Stack Overflow Developer Survey

APARNA

July 2024

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EXECUTIVE SUMMARY

- **This presentation has been created to summarize the key findings from an analysis of data collected as part of the Stack Overflow Developer Survey.**
- **A subset of the survey data was considered which consists of 2 datasets i.e. data technologies and demographic to identify the present and future data technologies trends among people of different age groups all across the world.**
- **Present technology trends were identified as JavaScript as popular language, Postgre SQL as popular database, Amazon Web Services as popular platform and Node.JS as popular Web Frame.**

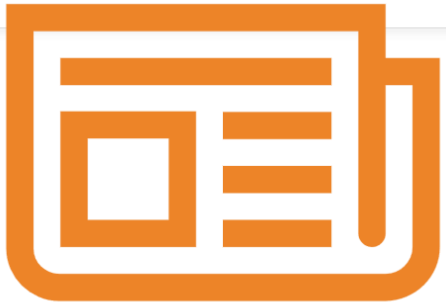
EXECUTIVE SUMMARY

- **Future technology that people wanted to learn were identified as JavaScript as a popular language, Postgre SQL as a popular database, Amazon Web Services as a popular platform and React.js as a popular web frame.**
- **Most of the respondents of the survey were with a master's or bachelor's degree between the age group of 21 to 43 and most of the respondents reside in USA and the second most is reside in Germany.**
- **There is a huge interest among developers in JavaScript and web development languages.**
- **There is a huge interest in Amazon Web Services platform and Nodejs web Frame.**

INTRODUCTION

- This report is about collecting data from various sources and identifying technology trends for this year's report on-in demand skills.
- This report is for current and aspiring developers, IT industry leaders, computer science students, HR professionals and educators.
- This report yields insights regarding the following:
- Helps in identifying the current technology trends in the market.
- Helps in identifying which technology will be more used in the future or the technology people will shift to in the future.
- Helps in targeting prospective employees based on the demographic profile of the report.

METHODOLOGY



- **Data collection : the data used in this report has been collected from 3 different sources**
  - **Latest stack overflow developers survey**
  - **job postings**
  - **Training portals**

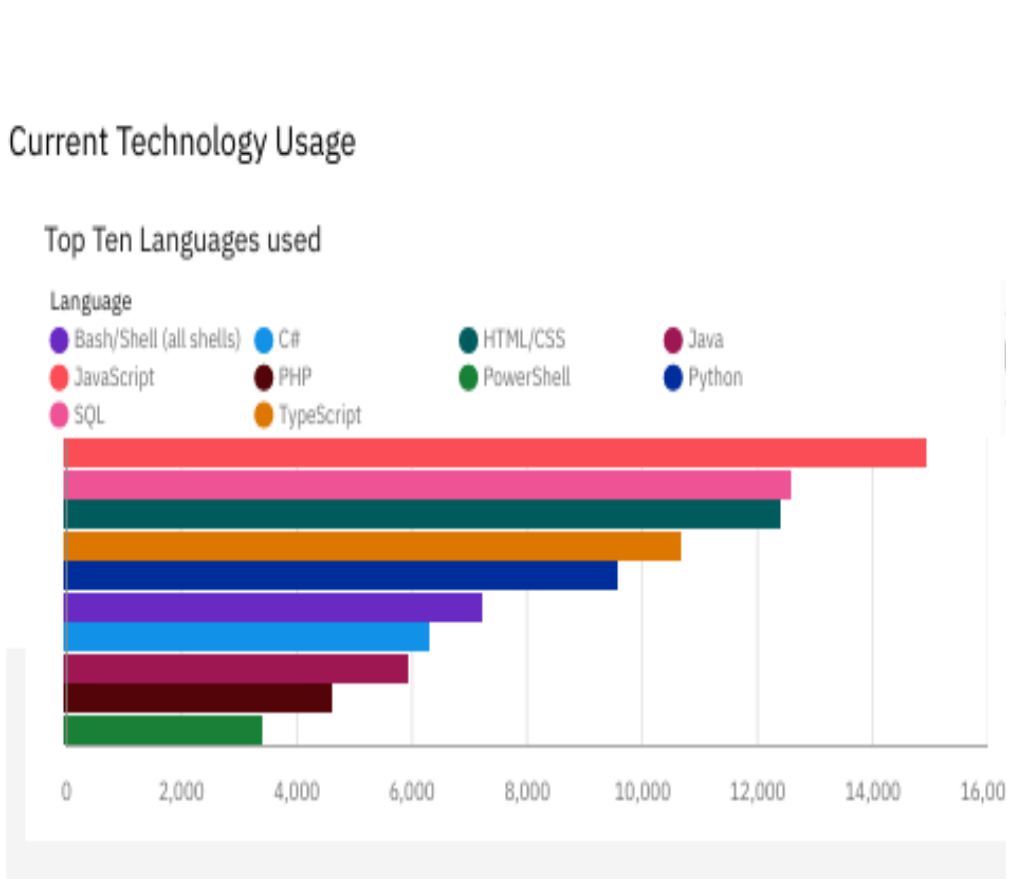
Data Wrangling :the subset data was wrangled in order to remove missing values, duplicates and normalizing data.

