Emerging ICT Tools: Trends and Analyses

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18th January, 2025

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OUTLINE

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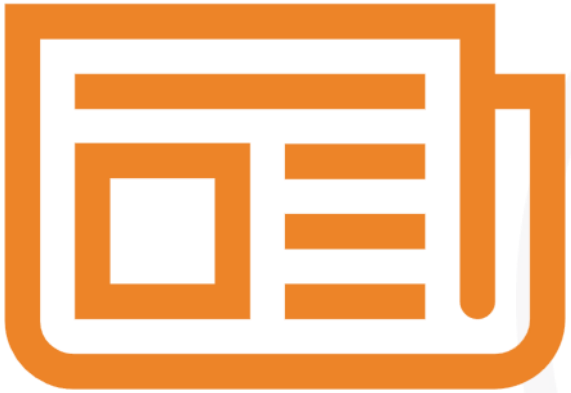
EXECUTIVE SUMMARY

- Emerging trends in Software tools.
- There is a need to reskill the youth.
- Demographic survey of the respondents for better analysis.
- Potential help in policy-making and recruitment of IT professionals.

INTRODUCTION

- **About:** Analyzing the trends in ICT Development.
- **Purpose:**
  - Identify emerging developments for the future.
  - What are the top programming languages in demand?
  - What are the top database skills in demand?
  - What are the demographics of the skill acquirers?
- **Audience:** HR Heads, Policy Makers.

METHODOLOGY

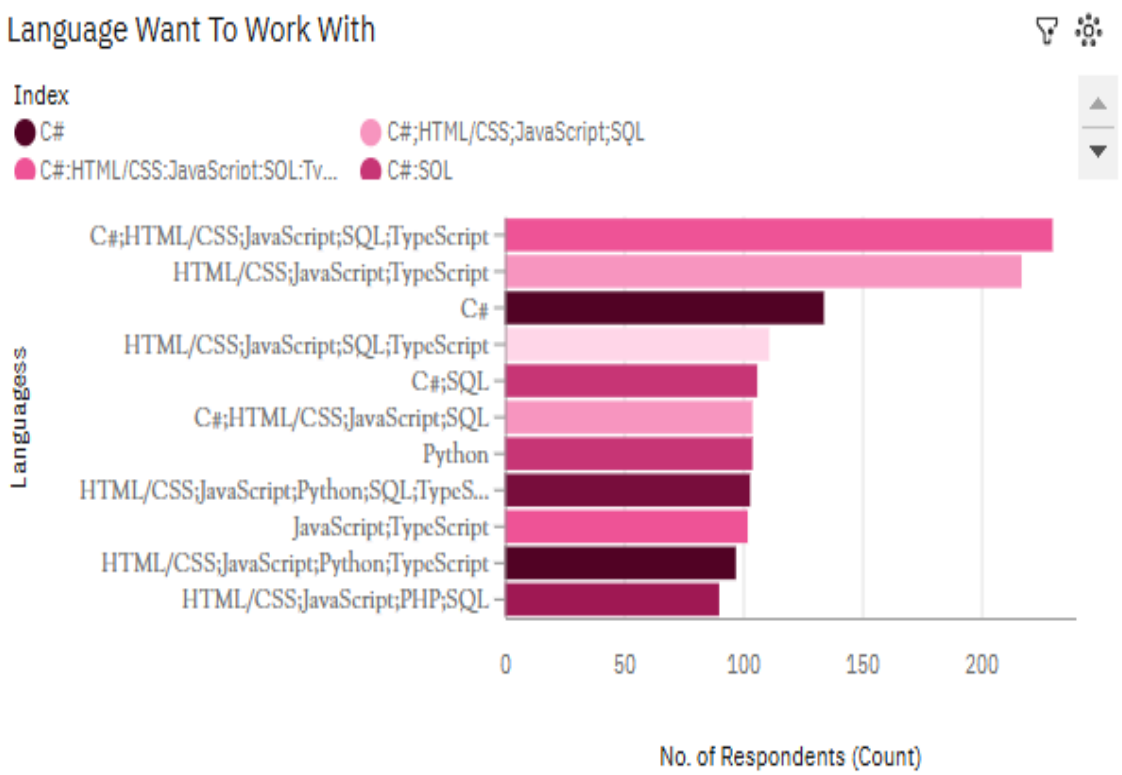


- Data Collection through
  - Survey data • Job posting • Popular languages
- Data Exploration.
  - The initial step in data analysis involves reviewing a dataset to identify its characteristics and patterns
- Data Cleaning.
  - The fixing or removing of incorrect, incomplete, or duplicate data using SQL, and Python.
- Data Visualization.
  - The graphical representation of information and data. By using visual elements like charts, graphs, and maps, data visualization tools.
- Presentation using MS PowerPoint.

