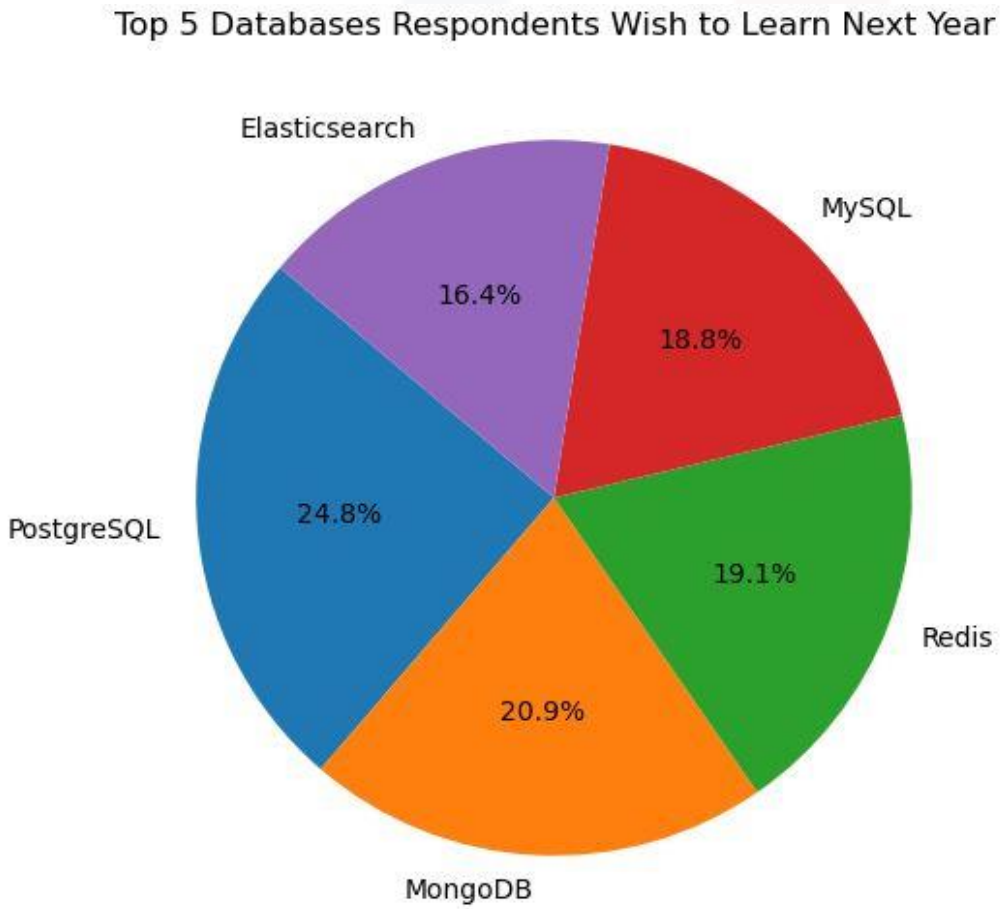
- Most Developers are men
- Gender gap in Tech needs to be addressed