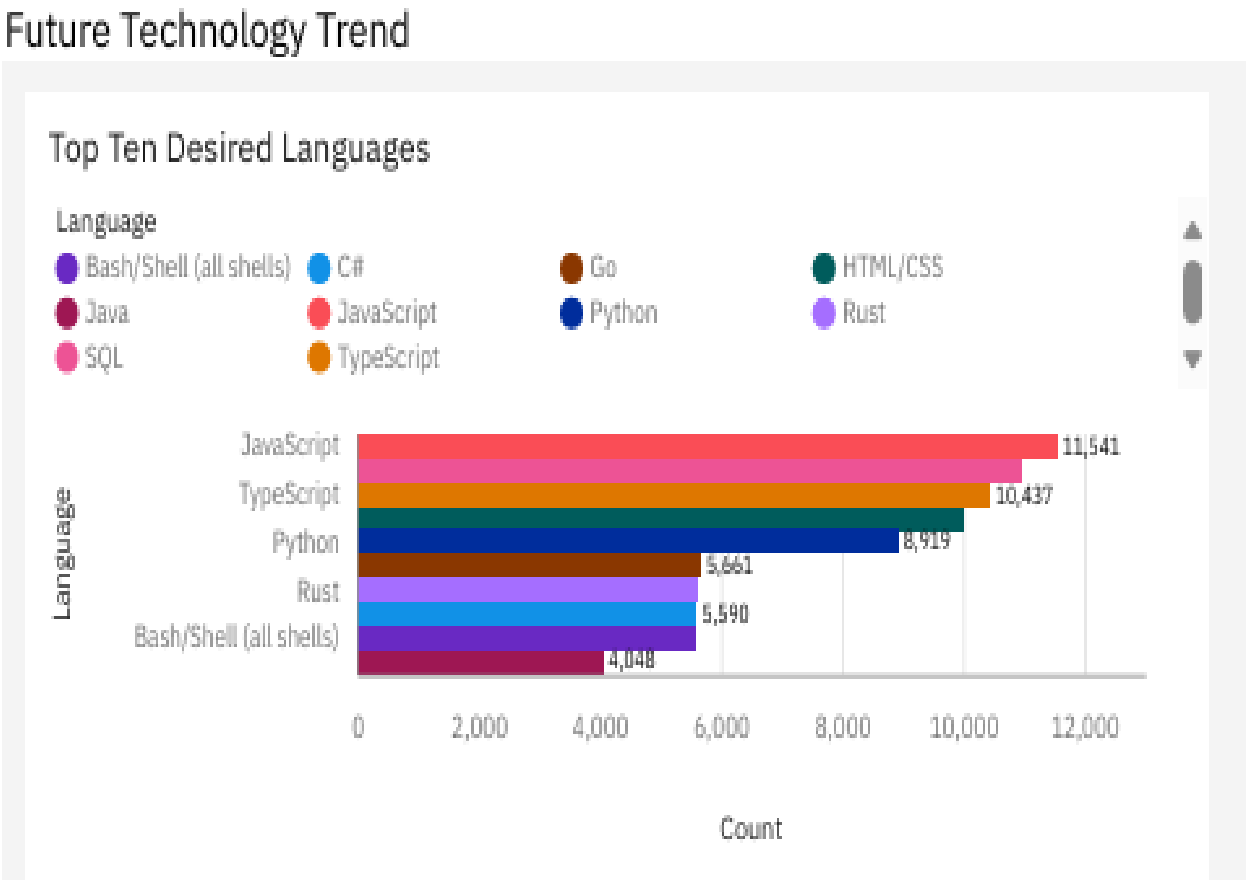
- **Exploratory data analysis : after cleaning that data exploratory analysis was done to identify outliers, distribution of data and correlation between different columns.**
- **Data visualization : IBM Cognos was used to creates dashboard using the subset data of survey**

PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year





PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- Python, JavaScript, typescript and HTML/CSS are the popular languages among developers and will remain in future as well.
- There is an increased interest in developers to learn python and TypeScript next year.
- SQL is an important language among developers and will likely remain next year as well.
- Web development jobs will continue to remain in high demand in the future.
- SQL will remain the preferred language for big data storage and querying.