PROGRAMMING LANGUAGE TRENDS

Languages Worked With (Current Year)

Languages want to work with. (Next Year)



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

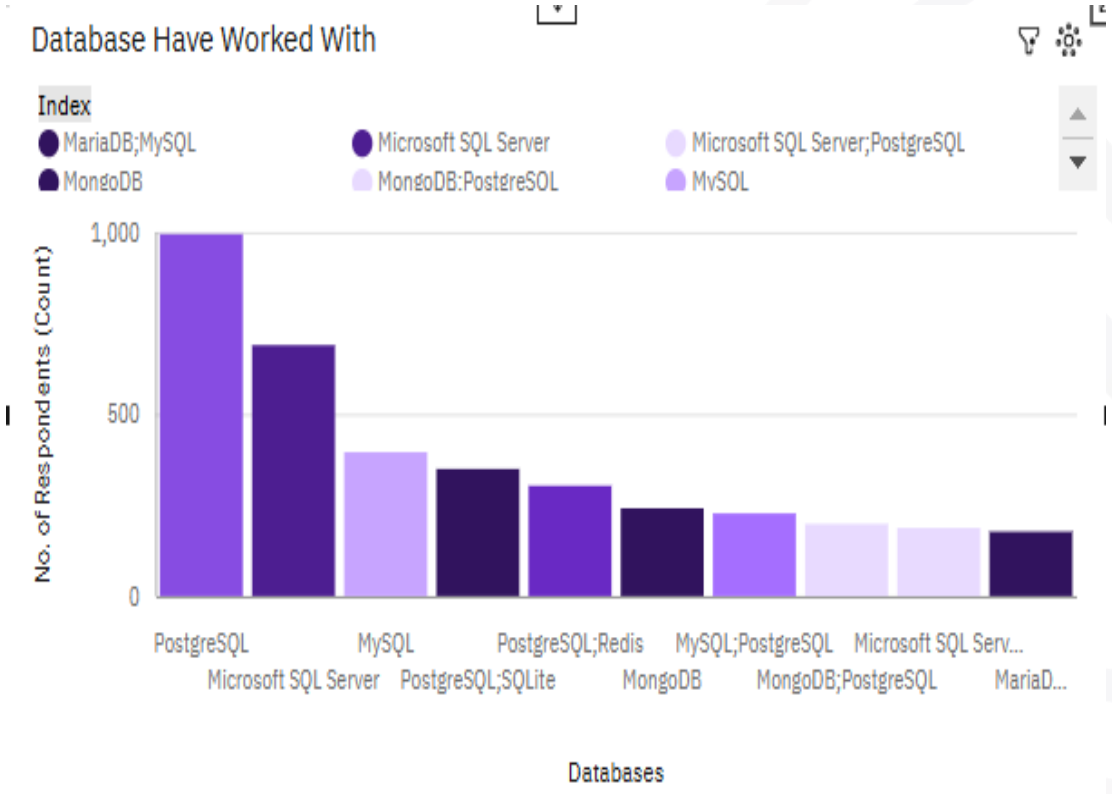
- HTML/CSS, SQL, and JavaScript are the top 3 languages used.
- Python and TypeScript are set to become popular in the future.
- PowerShell will lose its charm in the near future.

Implications

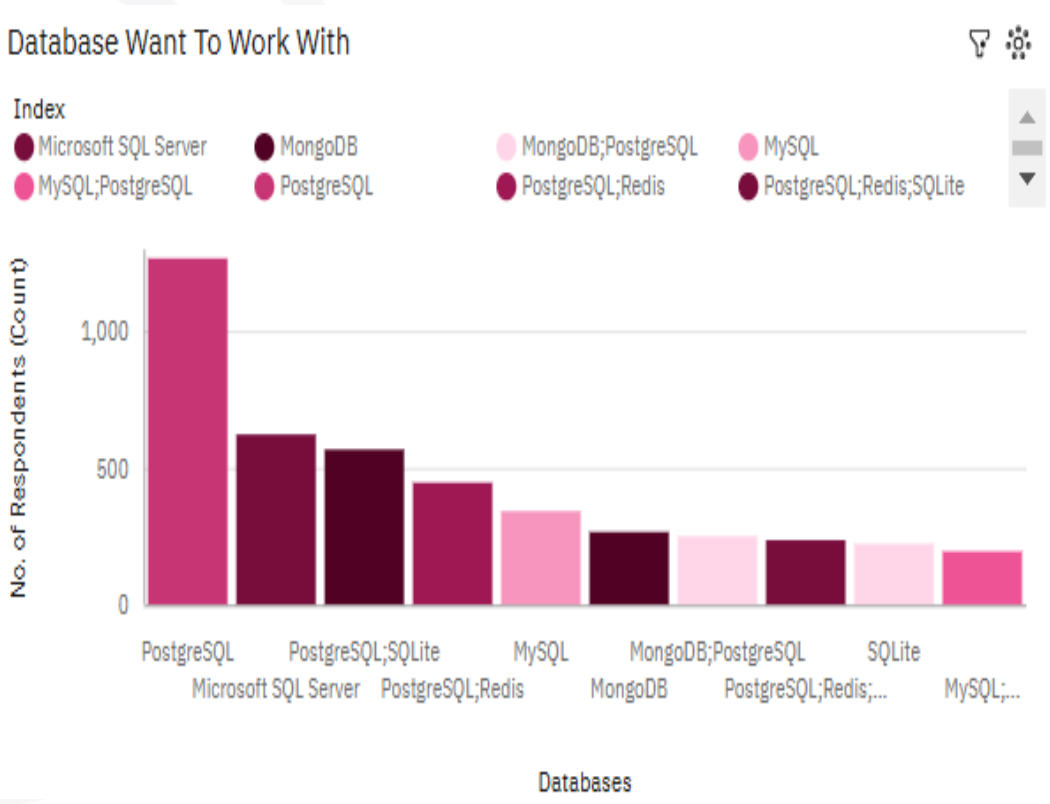
- Web Development Services are still in demand.
- Big Data querying is still done using SQL.
- Python will rise in demand due to emergence of AL/ML.