APPENDIX-3 – Median Workweek



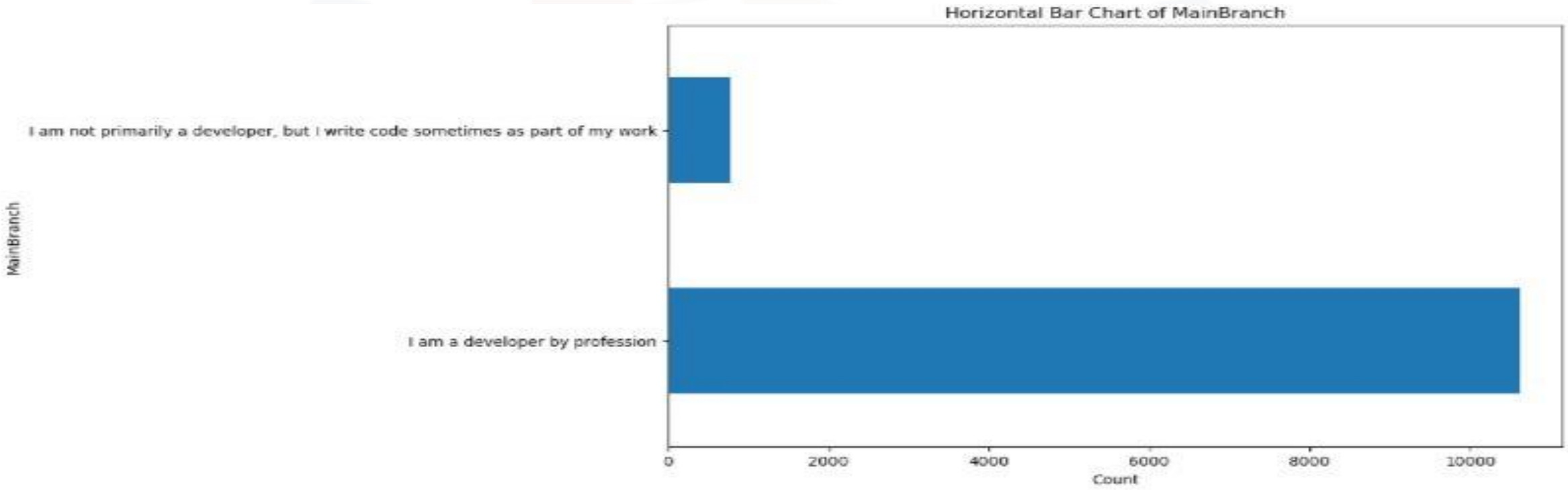
The workweek for most developers as shown by the median workweek hours of the age group 30-35 is around 40 hours. This is around 8 hours a days for 5 days a week.

