Stack Overflow Developer Survey Analysis

Henry P – 15/06/2025

OUTLINE

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  - Dashboard
- Discussion
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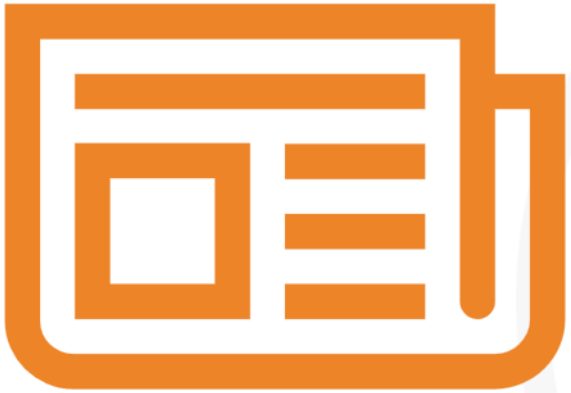
EXECUTIVE SUMMARY

- Data was sourced from a developer survey which was then analyzed and visualized for trends.
- Current and future technology trends saw variances, indicating shifting technology usage in the future.
- Technologies to learn include:
  - JavaScript and Python (Languages)
  - ProgreSQL (Database)
  - AWS, Azure and Google Cloud (Platforms)
  - React and Node.js (Web frameworks)
- Most developers (over two thirds) are between 25 and 44 years old.
- Most participants has a bachelors or masters degree in terms of their education.

INTRODUCTION

- This report describes the key findings from the Stack Overflow Developer Survey.
- This study surveyed 60,000+ participants on topics related to programming and technology.
- The report is targeted towards:
  - Current developers
  - Aspiring developers
  - Individuals who develop as a hobby
- The findings from this report assists in determining current and future trends related to the industry.
- These trends can then be used to make informed decisions.

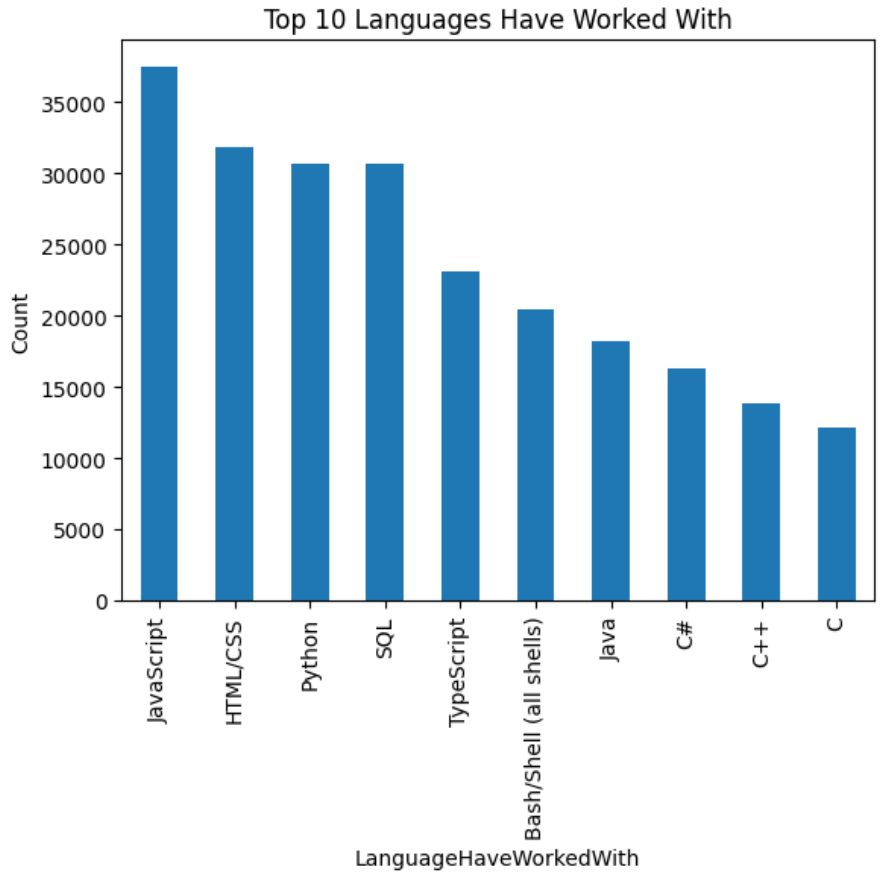
METHODOLOGY



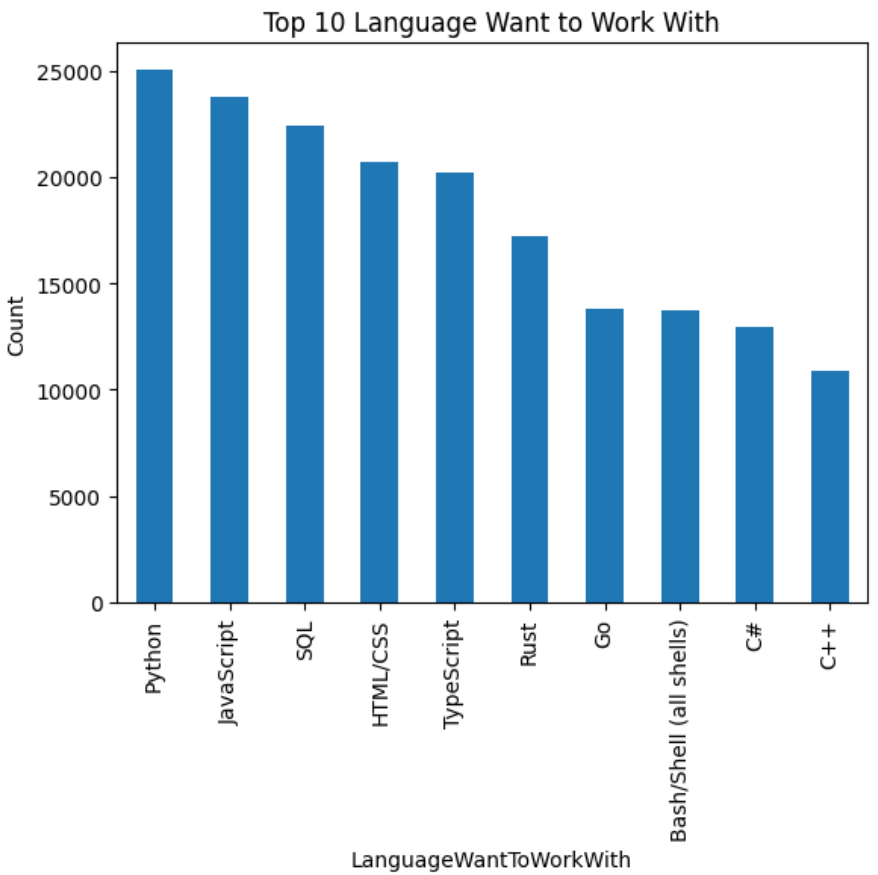
- Data Source: The data was gathered from the Stack Overflow Developer Survey.
- Collection methods: The data was accessed through an API using Python.
- Data wrangling:
  - Summary and key information on data
  - Removal of duplicates
  - Removal of missing values
  - Removal of outliers
  - Standardization of data
  - Normalization of data
  - Encoding of categorical variables (one-hot encoding)
  - Feature engineering

