Data Analysis report on ***Emerging Trends and skills*** in global IT sector

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IBM Developer

SKILLS NETWORK

OUTLINE

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- Methodology
- Results
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  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
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EXECUTIVE SUMMARY

- Global IT business has become competitive
- IT business firms need to identify the trends and skills in terms of
  - Programming Languages in demand
  - Desired Databases to store data
  - Web Framework trends
- Keeping up with the pace of growing IT field has become a challenge
- Data analysis is the way to understand the bigger picture
- Sources to extract data are Training portals, job postings and surveys
- Insightful findings help in predicting future trends and changing technologies

INTRODUCTION

- **Data** is extracted from **various sources**
- The number of job openings using the **GitHub Jobs API** for technologies like Java, Python, MySQL, C++, C# etc.
- **Web scraped an HTML page** for annual salary offered based on programming language
- **Stack Overflow Developer Survey 2019** dataset includes current programming languages, Databases, Web frameworks and data about the desired trends in future
- Stack overflow developer **survey** was taken globally **with people from various countries, educational backgrounds, Gender and age**

INTRODUCTION

Analyzing the data and identify insights and trends include the following:

- What are the top programming languages in demand?
- What are the top database skills in demand?
- What are the popular IDEs?

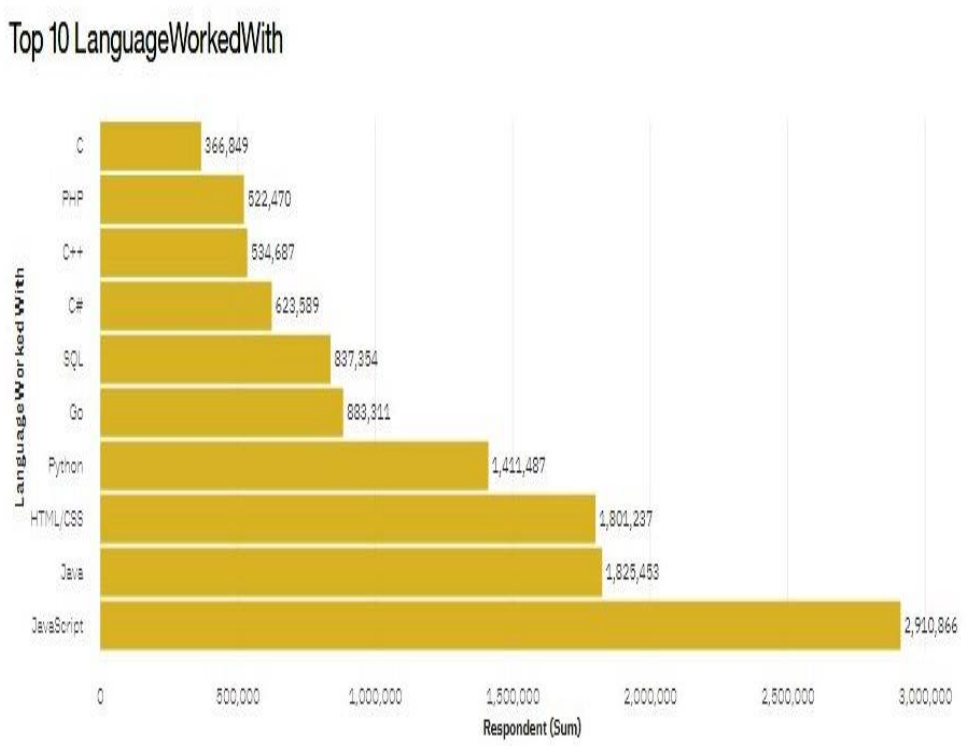
METHODOLOGY

- **Data collection** from the various sources
- **Data cleaning** is done to identify any missing values in the data
- Missing values or blank values are been **normalized to analyze data** on a common ground level
- Data is analyzed to identify **correlation between factors through graphs, plots and statistical methods**
- A dashboard is created using **IBM COGNOS to present current trends and desired trends** for programming languages, Databases, Web Frameworks
- **Demographic details** are also tabulated for a global perspective