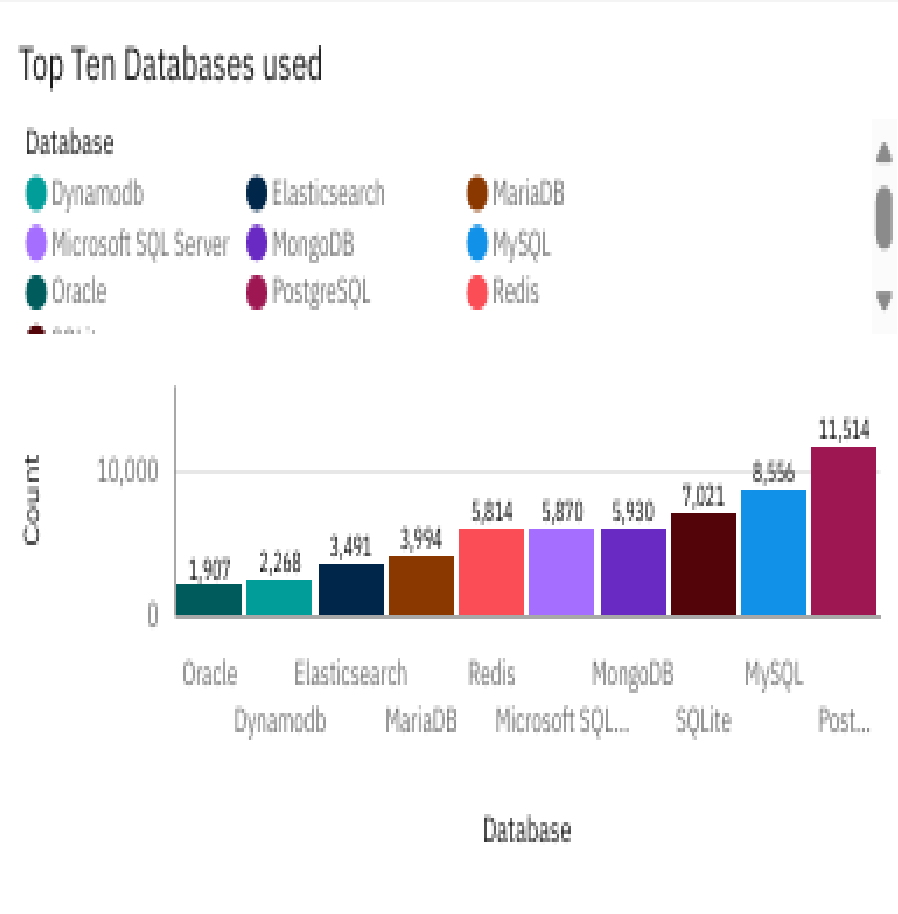
Implications:

Web development jobs will continue to remain in high demand in the future as there is an increased interest in TypeScript as well along with JavaScript and HTML/CSS.