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

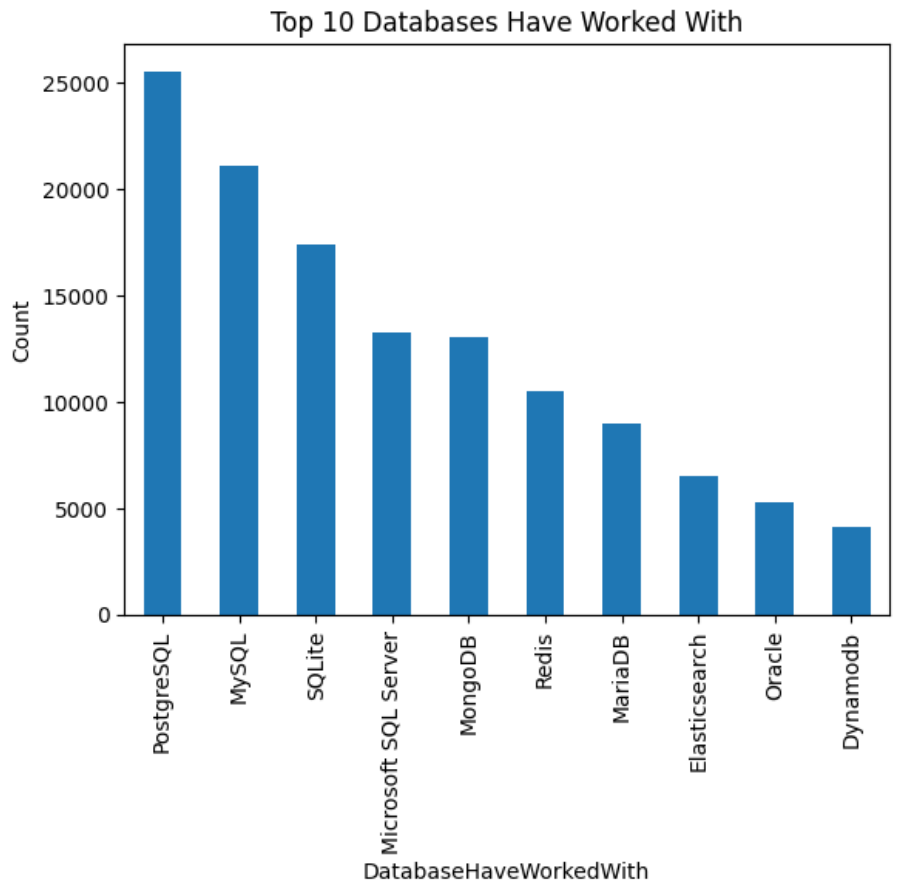
- JavaScript is most popular language
- Python is the most desired language
- Rust and Go are top 10 desired but not top 10 current

Implications

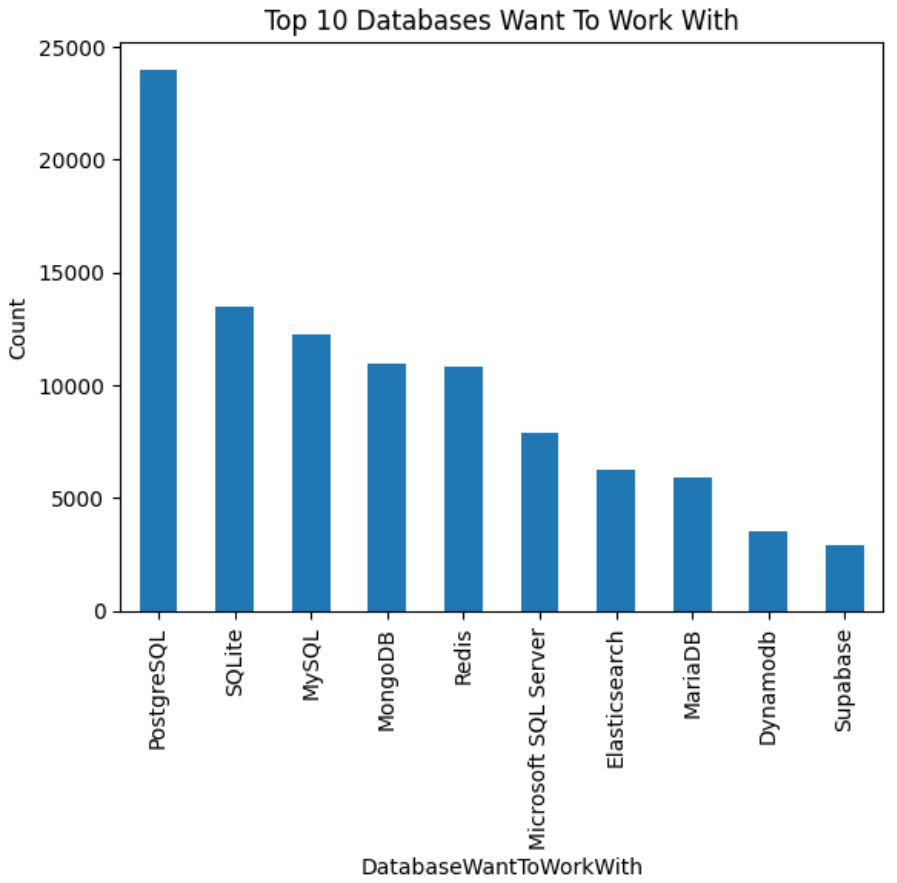
- Learn JavaScript to remain competitive in the job market
- Learn and master Python to get ahead of the game
- Consider Rust and Go as your next languages to learn.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS – FINDINGS & IMPLICATIONS