DATABASE TRENDS

Databases have worked with (Current Year)



Databases want to work with. (Next Year)



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is the most popular database followed by Microsoft SQL.
- MongoDB and Redis are emerging databases.
- Elasticsearch is the new entrant.

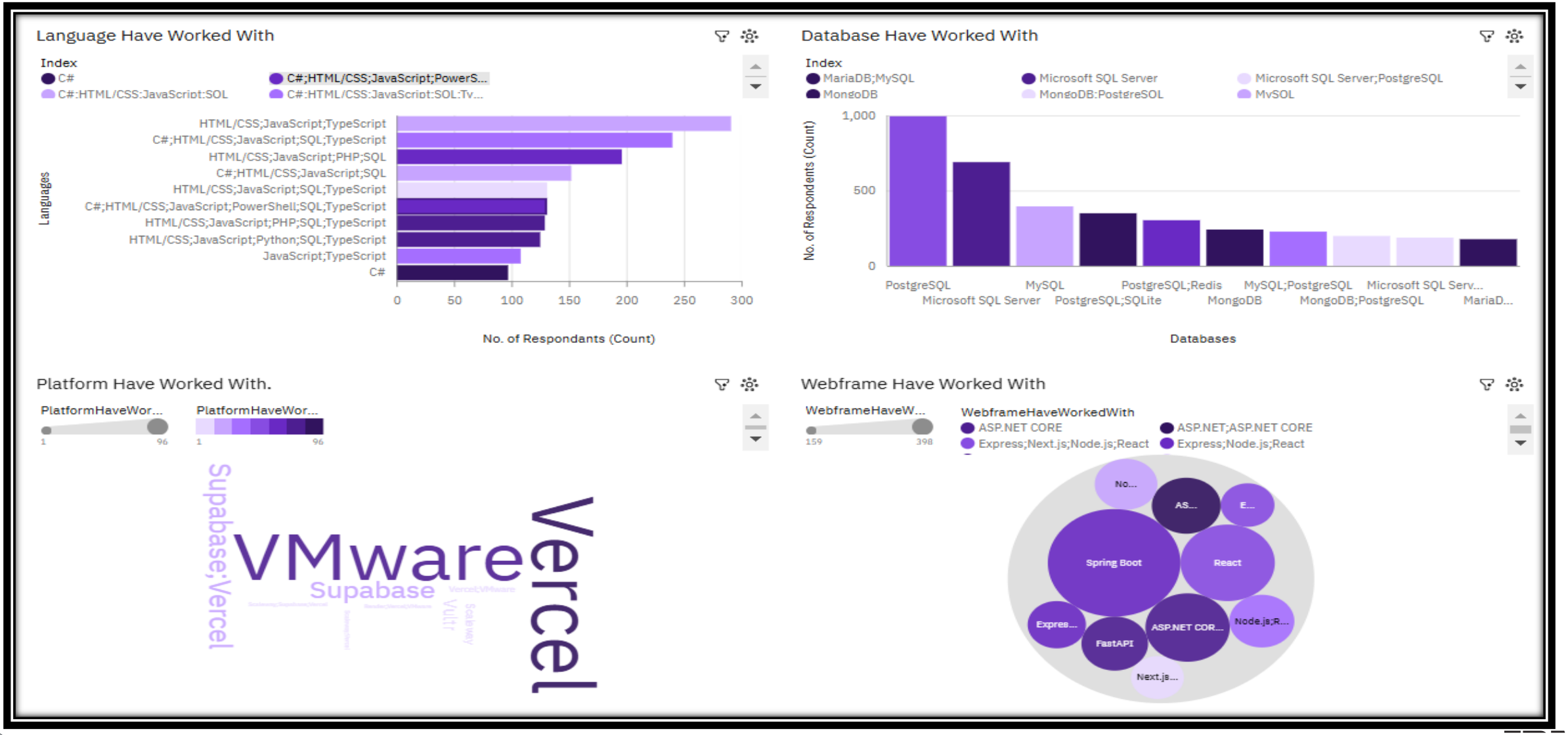
Implications

- Companies still prefer open source databases.
- NoSQL database is more useful for non relational data management.
- Redis supports abstract data types.