APPENDIX-4 – Databases next year



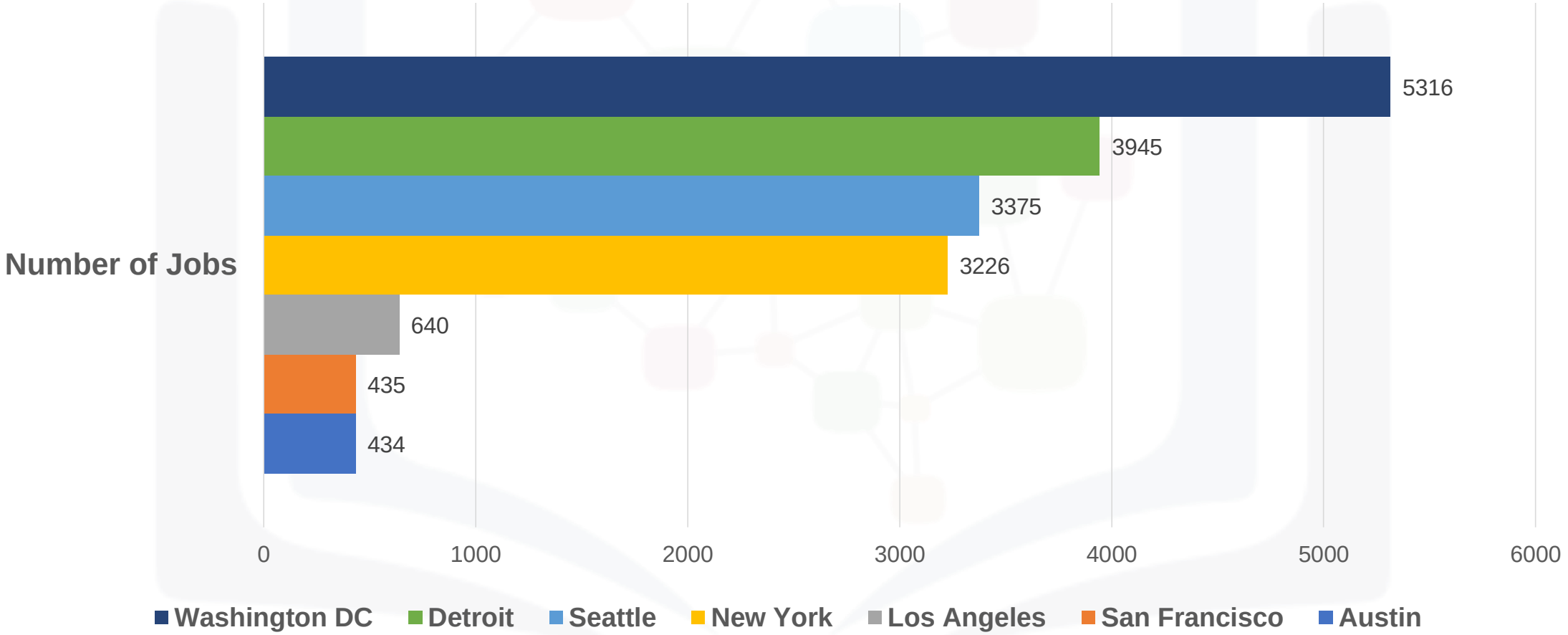
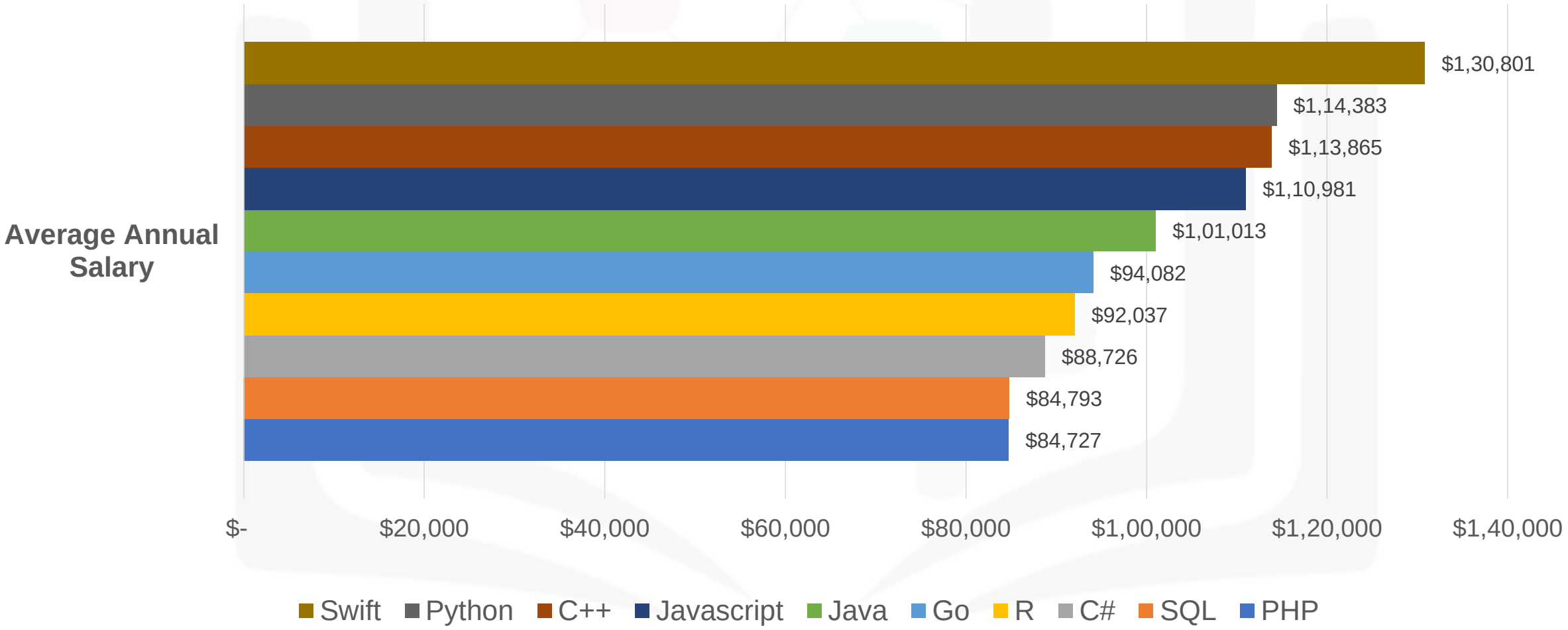
- Top 5 Databases for next year are in order of preference are
  - PostgreSQL
  - MongoDB
  - Redis
  - MySQL
  - Elasticsearch

APPENDIX-5 – Most Coders are Developers



- Most Coders are Developers

JOB POSTINGS



POPULAR LANGUAGES