Findings

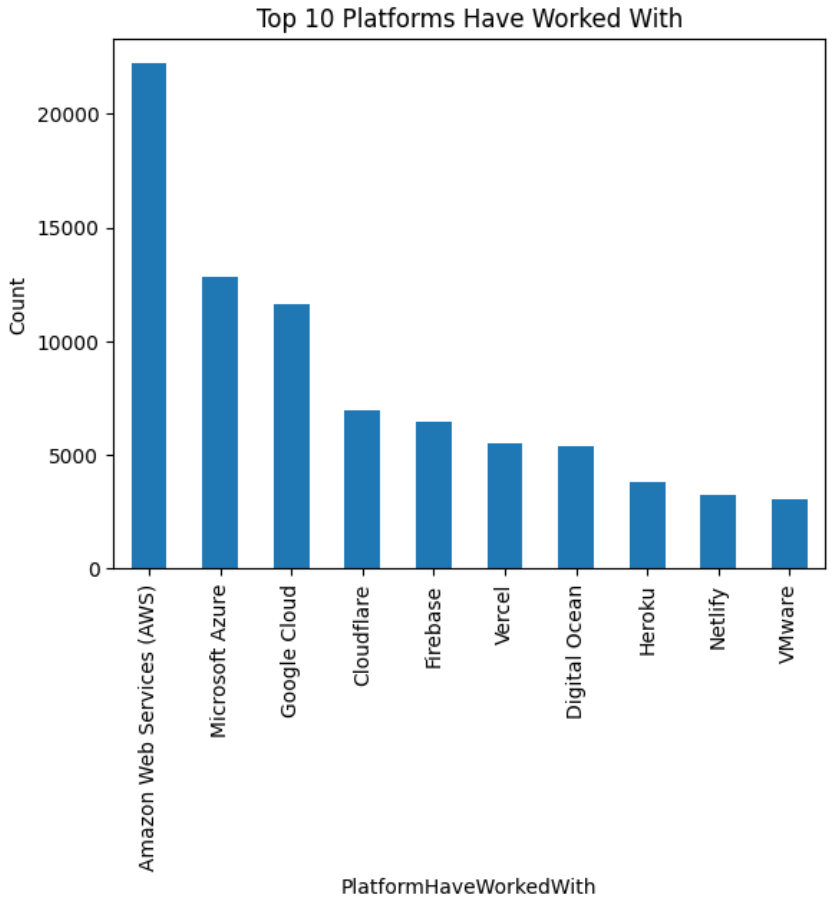
- ProgreSQL is number one for both current and desired
- MySQL is not desirable for the future compared to its current usage
- Supabase is on the list of desirable databases but not current databases

Implications

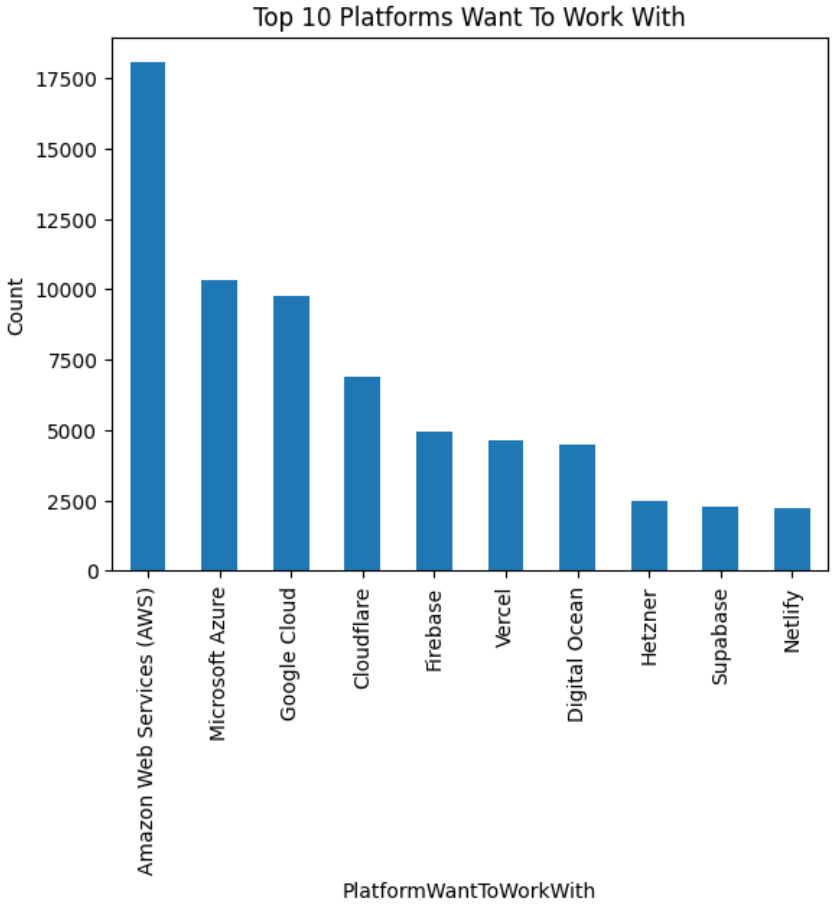
- Learn or maintain your knowledge on ProgreSQL
- Consider alternatives other than MySQL when choosing a database.
- Consider learning Supabase as one of your databases.

PLATFORM TRENDS

Current Year



Next Year



PLATFORM TRENDS – FINDINGS & IMPLICATIONS

Findings

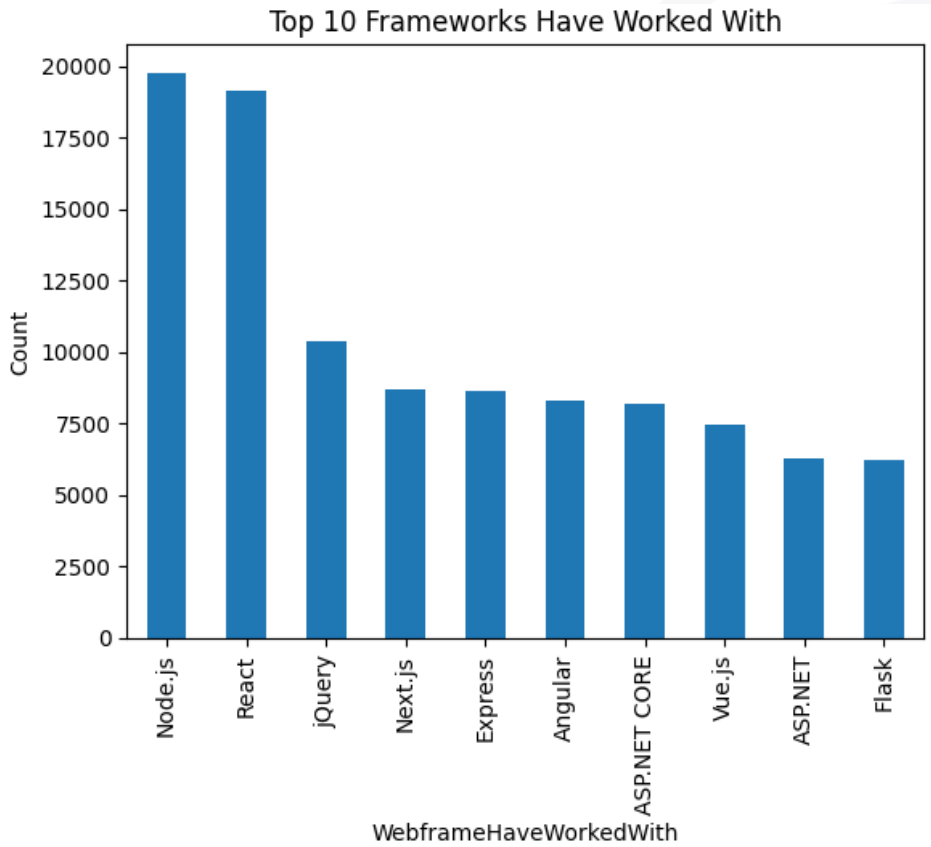
- AWS in by far number one in both charts
- Azure and Google Cloud are both second place in both graphs.
- Cloudflare, Firebase and Vercel are all third place.

