ANALYSIS OF THE 2019 STACKOVERFLOW SURVEY

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OUTLINE

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- Methodology
- Results
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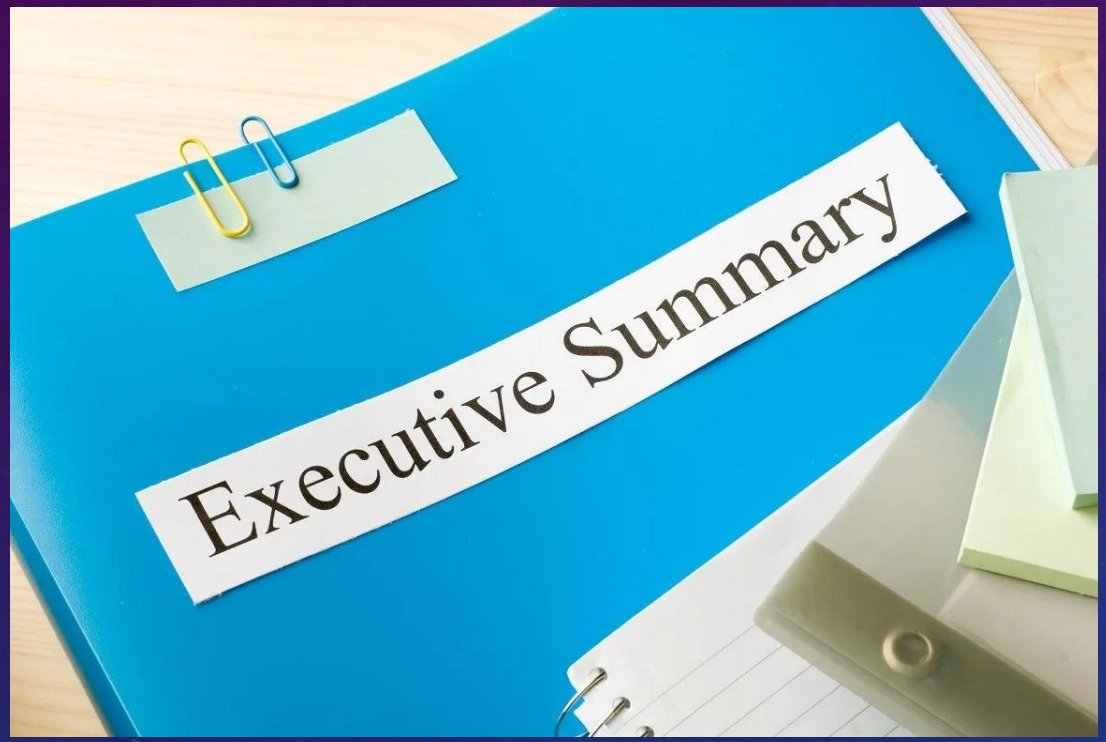
     a) Age of Respondents
     b) Remote Work
     c) Compensation Information by Age and Gender
     d) Developer Type
  2) Information about technologies used
- Discussion
- Conclusion
- Appendix

EXECUTIVE SUMMARY



- Results from 2019 StackOverflow survey to know how often the respondents use the site.
- Information about the respondents:
  - Age
  - Country
  - Gender
  - Income
  - Remote Work Frequency
  - Developer Type
  - Time spent to review code
- Information about technologies used:
  - Languages currently used and future languages they will want to learn
  - Databases used and future databases they will want to use
  - Frameworks used

INTRODUCTION

- Each year Stack Overflow organizes a survey in order to know how the coding habits of their respondents impacts the use of the webpage.
- 2018 survey was too long for some respondents.
- Some questions weren't included in the previous survey.
- This year, the survey is shorter and includes new questions.
- 11553 Respondents participated at the survey.
- The answers provide useful information like the age of respondents, their annual compensations, their gender and the type of language and frameworks they like to use
- From the results, we can conclude that efforts in communication are needed, so developers feel the need to visit StackOverflow to solve their coding issues.