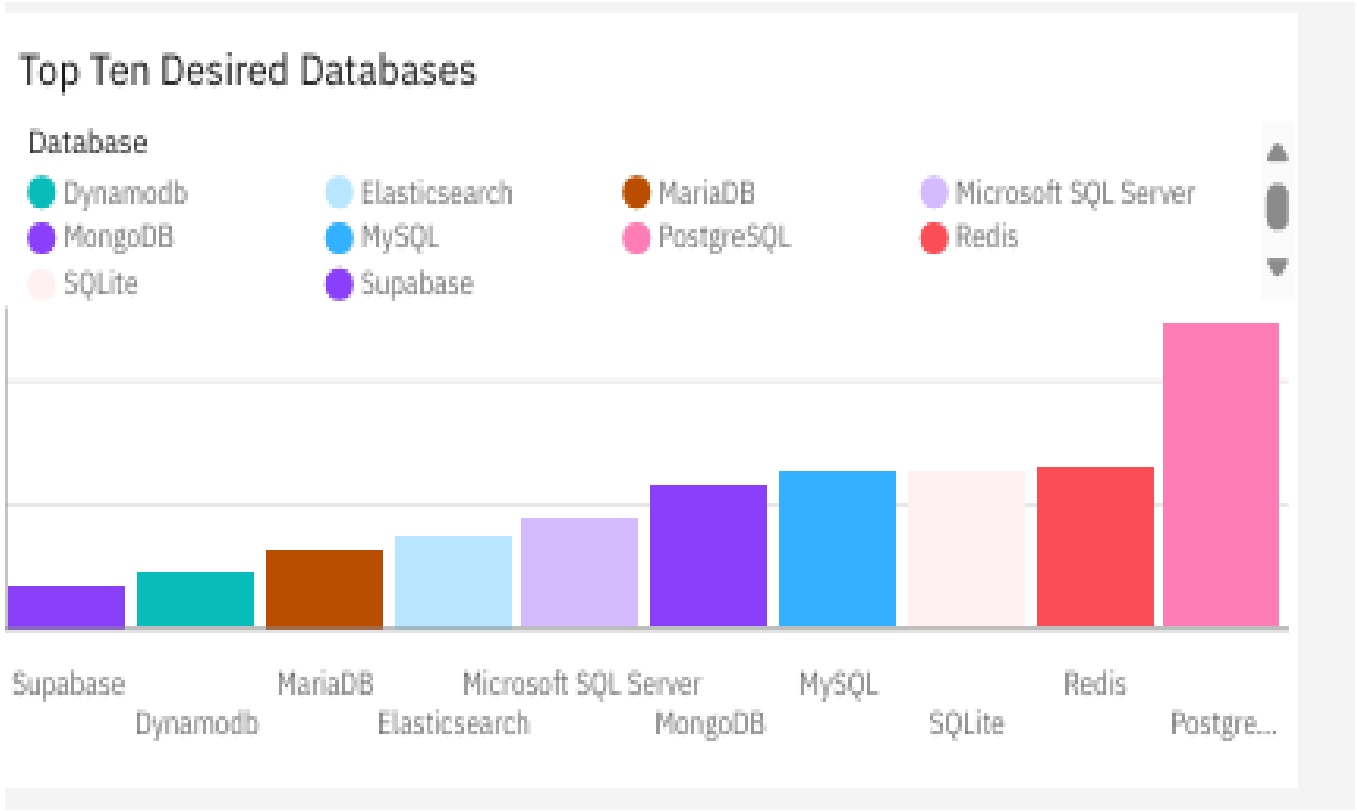
- SQL will remain the preferred language for big data storage and querying.
- Bash/Shell/PowerShell has seen a decrease in interest for next year.
- Python will be useful in AI and machine learning, and an increased interest help create more job opportunities.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL, MySQL and SQLite are the leading databases.
- But, for the next year PostgreSQL, Redis got lot of popularity as compared to all databases.
- There is a tremendous interest in Redis among developers.
- Elasticsearch has also gained a lot of interest in developers to learn..

Implications

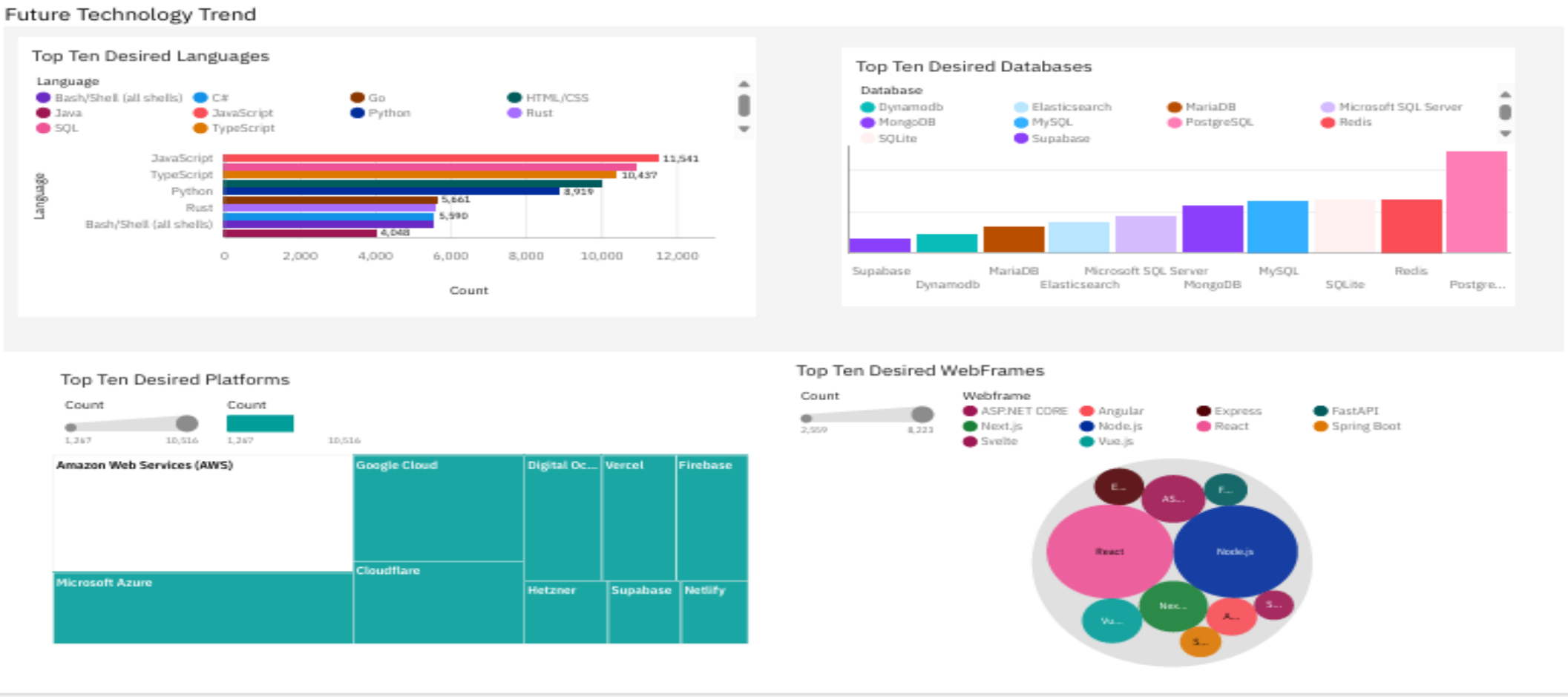
- Due to PostgreSQL ability to smoothly tackle voluminous databases and complex queries it has gained interest among developers.
- Due to its faster user experiences and reduced infrastructure costs Redis becoming more popular.
- Aspiring developers need to focus both on relational database as well as non-relational.