DASHBOARD

https://github.com/Mayur02hub/IBMCourse/blob/main/MYProject.pdf

DASHBOARD TAB 1



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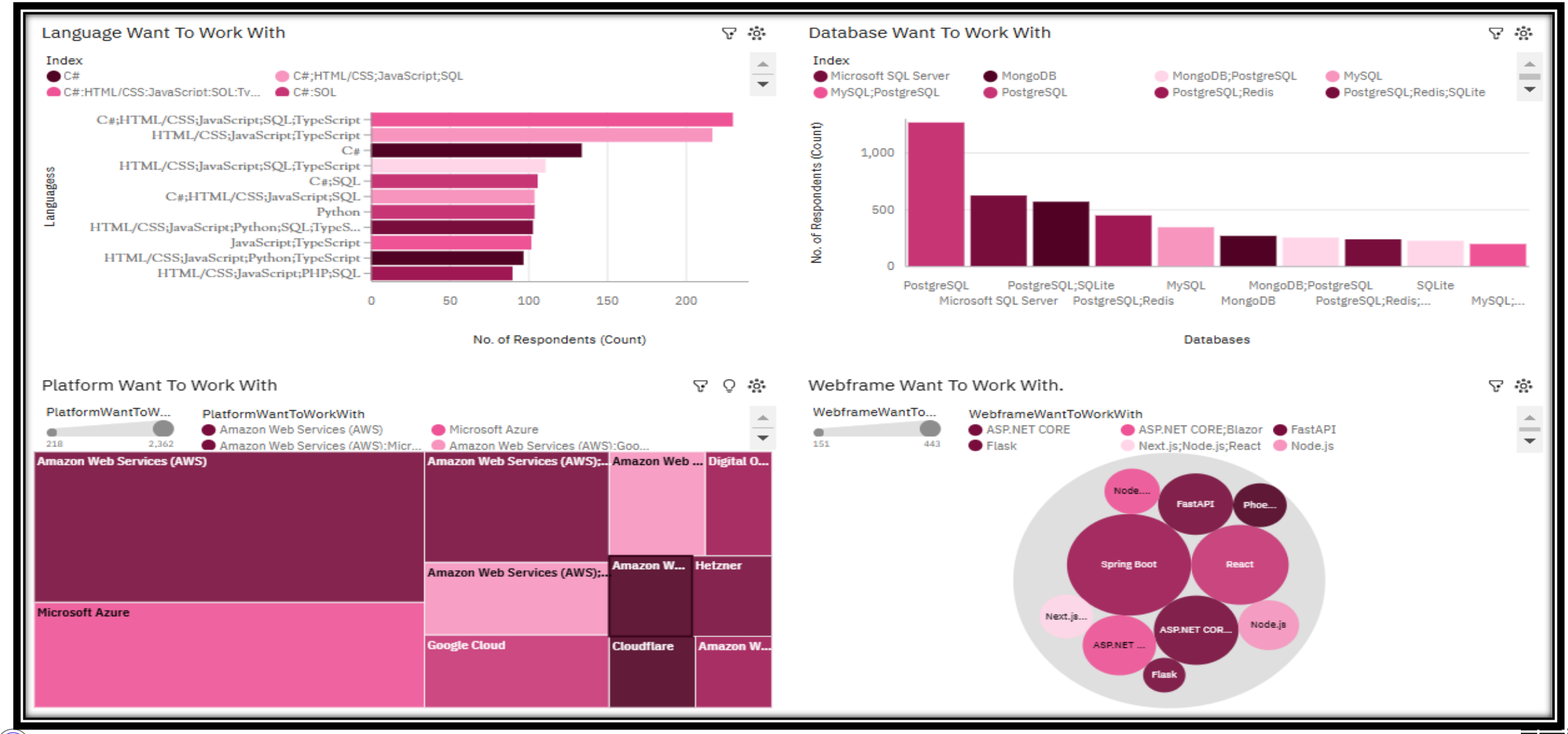
DASHBOARD TAB 2