Implications

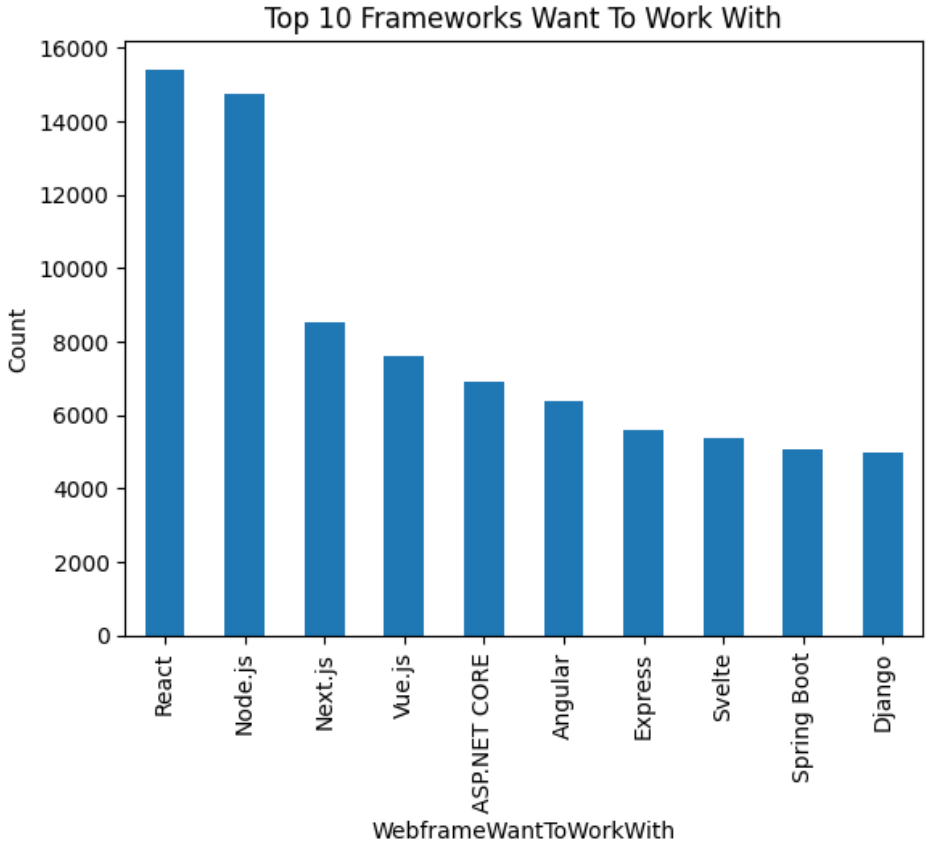
- Amazon Web Services (AWS) should number 1 priority
- Choose Azure and Google Cloud as your second options.
- Choses Cloudflare, Firebase or Vercel if the above three are done/not suitable.

WEB FRAMEWORK TRENDS

Current Year



Next Year



WEB FRAMEWORK TRENDS - FINDINGS & IMPLICATIONS

Findings

- React and Node.js are top two in both graphs
- jQuery is 3rd place in current framworks but not even top 10 desired
- Vue.js is higher on the list for desired compared to current technologies

Implications

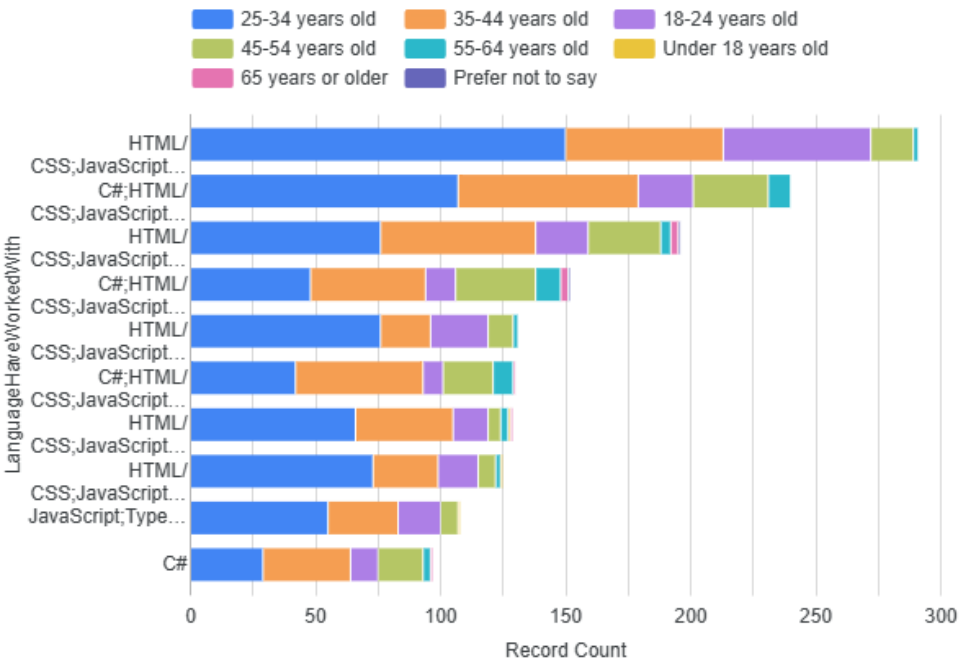
- React and Node.js are a must in this industry
- jQuery may not be the best option to learn
- Add Vue.js to your portfolio in order to future proof yourself