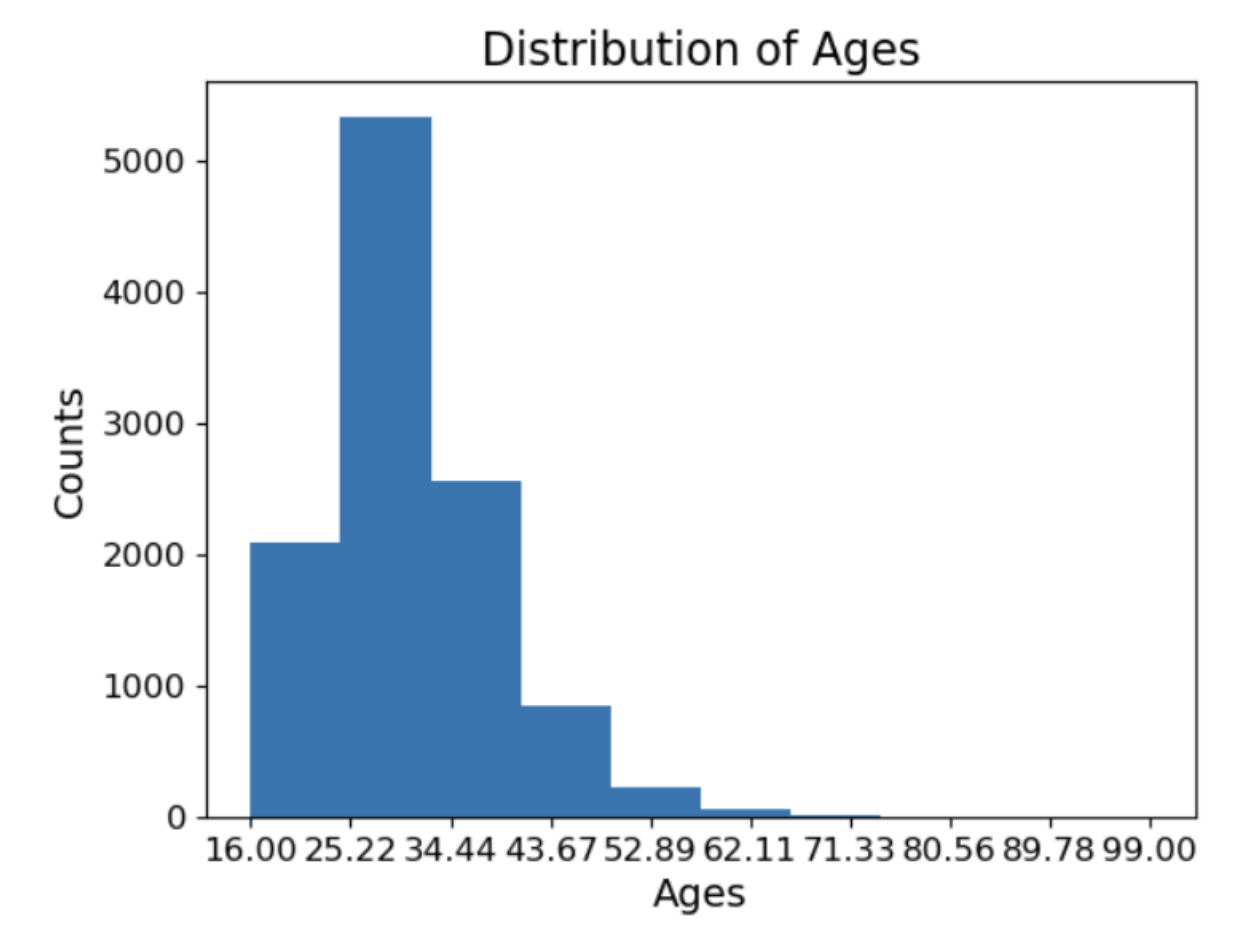
METHODOLOGY

- Data collected from the 2019 Stack Overflow Survey
- Report organized in two parts:
  - Information about respondents
  - Study about the technologies used by respondents
- Statistical Methods used to analyze the data:
  - Mean
  - Median
  - Distributions
  - Regressions

1) INFORMATION ABOUT THE RESPONDENTS

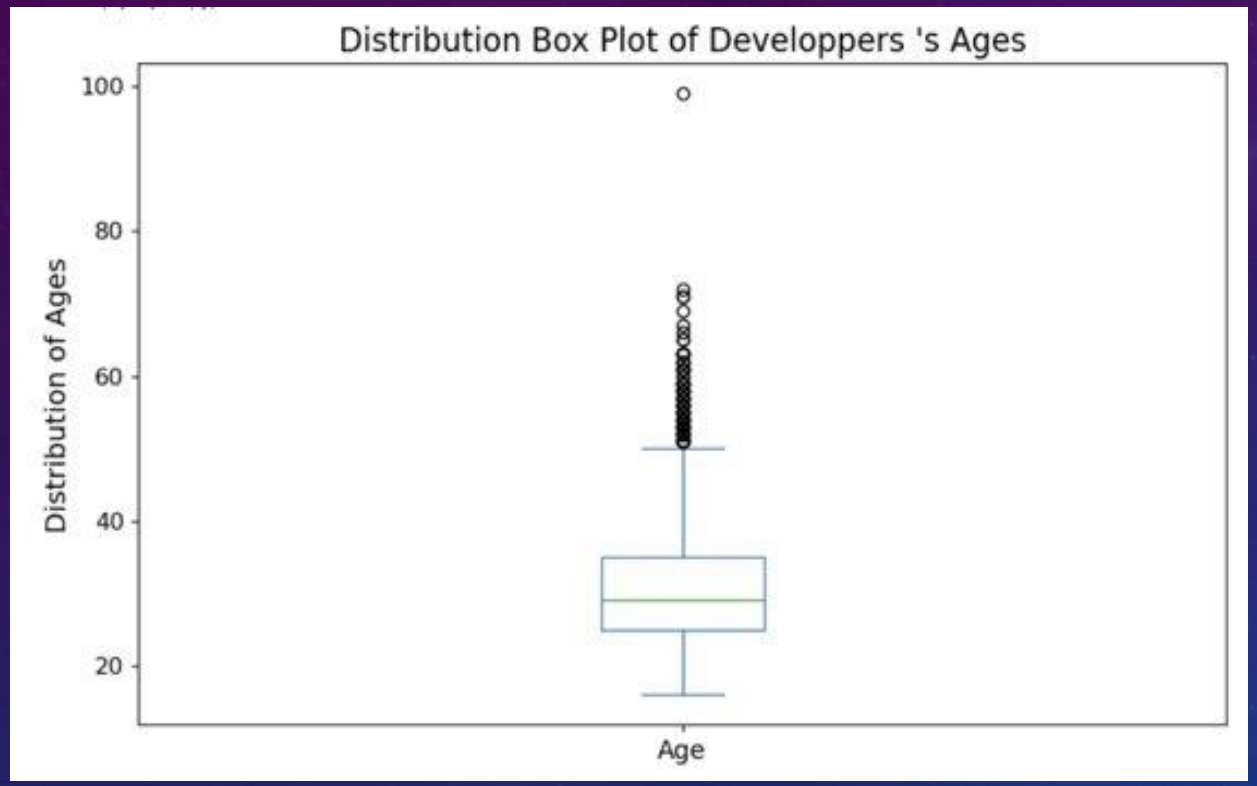
a) AGE OF RESPONDENTS

AGE OF RESPONDENTS



- 11553 Respondents participated in the survey
- Only 11111 Respondents provided their age
- The ages distribution is right-skewed
- More than 5000 Respondents have over 30 years

AGE OF RESPONDENTS



Ages range from 16 to 99 years.