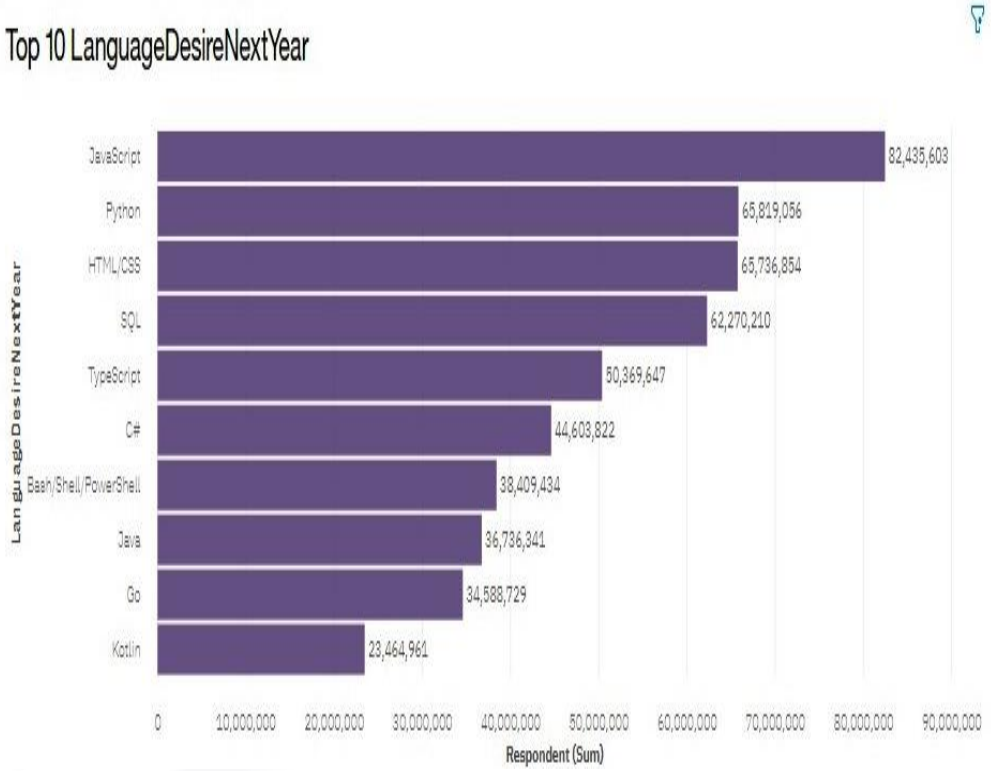
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

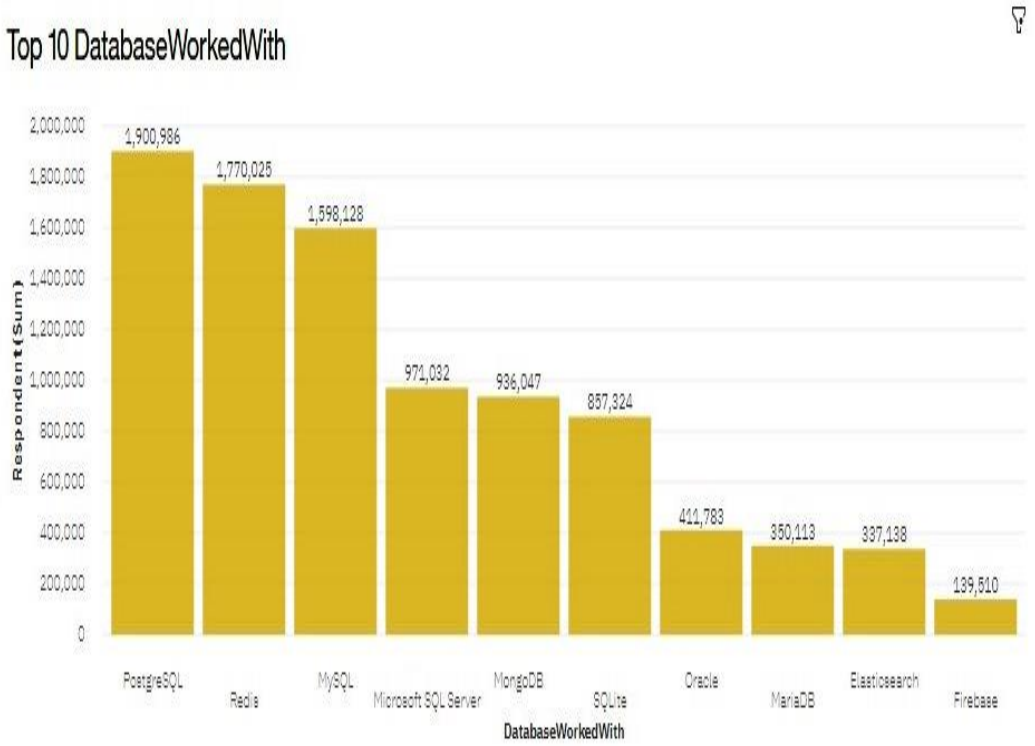
- **“JavaScript”** is the **most preferred language**
- **“Python” & “HTML CSS”** are **popular and desired Languages**
- “TypeScript”, “Bash/Shell/Powershell” are the desired languages in future