DASHBOARD

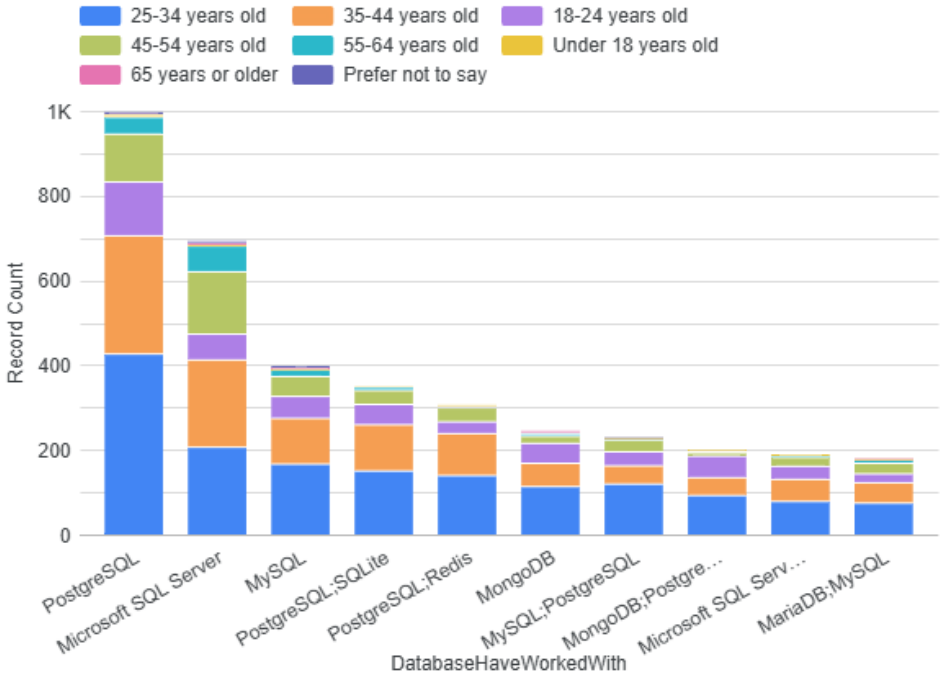
The following dashboard contains trends on current technology trends, future technology trends and demographics related to the survey.

DASHBOARD TAB 1

Top 10 Languages Used By Age

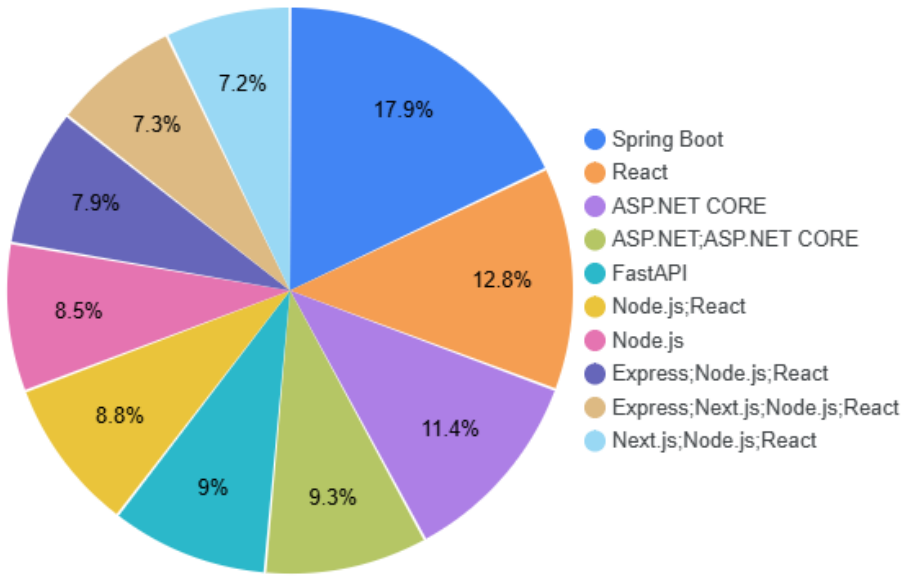


Top 10 Databases Used By Age



Top Platforms

Top 10 WebFrameWorks



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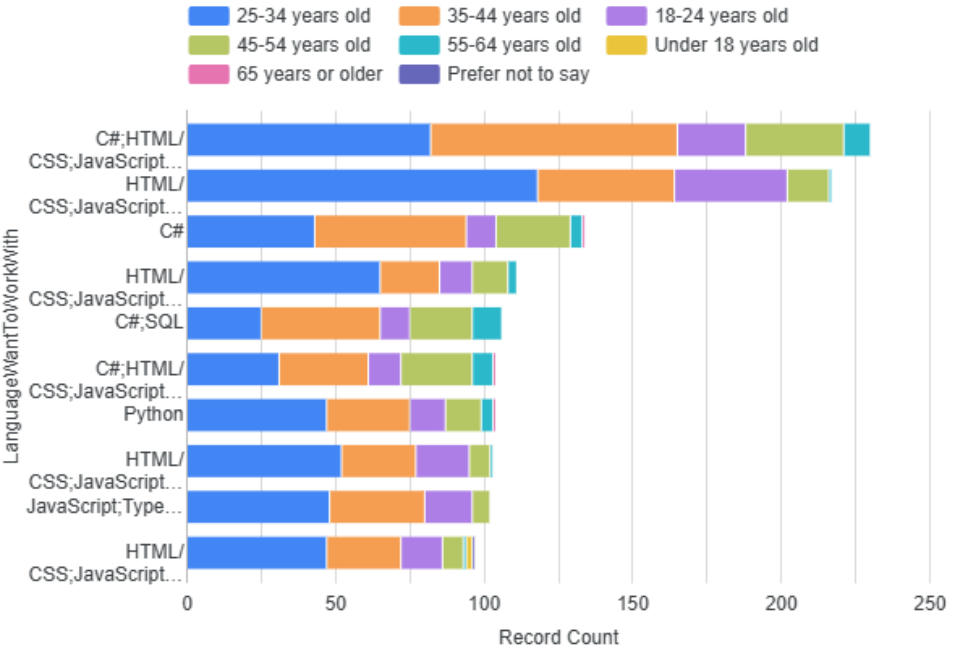
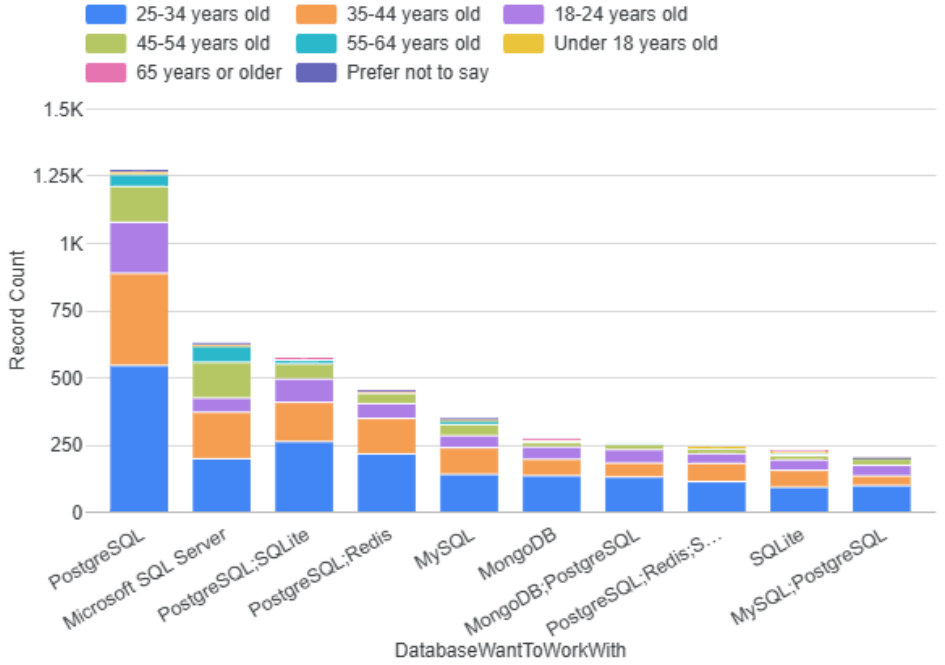
DASHBOARD TAB 2