The average Rrespondent's age is 30.78 years.

The median is 29 years.

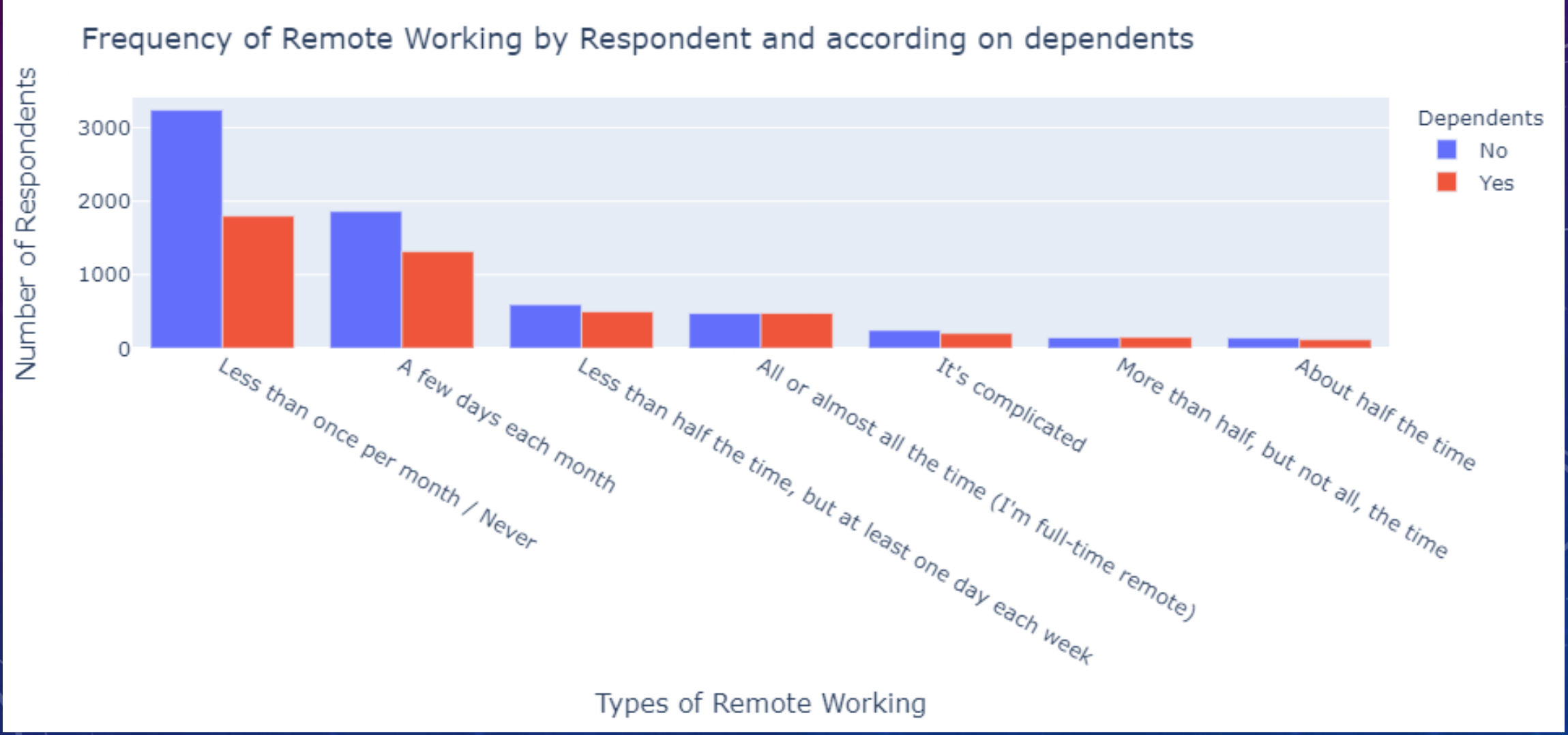
The first Quartile, Q1, has a value of 25 years.

The third Quartile, Q3, has a value of 35 years.

To have full statistical properties concerning age, see Appendix - Age.