Implications

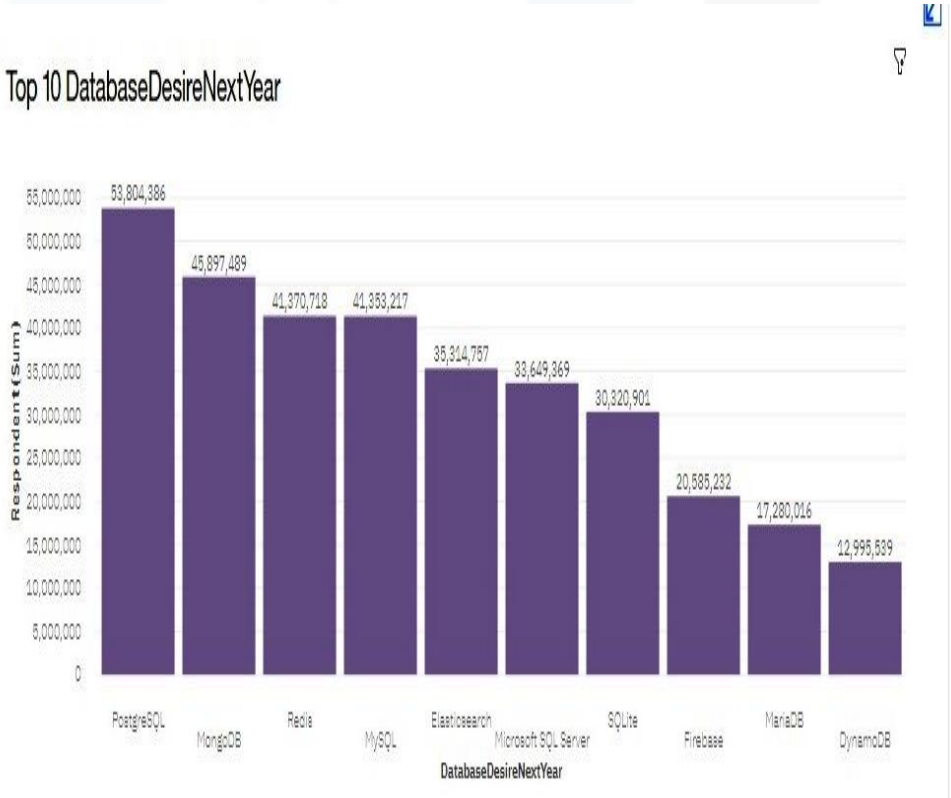
- Most of the applications will use **“JavaScript” as a major language for development**
- There will be **systems working with “TypeScript” and “Bash/Shell/Powershell” languages in future**
- “Python” & “HTML CSS” will continue to gain popularity among developers