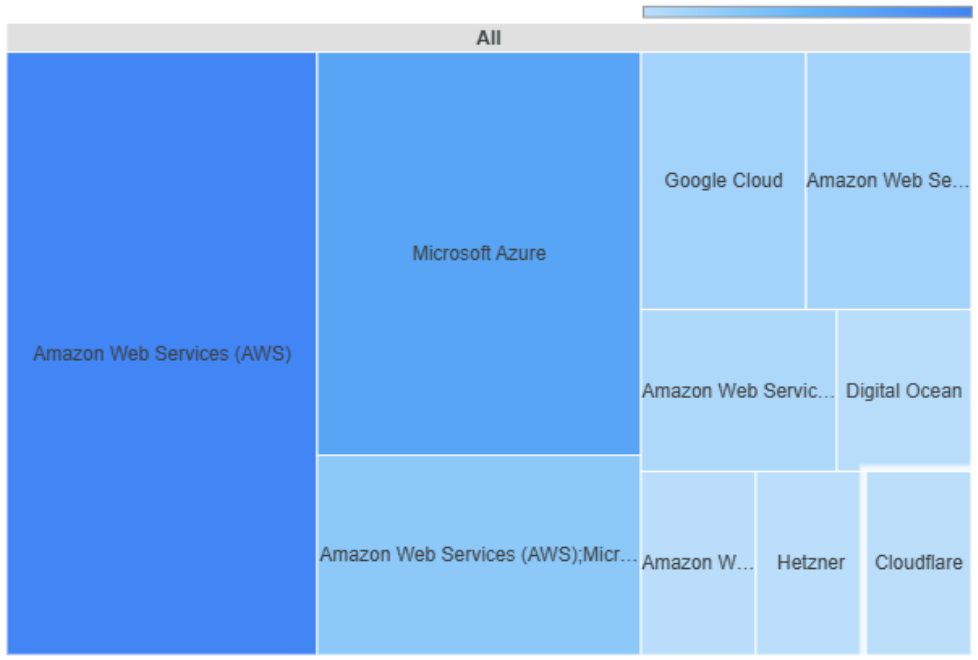
Top 10 Desired Languages By Age



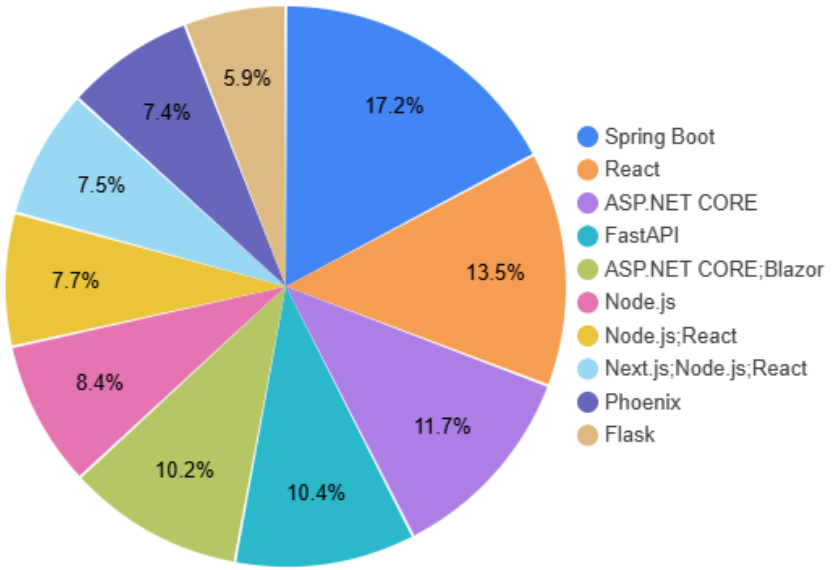
Top 10 Desired Databases By Age



Desired Platforms



Top 10 Desired WebFrameWorks



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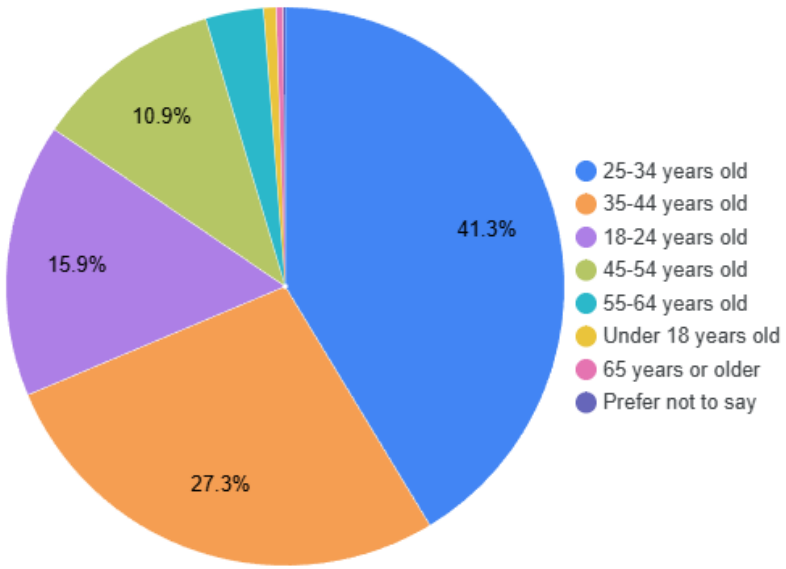
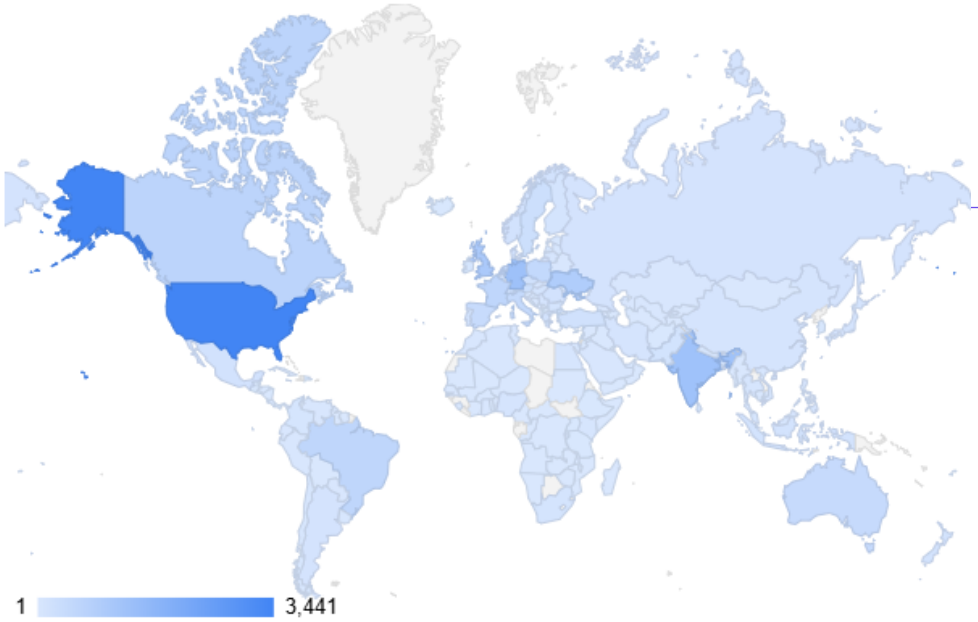
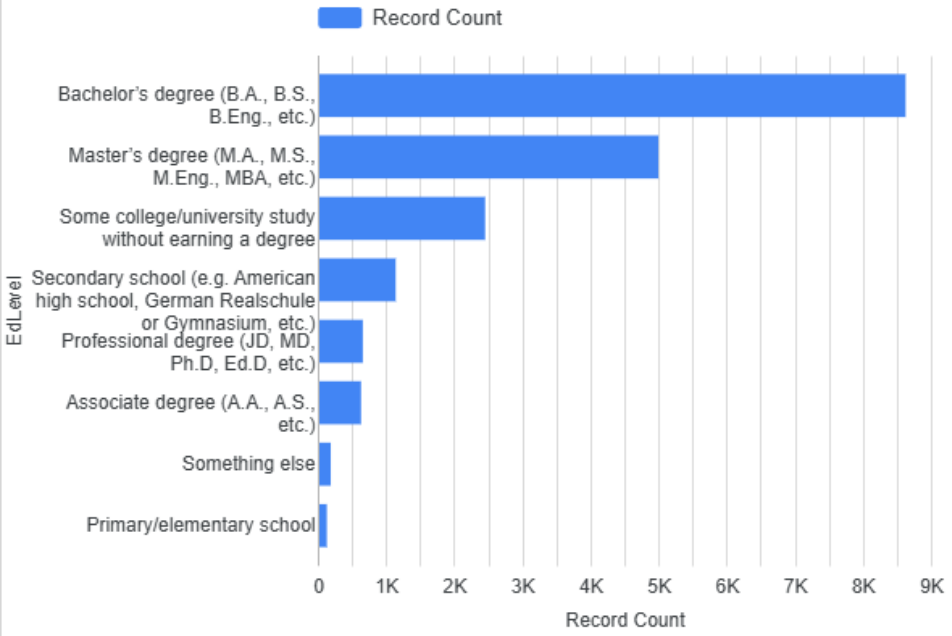
Respondents by Age



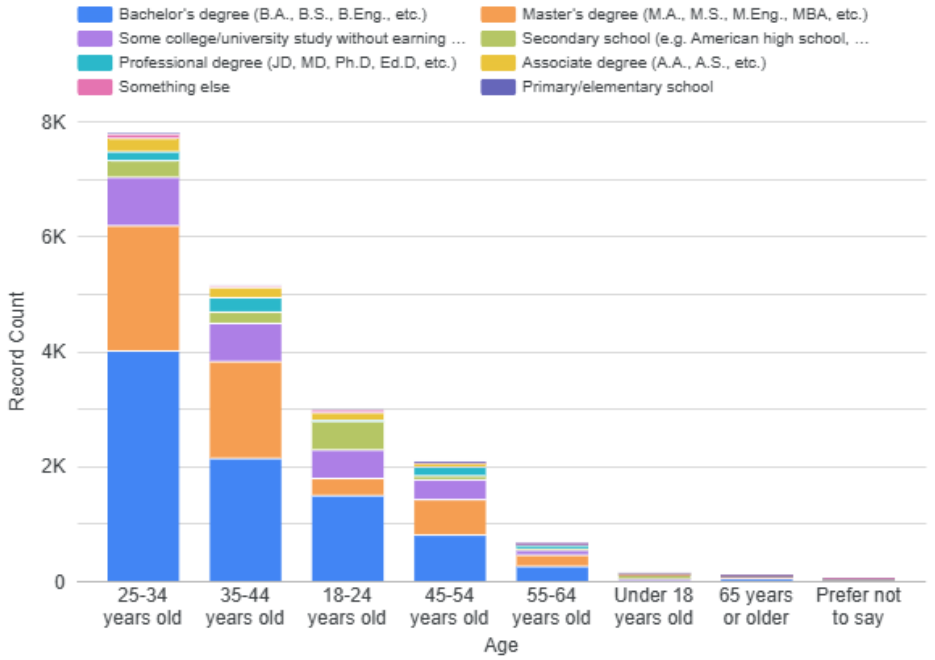
Respondent Count by Country



Respondents by Education Level



Respondents by Age grouped by Education Level



DASHBOARD TAB 3

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DISCUSSION

- Top languages, databases, platforms and frameworks differ between current trends and future trends (Discussed in previous slides).
- Most participants are aged 25-34 years old (more than a third), with 35-44 also representing almost a third.
- Most participants have a bachelors degrees, with a masters degree in second place.
- These education trends were pretty consistent across differing age groups.