B)REMOTE WORK

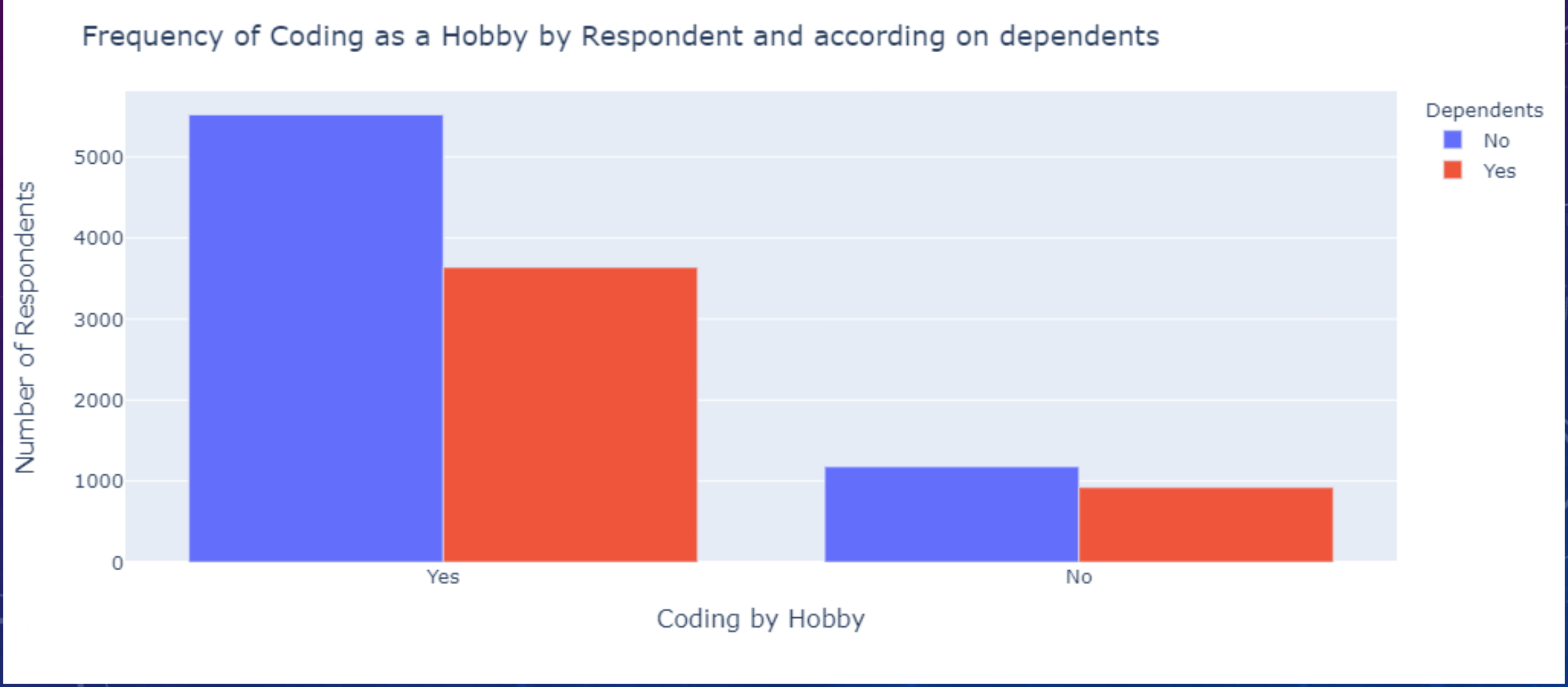
REMOTE WORK BY DEPENDENTS



REMOTE WORK BY DEPENDENTS

- Most of the respondents work remotely less than once per month or Never.
- Among the respondents who go often to the workplace, the ones who don't have dependents are very numerous.
- The more respondents work remotely, the more the difference between the ones who have dependents and the ones who don't have, declines.

CODING AS A HOBBY BY DEPENDENTS

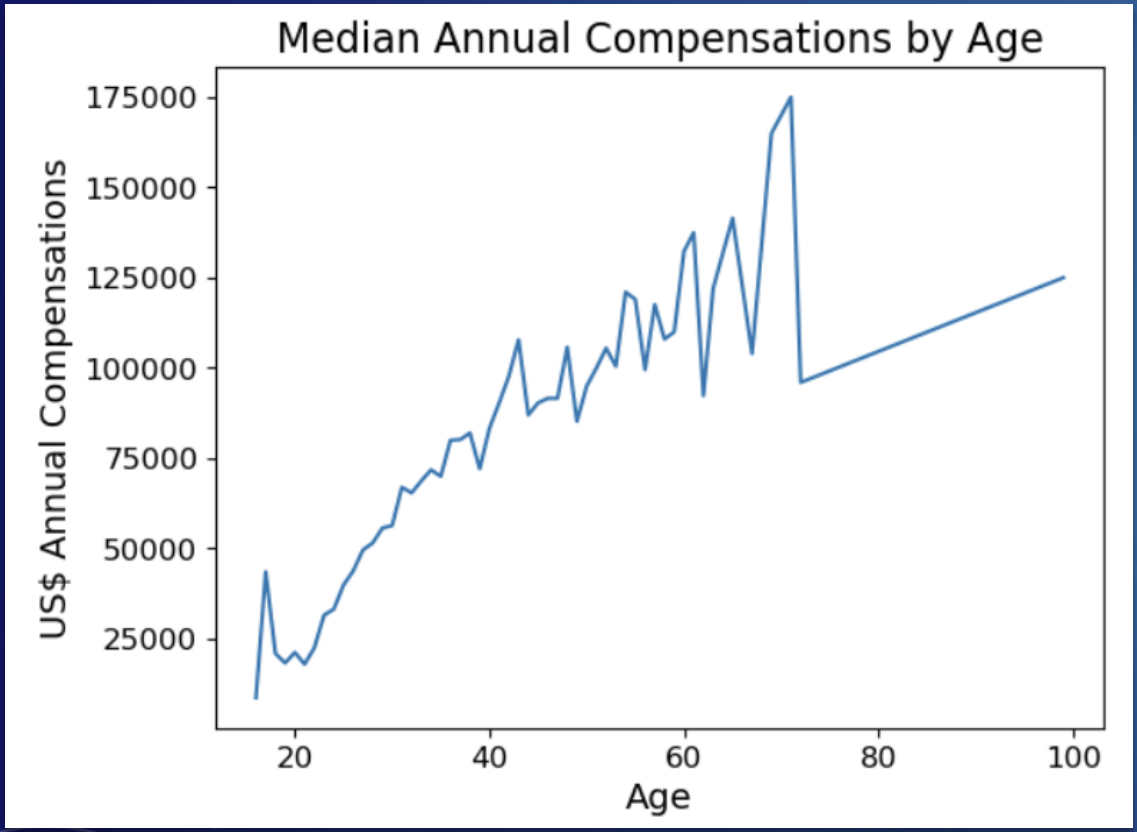


CODING AS A HOBBY BY DEPENDENTS

- Most of the respondents code as a hobby.
- The existence of "Dependents" is not an important factor on whether they code as a hobby or not.
- However, people who don't have dependents and code as a hobby, are more numerous (60.2 %) that the ones who have dependents (39.8%).