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- “PostgreSQL”, “Radia”, “MongoDB”, ”MySQL” remain popular amongst developers
- Developers / Users prefer “MariaDB”,”DynamoDB” over “Oracle”

Implications

- It is required to increase the capacity of the popular databases to continue leveraging the services
- “Oracle” will the least used database in coming years

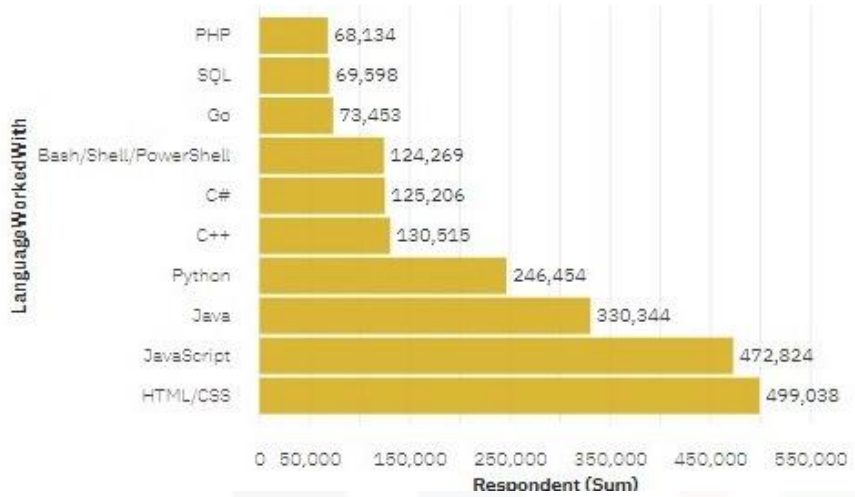
DASHBOARD

<https://jp-tok.dataplatform.cloud.ibm.com/dashboards/d56ad883-f7be-4ec7-a772-7ab3953fed0c/view/013cd57604ae0cdf56bcb5e407cb79052f61210bb4bbd703d3867b495b317297a83b4299c8794b0e88110c32a2ed120ac0>