OVERALL FINDINGS & IMPLICATIONS

Findings

- There are variances in current trends and future trends (languages, databases, platforms and frameworks)
- JavaScript and Python seem to be the most popular and desirable languages.
- ProgreSQL was number one for both current and future trends.
- AWS is by far the number 1 platform, with Azure and Google Cloud in second place.
- React and Node.js are the top two frameworks.
- Over two thirds of developers are between 25 and 44.
- The vast majority of participants have a Bachelors or Masters degree.
- Education trends are consistent across age groups

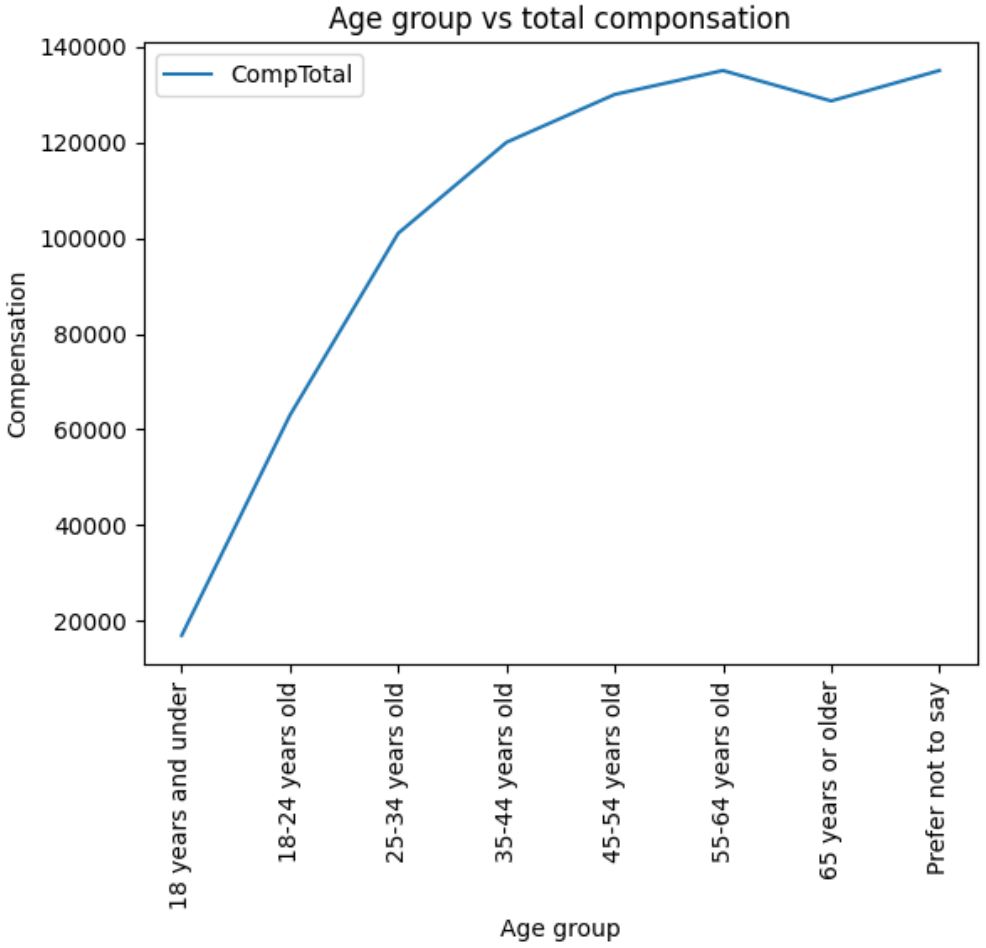
Implications

- You should learn both the most popular current technologies but also the most popular future technologies to stay ahead of the game.
- Ensure JavaScript and Python is part of your portfolio.
- Choose ProgreSQL as your database of choice.
- Ensure you have skills in AWS and potentially Azure and Google Cloud.
- Prioritize React and Node.js over other frameworks.
- If you are a young developer you are still early and have time to develop your skills.
- Ensure you have complete University to secure your competitiveness in the job market.
- Your age should not impact the success of your education.

CONCLUSION

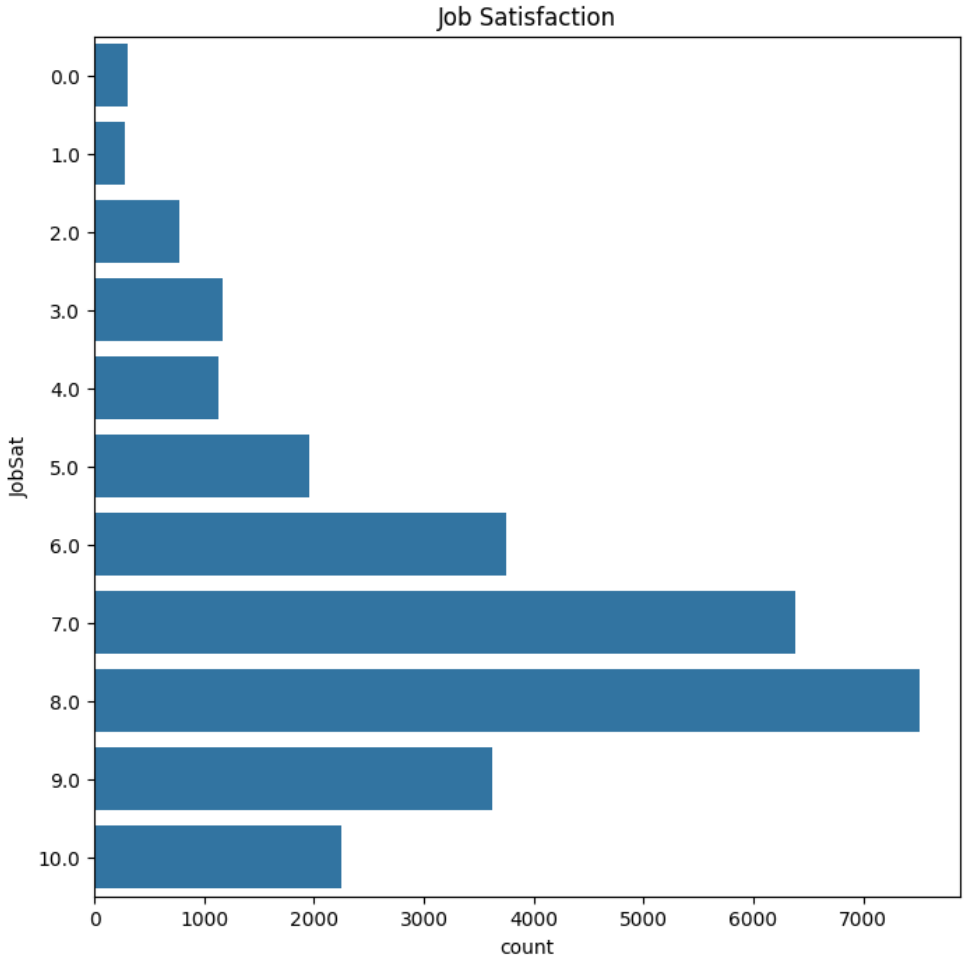
- The data was sources from a developer survey with over 60,000 participants.
- A series of data wrangling, analysis and visualization techniques were applied to the dataset.
- The findings from this study can be used to determine current and future technology trends.
- Informed decisions on which technologies to focus on can be determined from the analysis.

APPENDIX - 1



- It can be seen that as age goes up, so does compensation, flattening out around 45-55 years old.
- This means that developers will likely earn more as they progress through their career.

APPENDIX - 2



- It can also be seen that most participants rated their job satisfaction around 7-8, with 6 and 9 being the second most common scored.
- This represents the fact that most developers are reasonably happy with their occupation.