C)COMPENSATION INFORMATION BY AGE AND GENDER

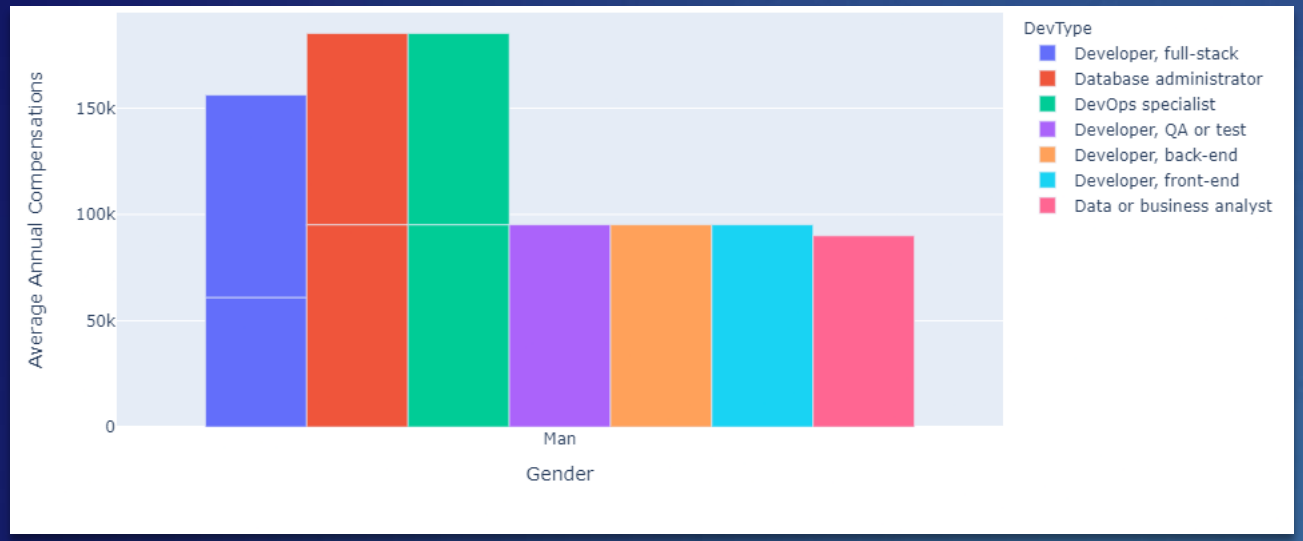
ANNUAL COMPENSATIONS BY AGE

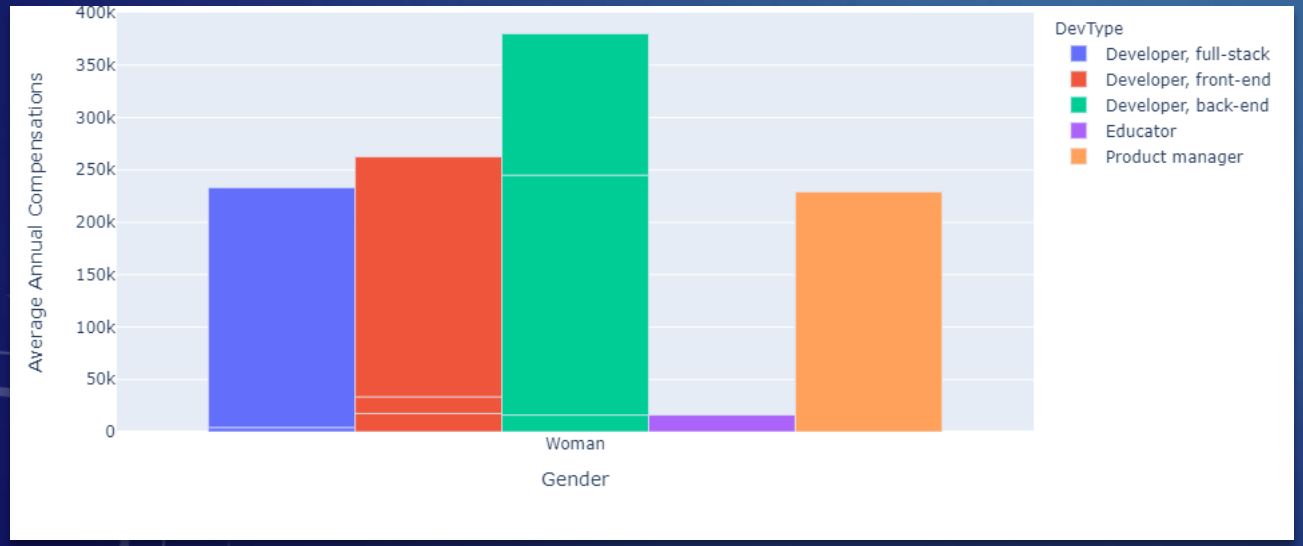


- Median Annual Compensations (MAC) range from 8.7k$ to 175k$.
- Ages range from 16 to 99 years.
- MAC are linearly related to age (Pearson = 0.88, p = 3.29e-19).

- For a detailed statistical understanding, see Appendix.