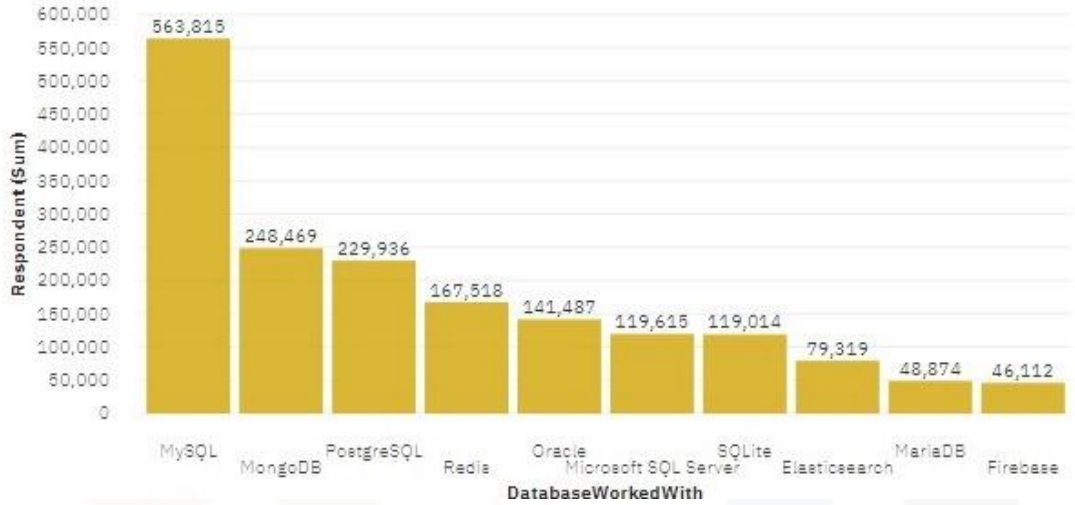
DASHBOARD TAB 1

Tab 1 | Current Technology Usage | Future Technology Trend | Demographics

Top 10 LanguageWorkedWith

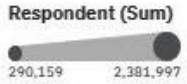


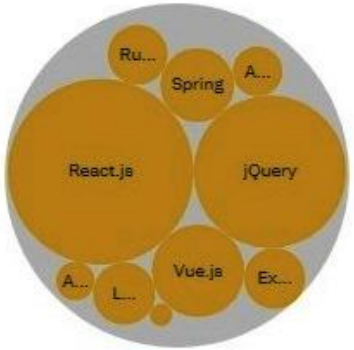