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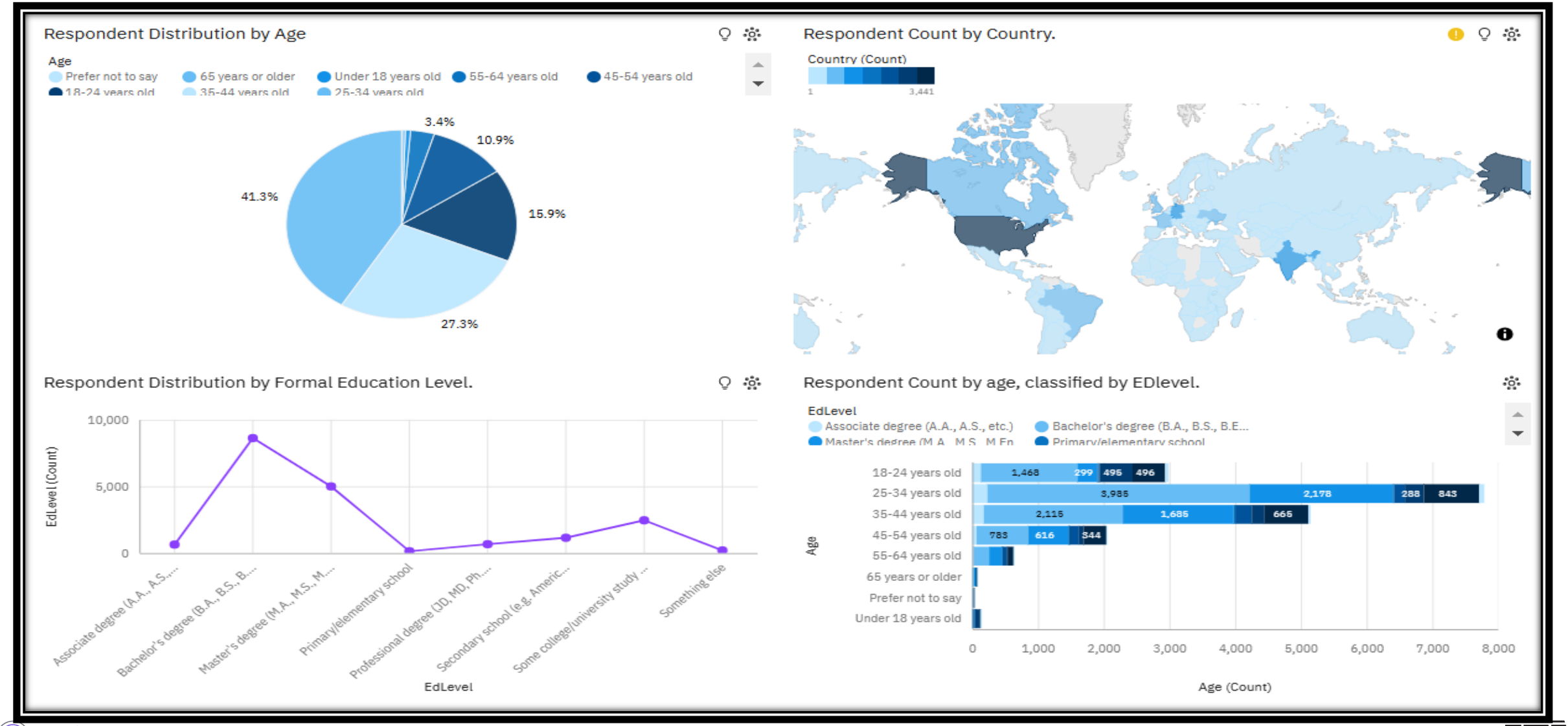
DASHBOARD TAB 3



DISCUSSION

- We discussed the emerging trends in ICT.
- There is a need for reskilling of the workforce.
- Developing countries need to adapt more to the emerging changes.
- Need to bridge regional inequality.

OVERALL FINDINGS & IMPLICATIONS

Findings

- There is an age disparity in tech-enabled jobs.
- Platforms like AWS and Docker are gaining recognition.
- US and India dominate the workforce in IT sector.