ANNUAL COMPENSATIONS BY GENDER

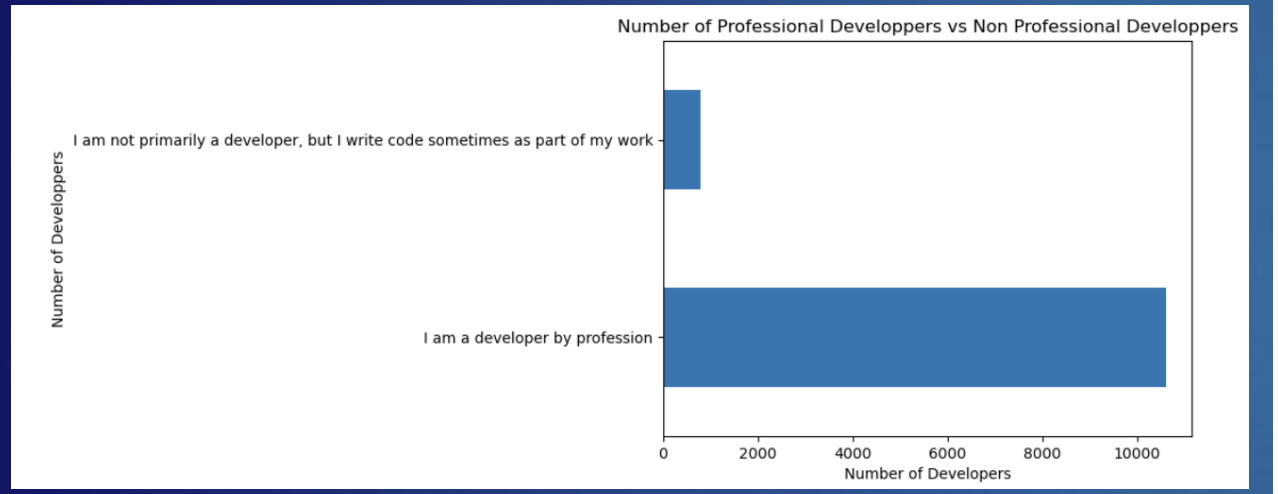


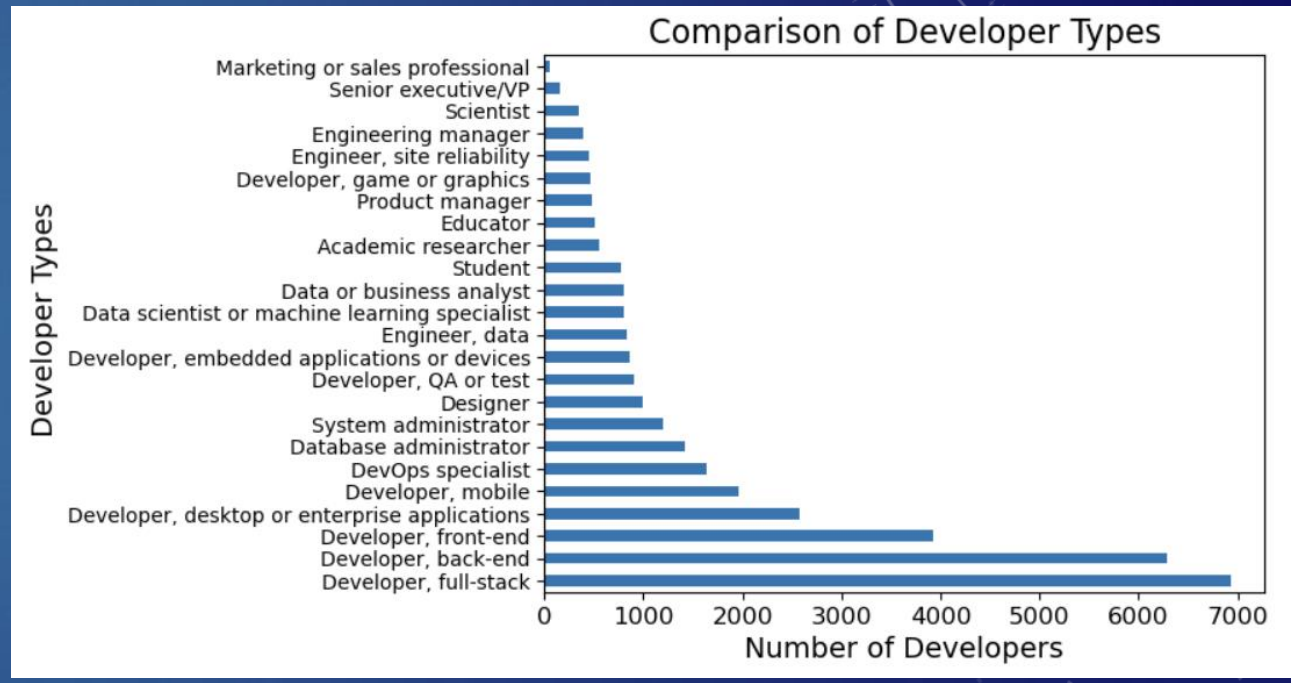


- Women tend to earn more compensations than men.
- More Developer Types are represented by men compared to women.