Top 10 DatabaseWorkedWith



PlatformWorkedWith

Top 10 WebFrameWorkedWith





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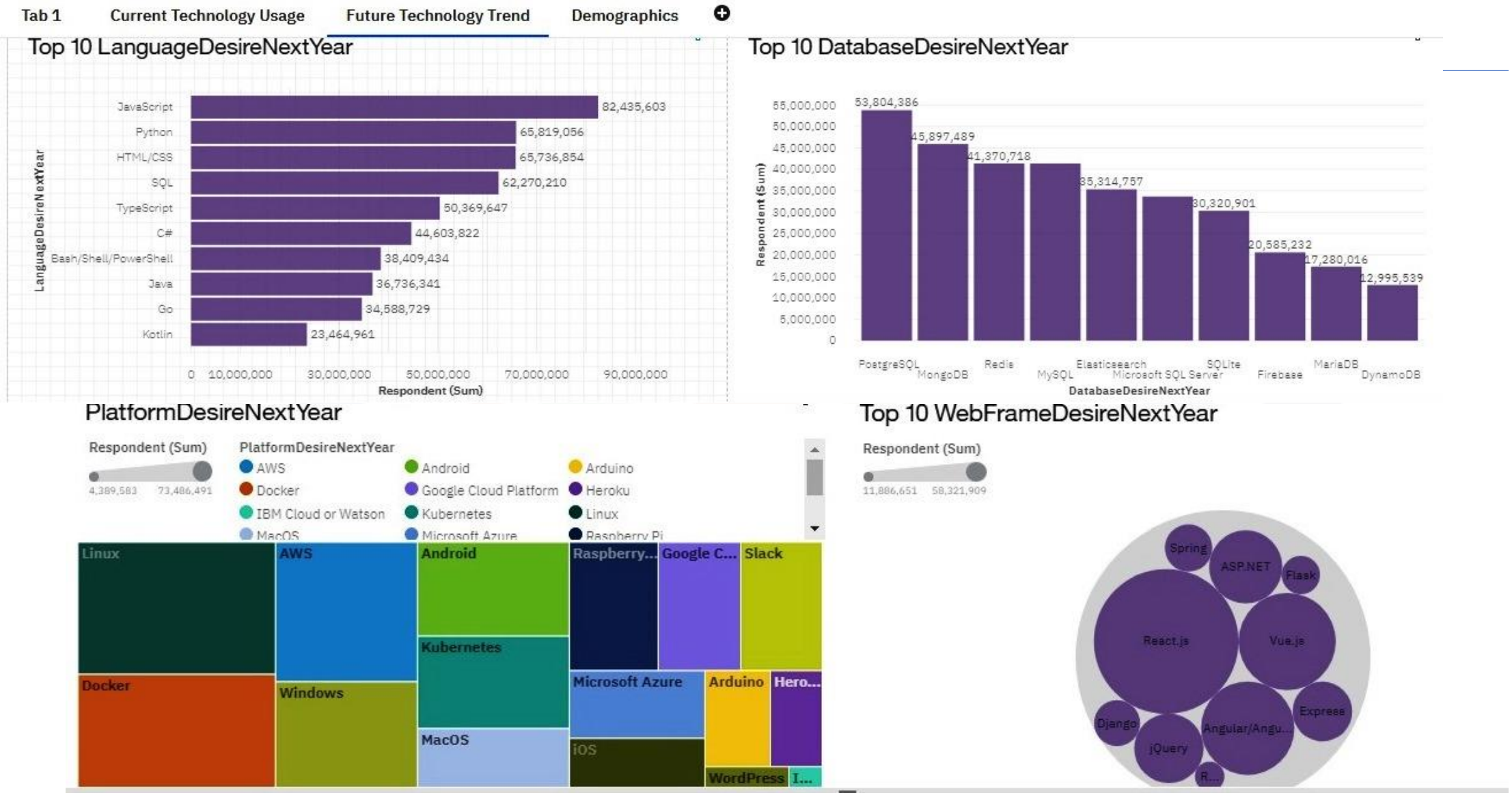
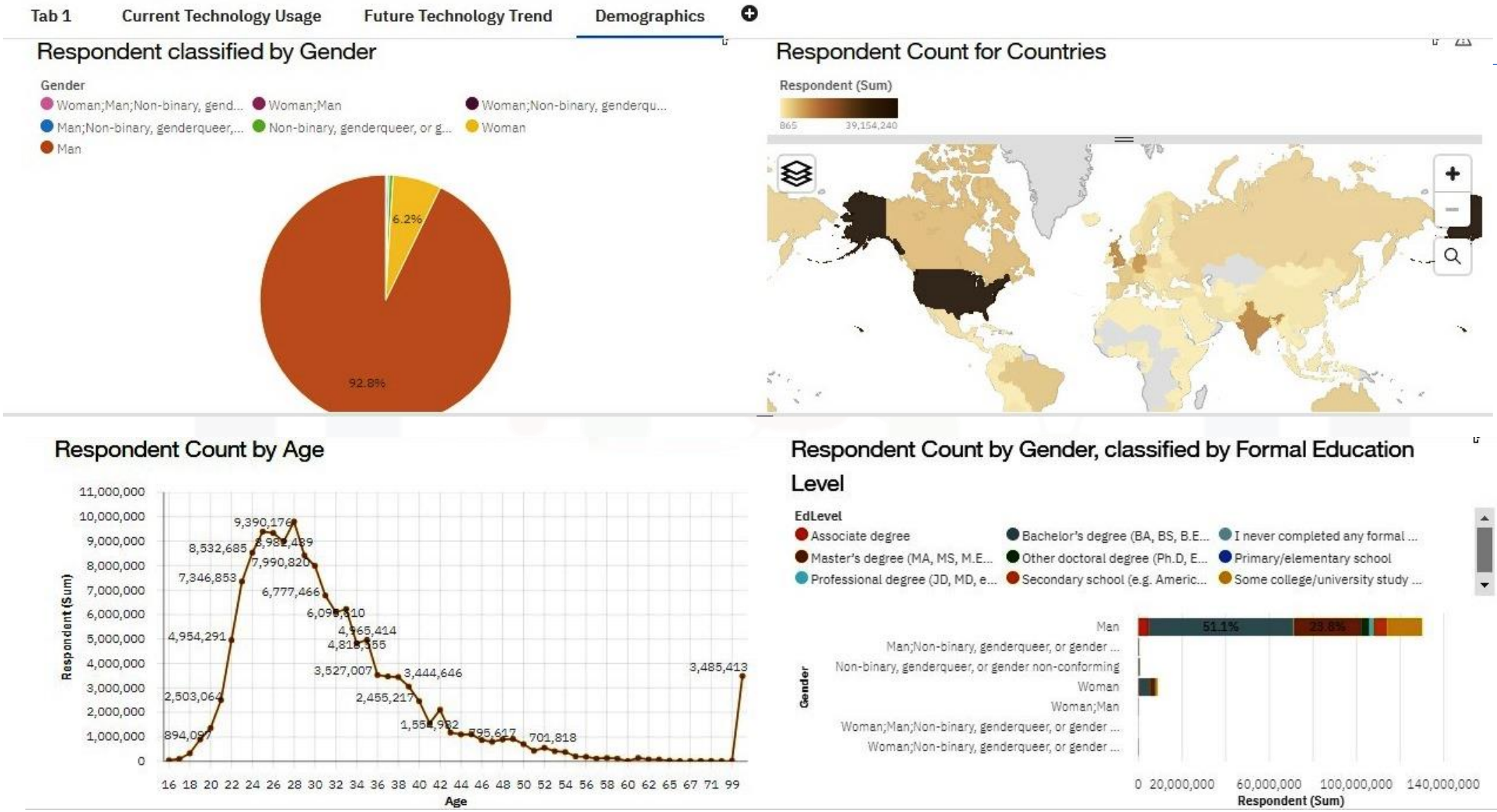
SKILLS NETWORK