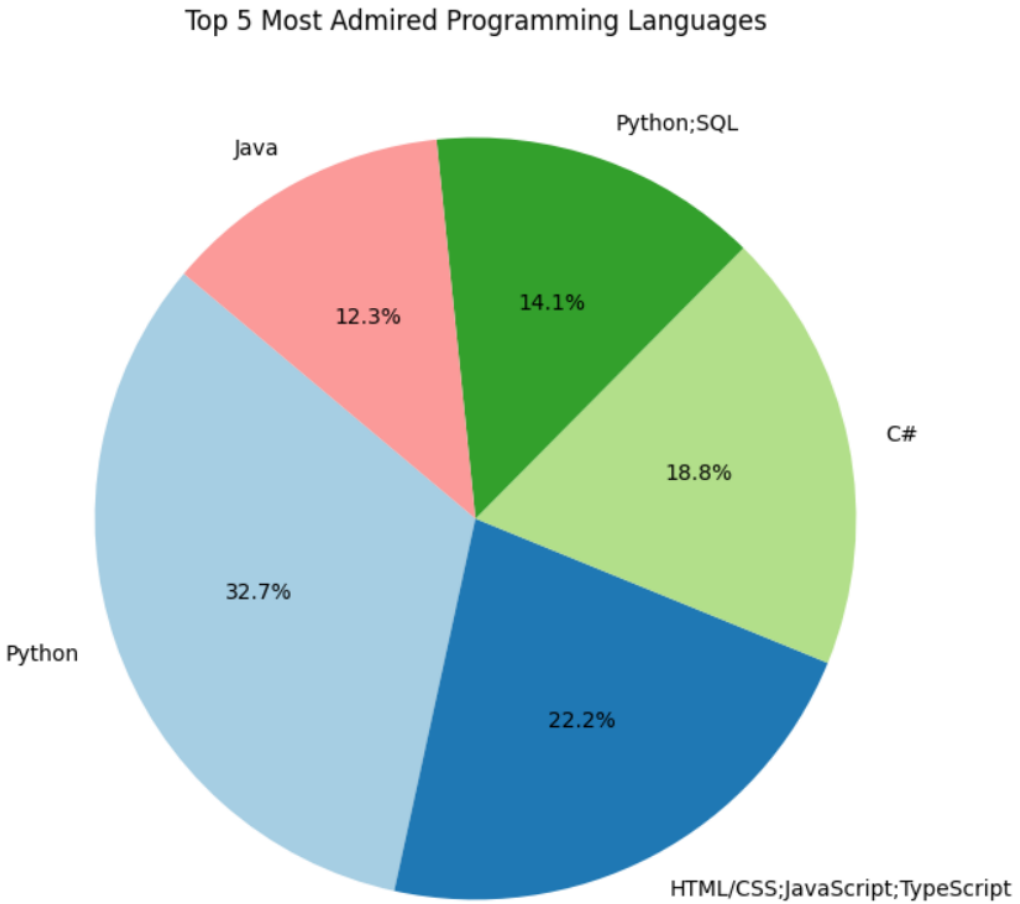
Implications

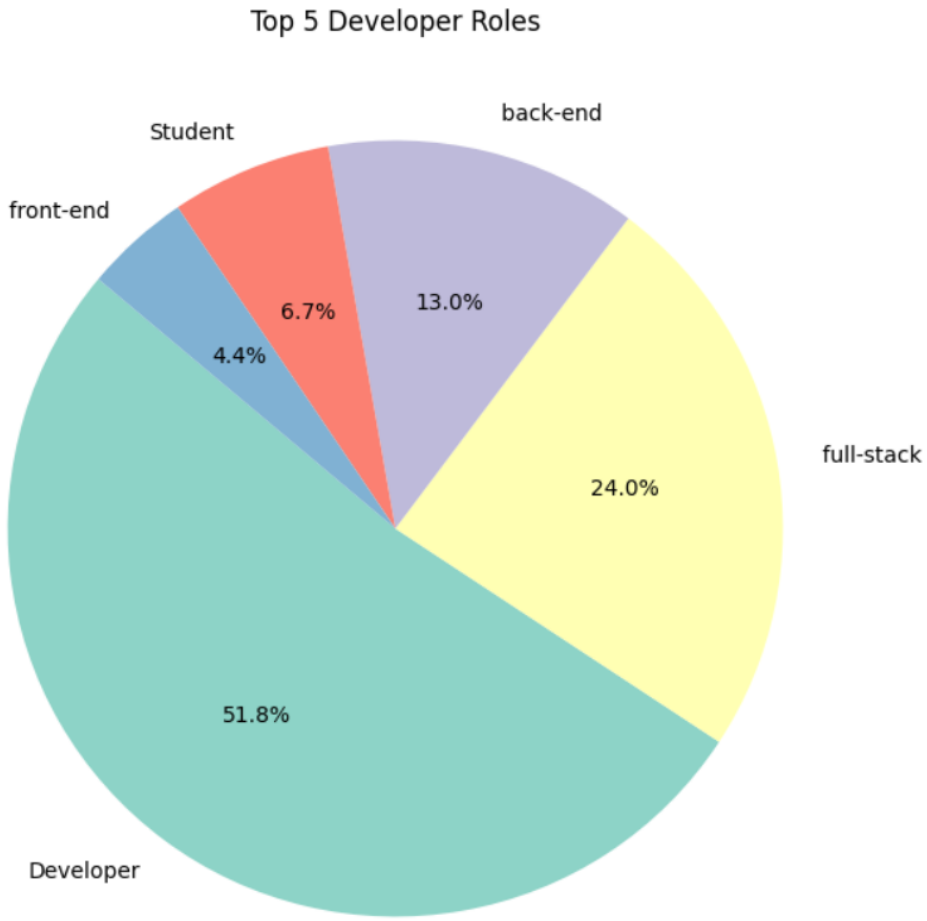
- Firms across the sector need to adapt to the IT 2.0 revolution.
- Cloud Services will emerge as a new sub-sector in IT.
- Transfer of technology needs to happen at faster pace.