DASHBOARD

- The following link contains the interactive Cognos dashboard summarizing a) current technology usage b) future technology trend c) demographics
- https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FCapstone%2Bproject%2BDashboard&action=view&mode=dashboard&subView=model0000197f2679483_00000000

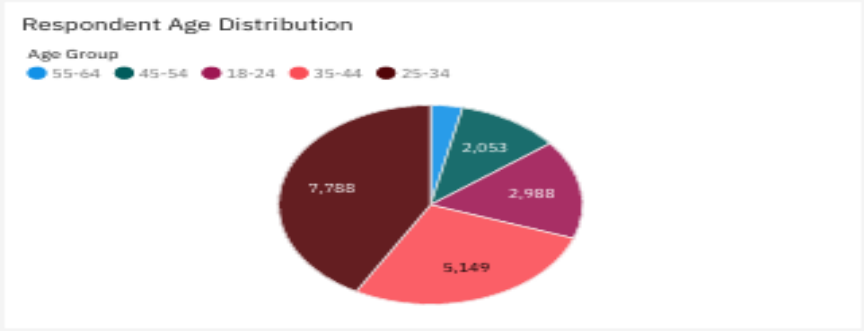
DASHBOARD TAB 1

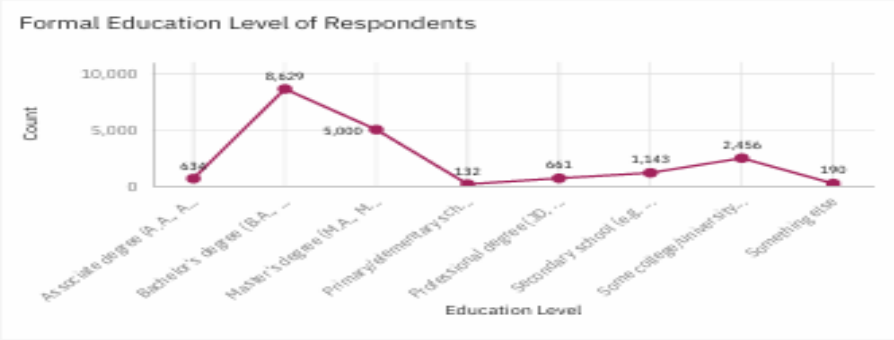
DASHBOARD TAB 2

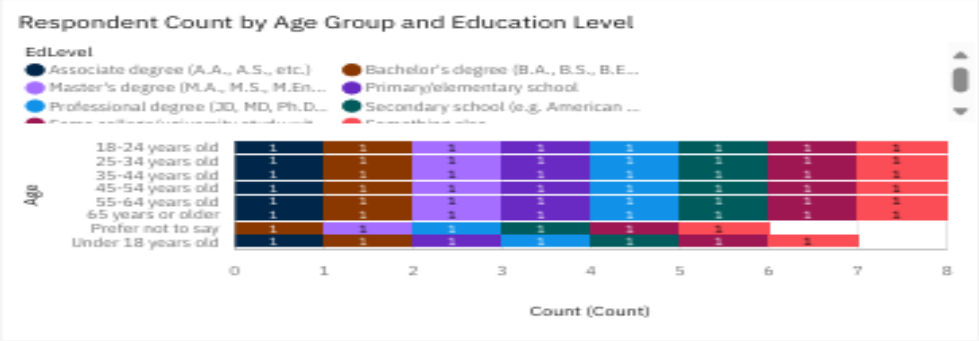


DASHBOARD TAB 3

Demographics







DISCUSSION

- **Why is there such a huge demand for web developers?**
- **Which technologies should perspective developers and data professionals be learning?**
- **Why is the popularity of MySQL declining so drastically?**
- **Will NoSQL completely overtake relational databases?.**
- **Is there a correlation between language and annual compensation?**
- **Why is there such a huge gap in gender, age and education in IT industry?**