DASHBOARD TAB 2



DASHBOARD TAB 3



DISCUSSION

Parameter	Popular Language/ DB / Web framework	2nd Highest	3rd Highest
Highest Paid Job	Swift ($130,801 per year)	Python ($114,383 per year)	JavaScript ($110,981 per year)
Most Desired DB in the coming years	PostgreSQL	Radia	MySQL
Most Desired Programming Language in coming years	Javascript	Python	HTML/CSS

OVERALL FINDINGS & IMPLICATIONS

Findings

- “Python” & “Javascript” are the most popular programming languages
- “PostgreSQL”, ”MySQL” & “Radia” are popular databases
- “React.js” & “Vue.js” are the most desired web frameworks in market

Implications

- IT firms will hire employees with better programming skills in ‘Python”,”JavaScript”
- IT companies will focus on employees having skills with handling databases like”PstgreSQL”,”MySQL” & “Radia”

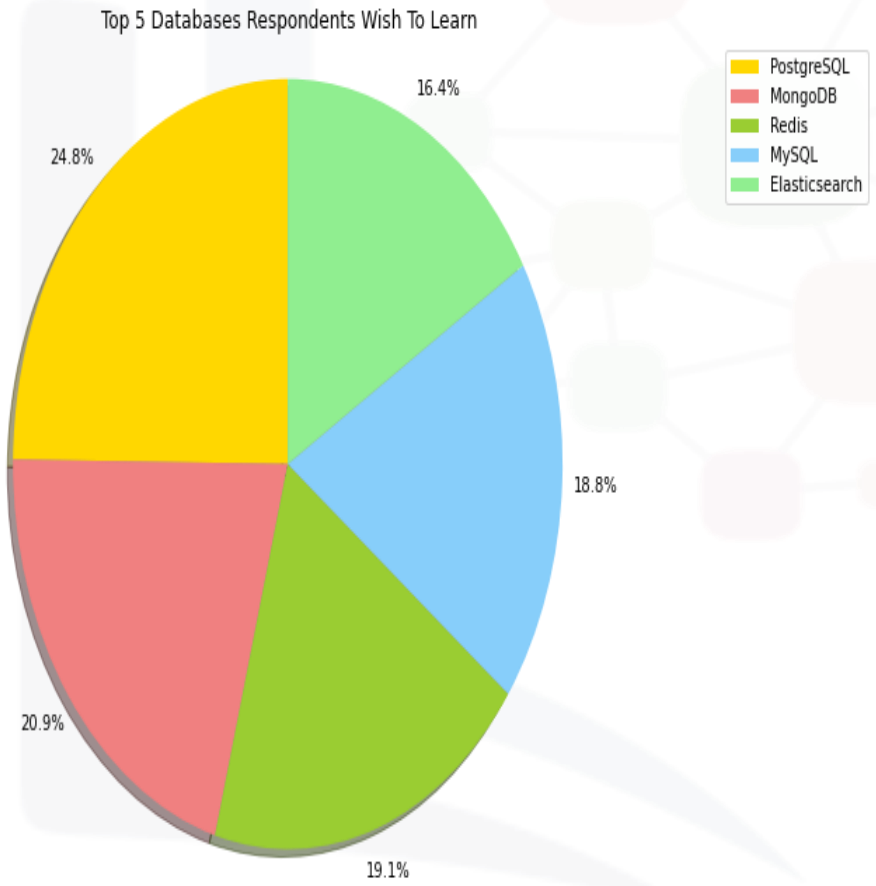
CONCLUSION

- Most of the **applications developed** in IT industries as well as IT systems run globally **prefer "Python","Javascript"**
- Developers having skills in **"Python" and "Javascript" are most paid in jobs**
- **"Swift"** is the most **emerging language in market** with lucrative job salary