D) DEVELOPER TYPE

TYPE OF DEVELOPERS



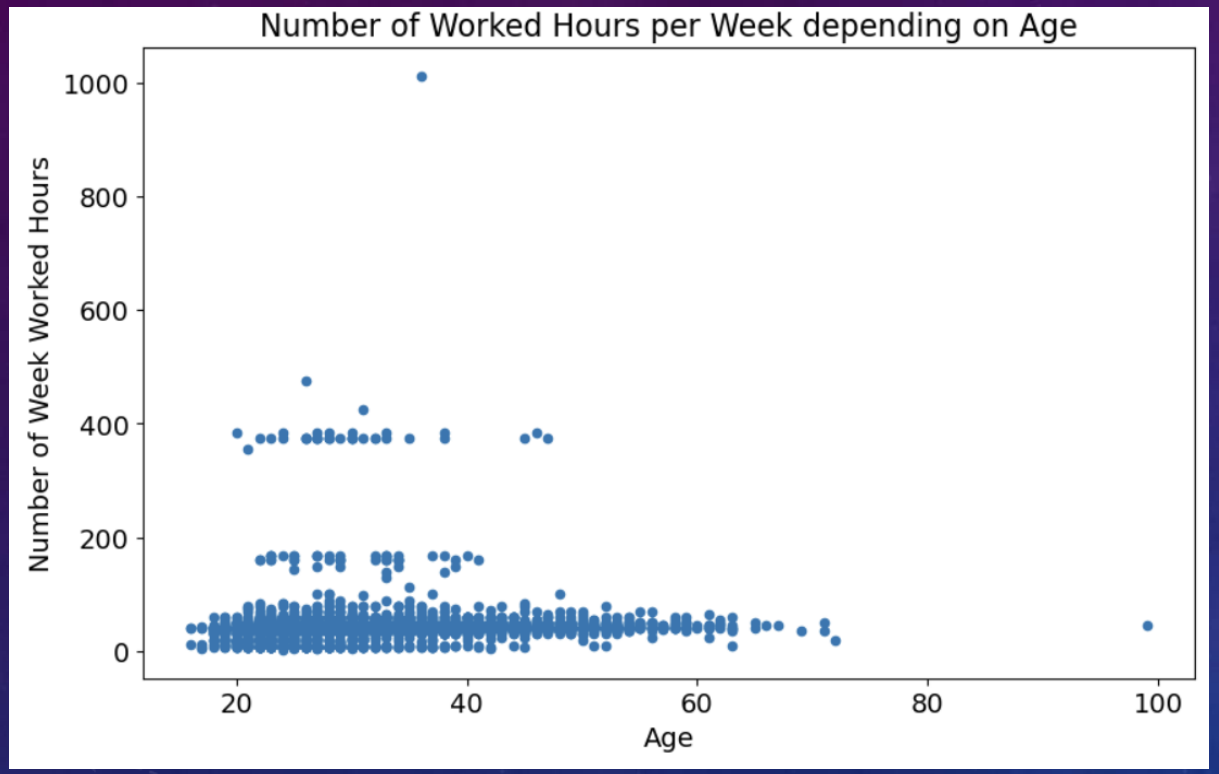


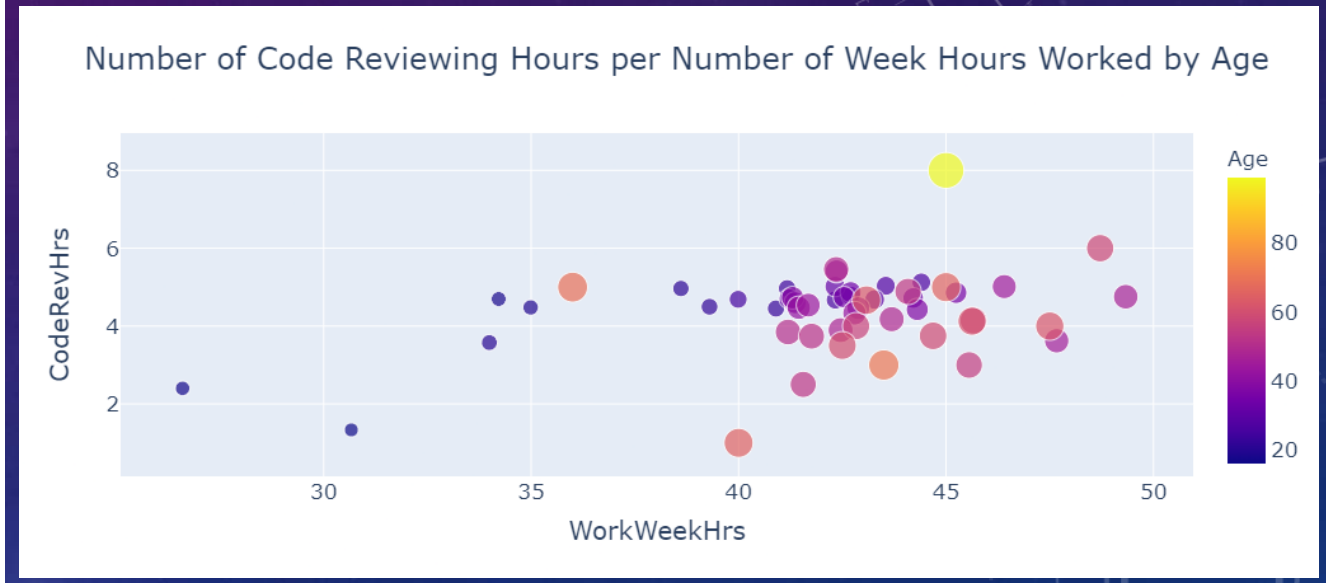
Type of Developers

More than 10k are Professional developers vs 100 Non-Professional developers.

The most represented Developer Type is the Full-Stack type

RELATIONSHIP BETWEEN AGE AND CODE REVIEW





Relationship between Age and Code Review

No linear relation exists between the Number of Week Worked Hours and Age.