OVERALL FINDINGS & IMPLICATIONS

Findings

- **Technology trends change every year but JavaScript and HTML/CSS are the most used and popular languages among developers and will continue to remain next year as well with increased interest in Typescript as well.**
- **SQL and python languages were the most used and for the next year as well they were the most desired language among developers to learn.**
- **Postgresql has a huge demand.**
- **Amazon Web Services is the most used platform and will continue to be next year also.**

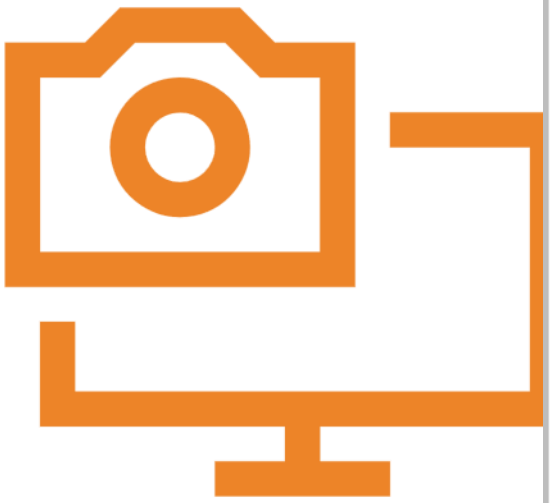
Implications

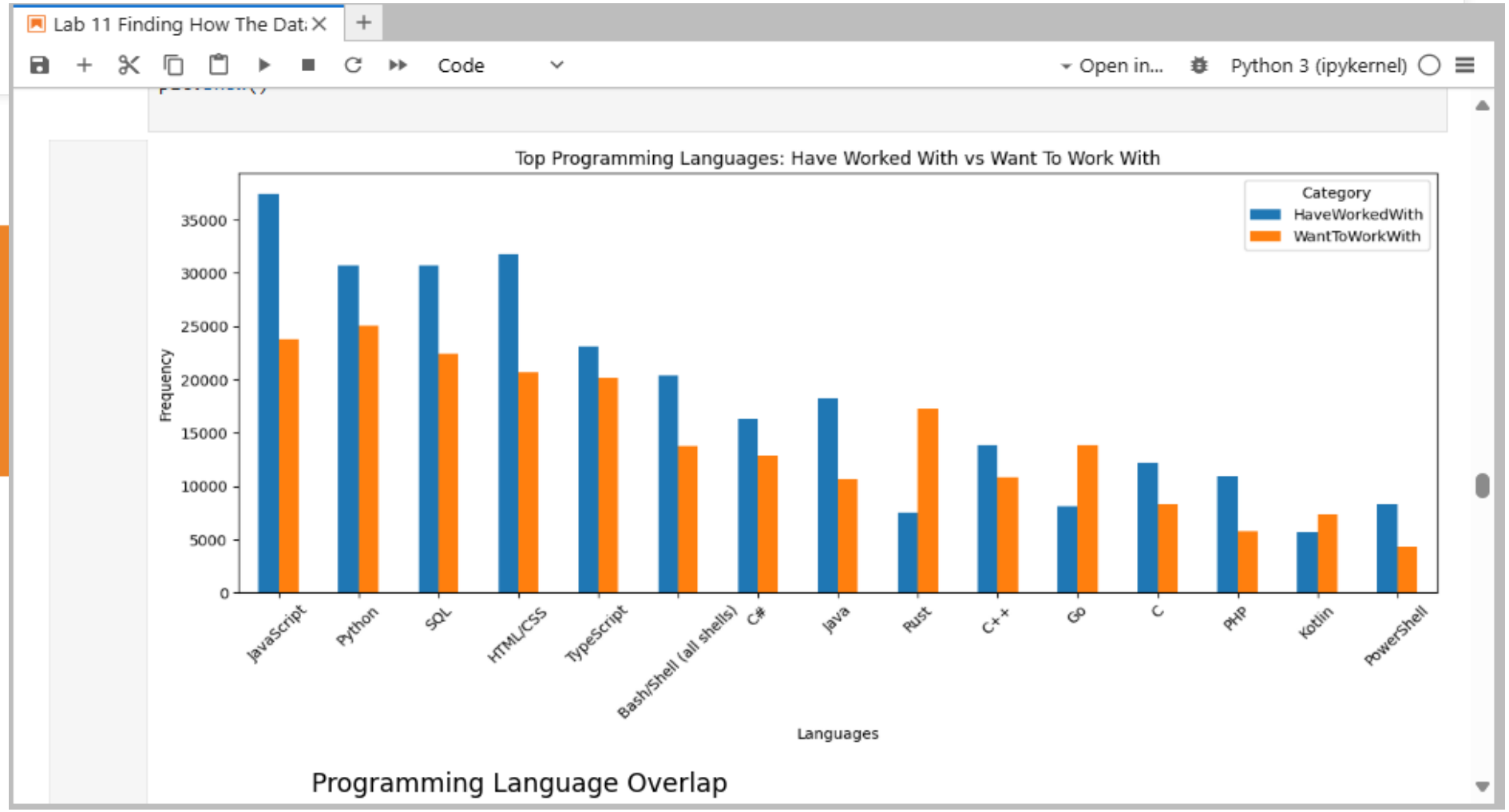
- **Aspiring developers have a bright scope in the web development field as the languages used in web development have the highest job postings and are popular languages as well.**
- **Data professionals need to be competent with SQL as well as NoSQL databases to have a competitive edge in the market. They need to be good in python as well as its popularity is increasing.**
- **With increasing popularity of Machine learning and AI Python and Redis are more in demand.**