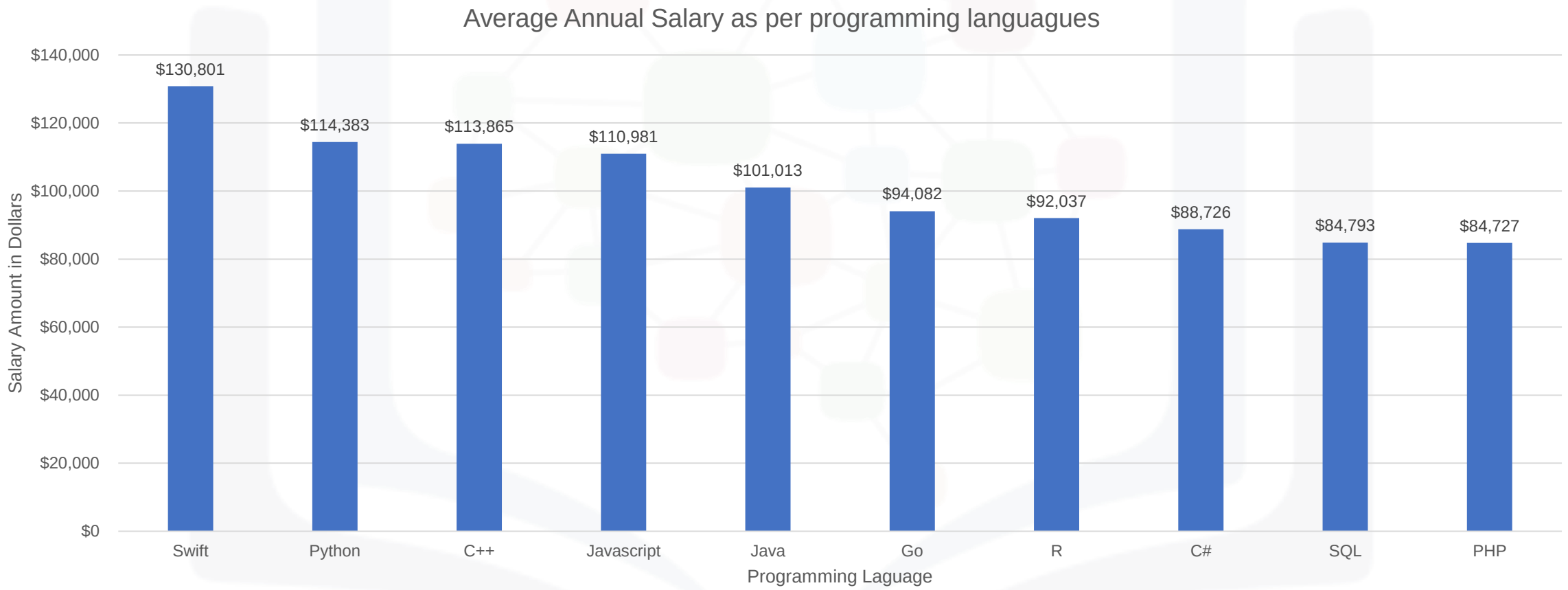
APPENDIX

- Language-----→Average Annual Salary
- Python---------->$114,383
- Java---------->$101,013
- R---------->$92,037
- Javascript---------->$110,981
- Swift---------->$130,801
- C++---------->$113,865
- C#---------->$88,726
- PHP---------->$84,727
- SQL---------->$84,793
- Go---------->$94,082

Appendix



Language	Number of Job Openings
C	13498
C#	333
C++	305
Java	2609
JavaScript	355
Python	1173
Scala	33
Oracle	784
SQL Server	250
PostgreSQL	10
MongoDB	174

JOB POSTINGS

POPULAR LANGUAGES