CONCLUSION

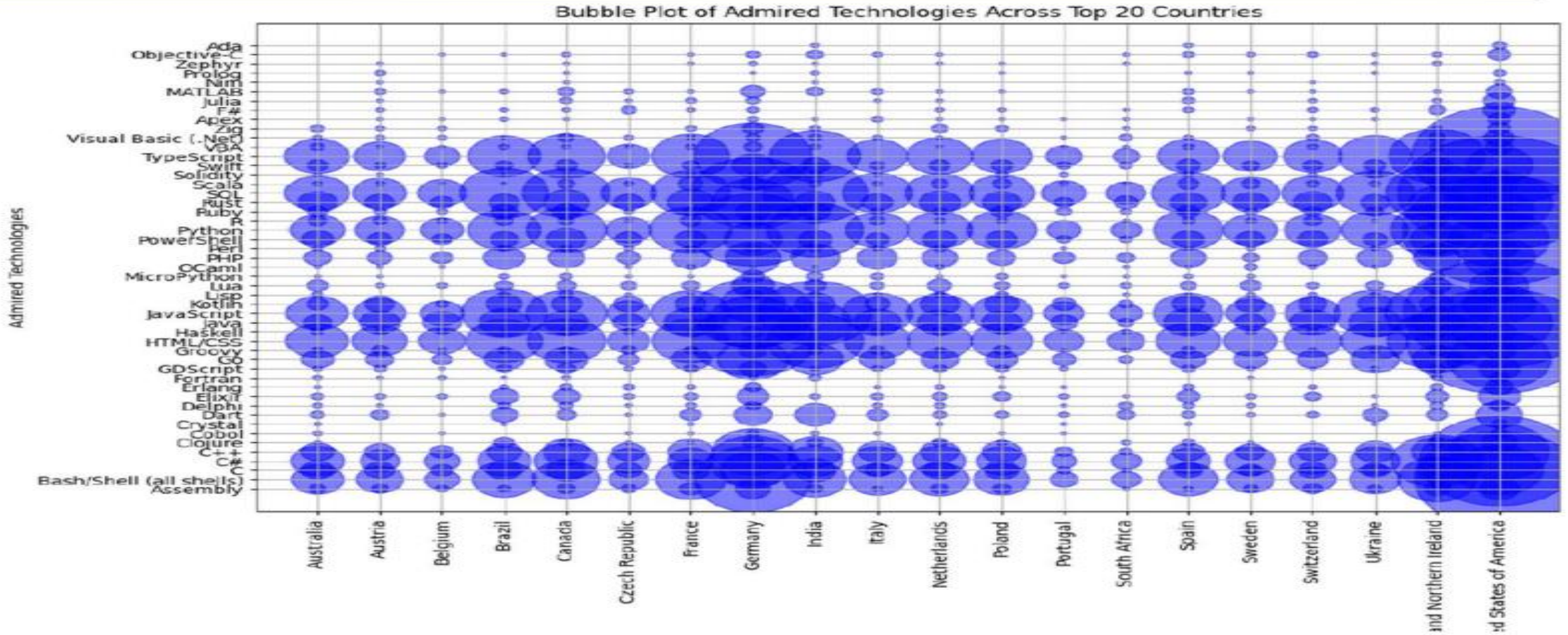
- **Skill Focus**: JavaScript and TypeScript are key programming languages for developers at present and in the future.
- **Technological Growth Areas**: There is a growing demand for cloud technologies and modern databases, suggesting shifts toward scalable and distributed systems.
- **Targeted Training Programs**: Educational efforts can focus on JavaScript-based frameworks, cloud certifications, and database management to meet future trends.
- **Demographic Trends**: Younger developers (18–34) dominate the technology space, influencing market and training priorities.

APPENDIX 1


Top 5 Most Admired Programming Languages
Python;SQL
Java
12.3%
14.1%
C#
18.8%
32.7%
Python
22.2%
HTML/CSS;JavaScript;TypeScript

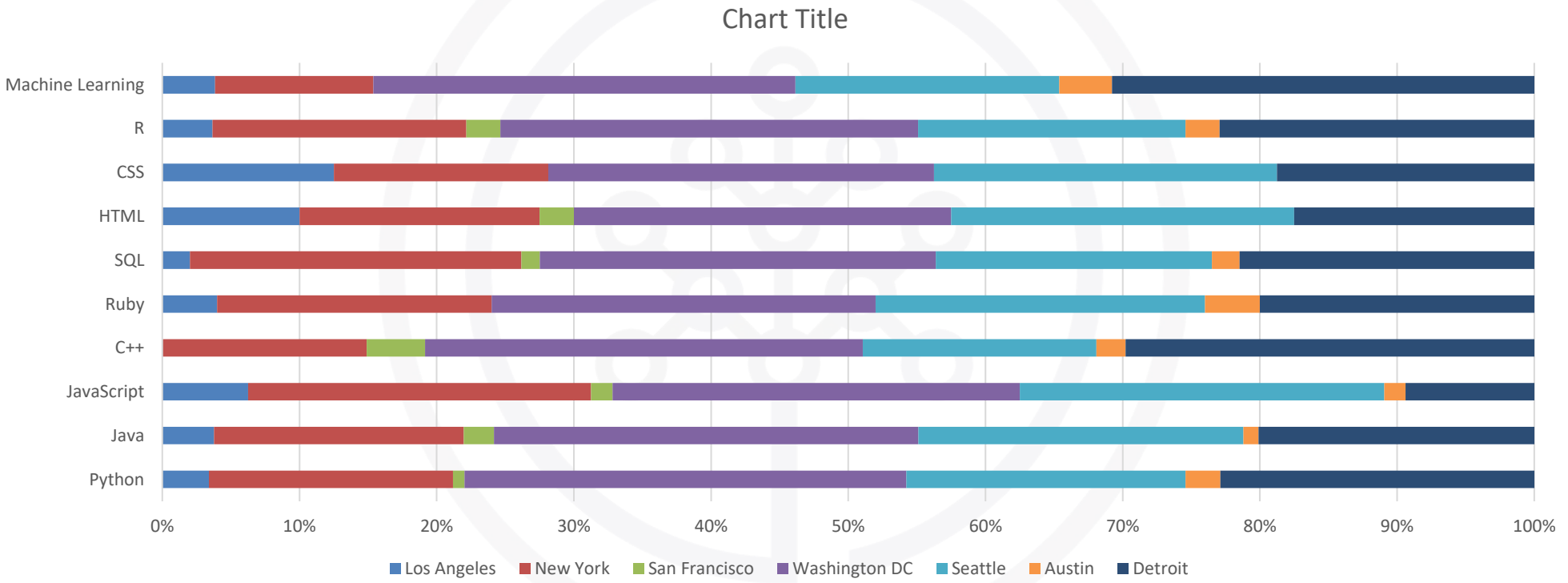

Top 5 Developer Roles
Student
back-end
front-end
6.7%
13.0%
4.4%
full-stack
24.0%
51.8%
Developer