CONCLUSION

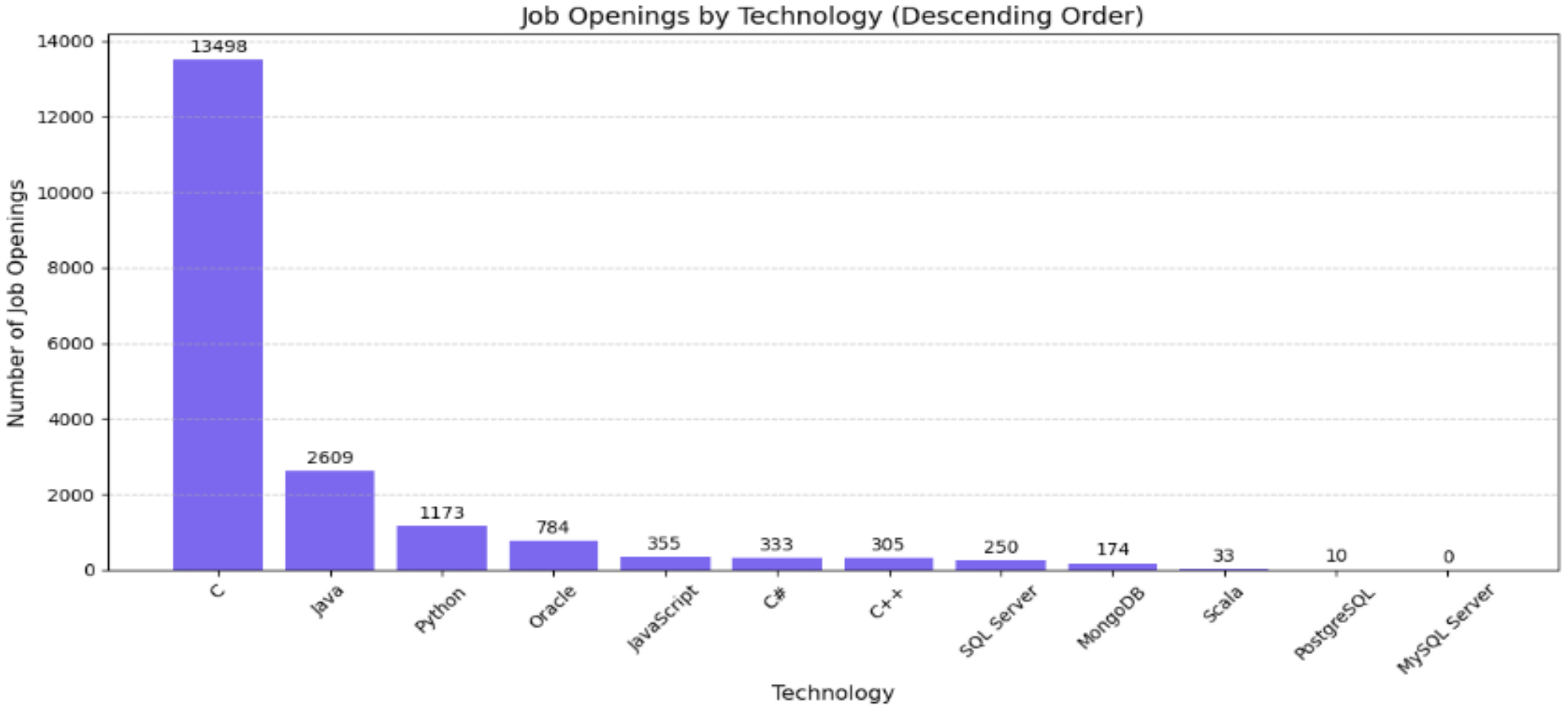
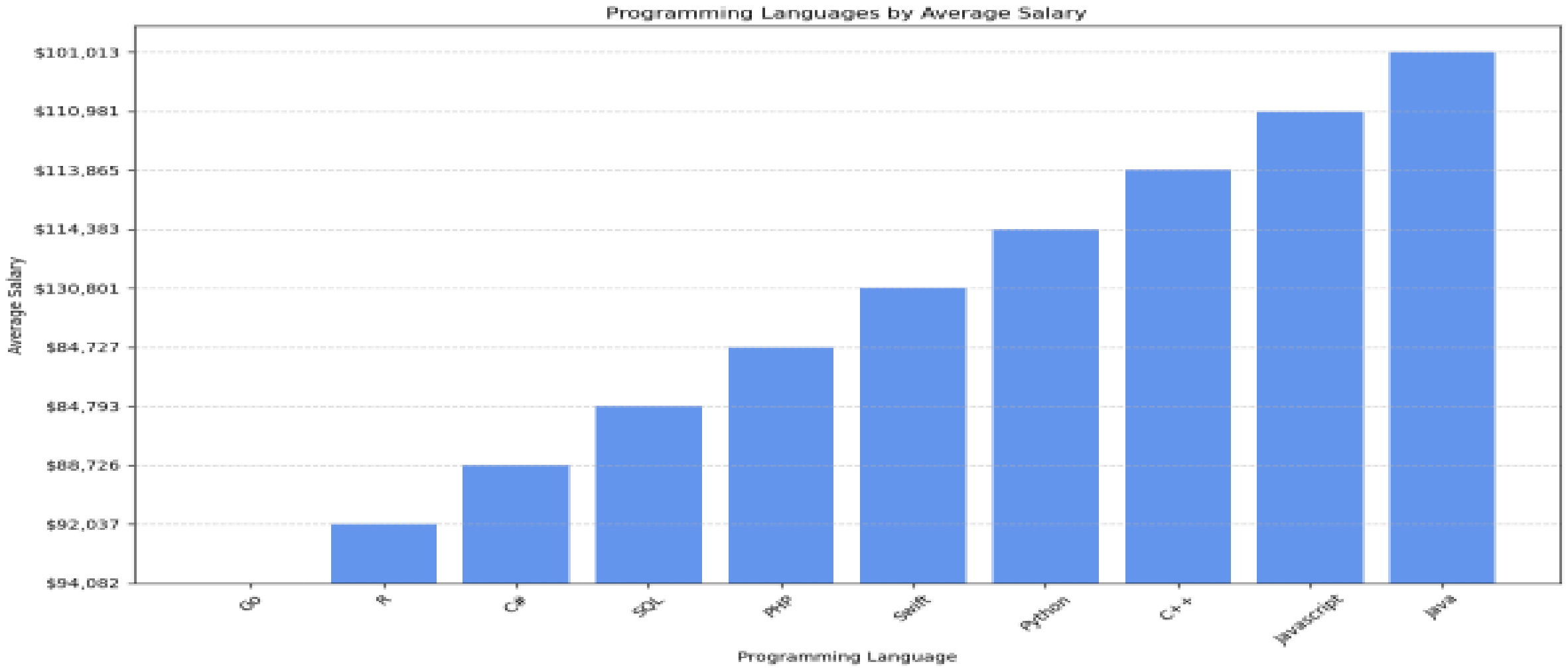
- The purpose of this report was successful in finding the emerging technology trends for this year and for the next year.
- This report will be helpful to many business in keeping pace with the emerging trends, learners in understanding which technology to focus on and educators to know what matter to develop according to the trend.
- Businesses can also make adjustment in the work force for those skills no longer in demand and can also help employees upskill with the emerging trends.
- The technologies identified—**Python, JavaScript, TypeScript, SQL**, and platforms like **Amazon Web Services (AWS)**—are not just trending; they're foundational to modern digital transformation.
- Their widespread adoption across industries and educational institutions reflects a shift toward **scalable, secure, and intelligent systems**..
- Educational institutions can use this tech stack to **modernize learning environments**, support **remote labs**, and prepare students for **real-world challenges**.

APPENDIX




Lab 11 Finding How The Dat
Code
Open in...
Python 3 (ipykernel)
Top Programming Languages: Have Worked With vs Want To Work With
Category
HaveWorkedWith
WantToWorkWith
Frequency
35000
30000
25000
20000
15000
10000
5000
0
JavaScript
Python
SQL
HTML/CSS
TypeScript
Bash/Shell (all shells)
C#
Java
Rust
C++
Go
C
PHP
Kotlin
PowerShell
Languages
Programming Language Overlap

JOB POSTINGS



POPULAR LANGUAGES