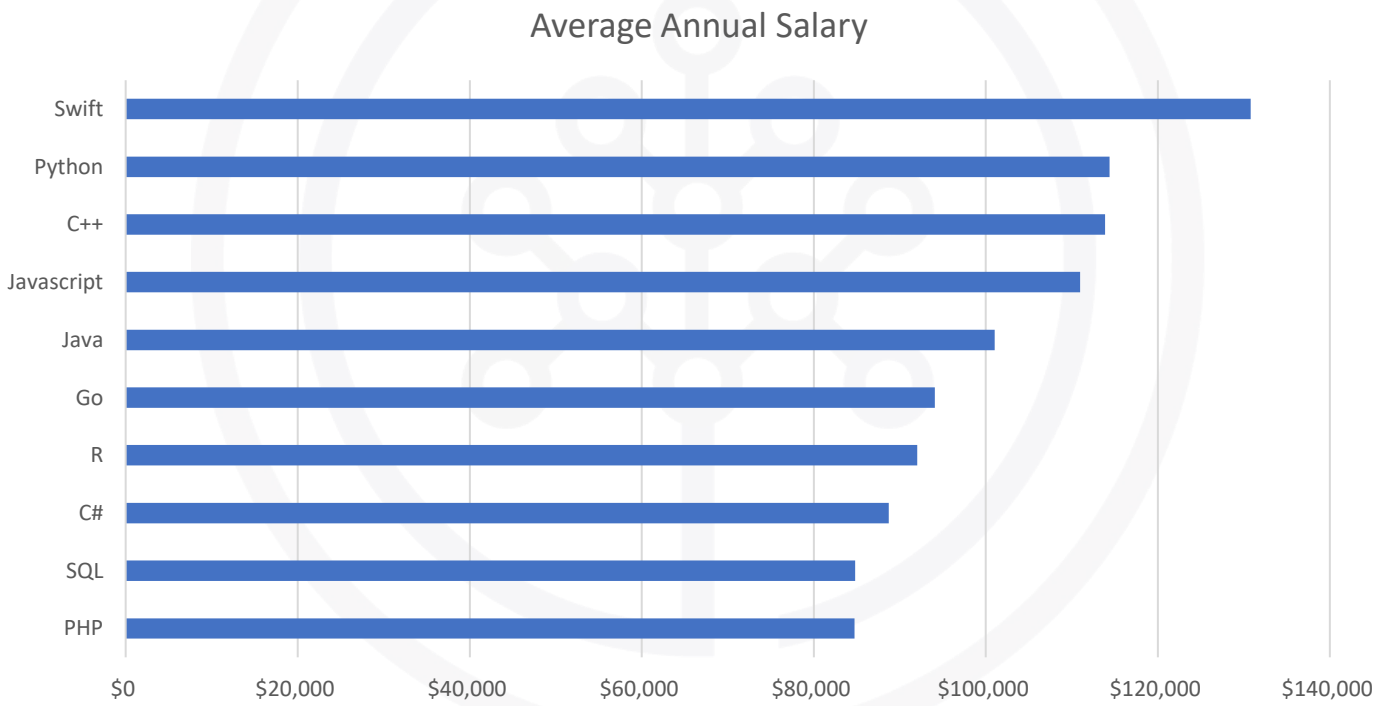
APPENDIX 2


Bubble Plot of Admired Technologies Across Top 20 Countries
Admired Technologies
Ada
Objective-C
Zephyr
Prolog
Nim
MATLAB
Julia
F#
Apex
Zig
Visual Basic (.Net)
VBA
TypeScript
Swift
Solidity
Scala
SQL
Rust
Ruby
R
Python
PowerShell
Perl
PHP
OCaml
MicroPython
Lua
Lisp
Kotlin
JavaScript
Java
Haskell
HTML/CSS
Groovy
Go
GDScript
Fortran
Erlang
Elixir
Delphi
Dart
Crystal
Cobol
Clojure
C++
C#
C
Bash/Shell (all shells)
Assembly
Australia
Austria
Belgium
Brazil
Canada
Czech Republic
France
Germany
India
Italy
Netherlands
Poland
Portugal
South Africa
Spain
Sweden
Switzerland
Ukraine
nd Northern Ireland
d States of America

JOB POSTINGS

In Module 1 you have collected the job posting data using Job API in a file named “job-postings.xlsx”. Present that data using a bar chart here.



POPULAR LANGUAGES

In Module 1 you have collected the job postings data using web scraping in a file named “popular-languages.csv”. Present that data using a bar chart here. Order the bar chart in the descending order of salary.