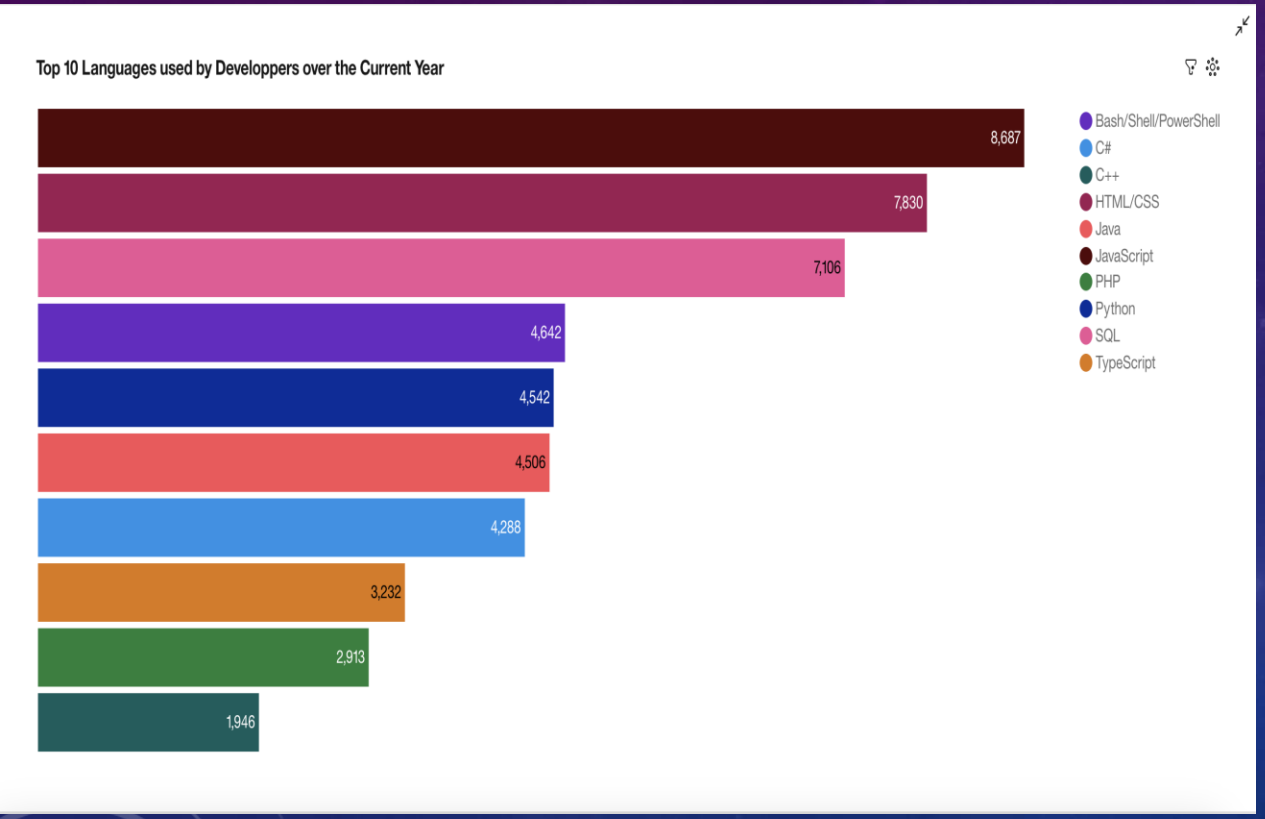
- Pearson = 0.03 and p = 0.12e-3

Most developers spend only 10% of their time reviewing code.

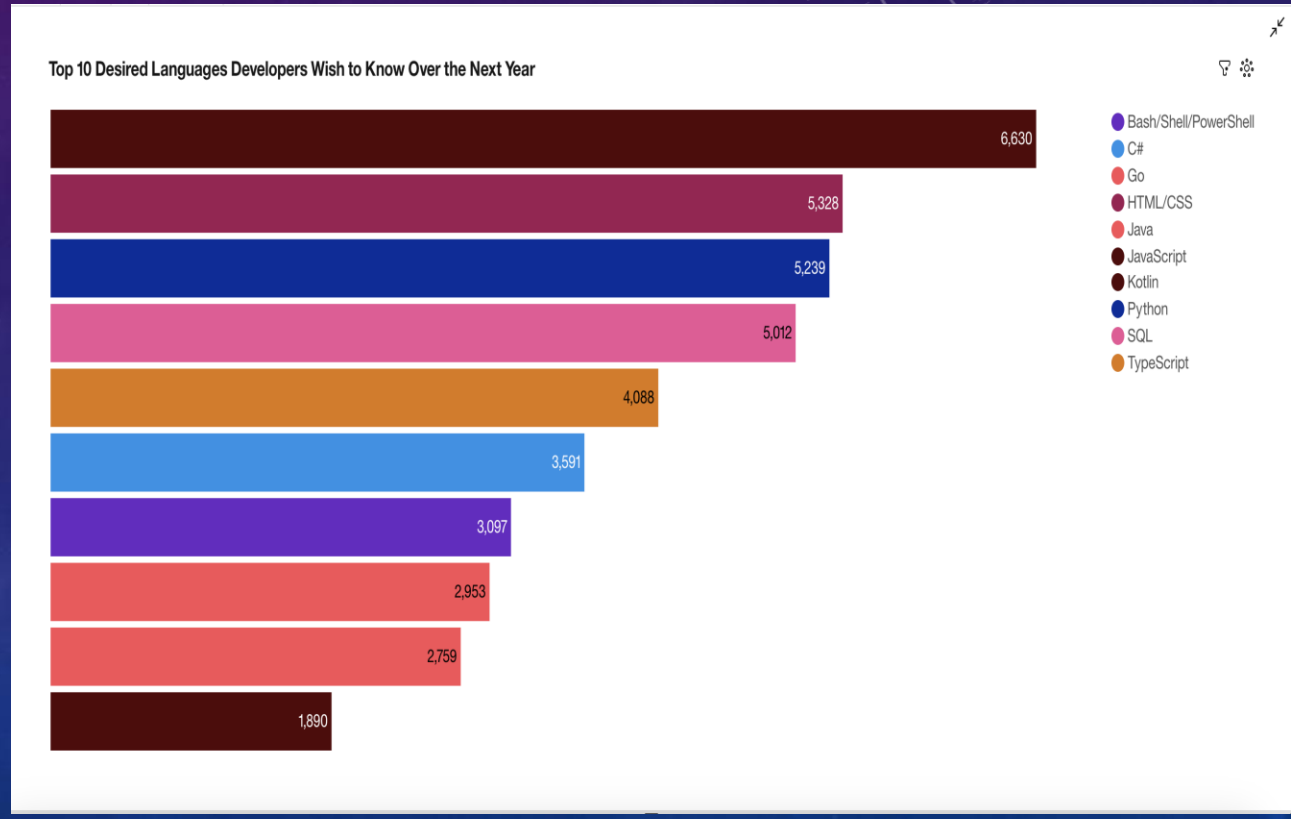
2)INFORMATION ABOUT THECHNLOGIES USED

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

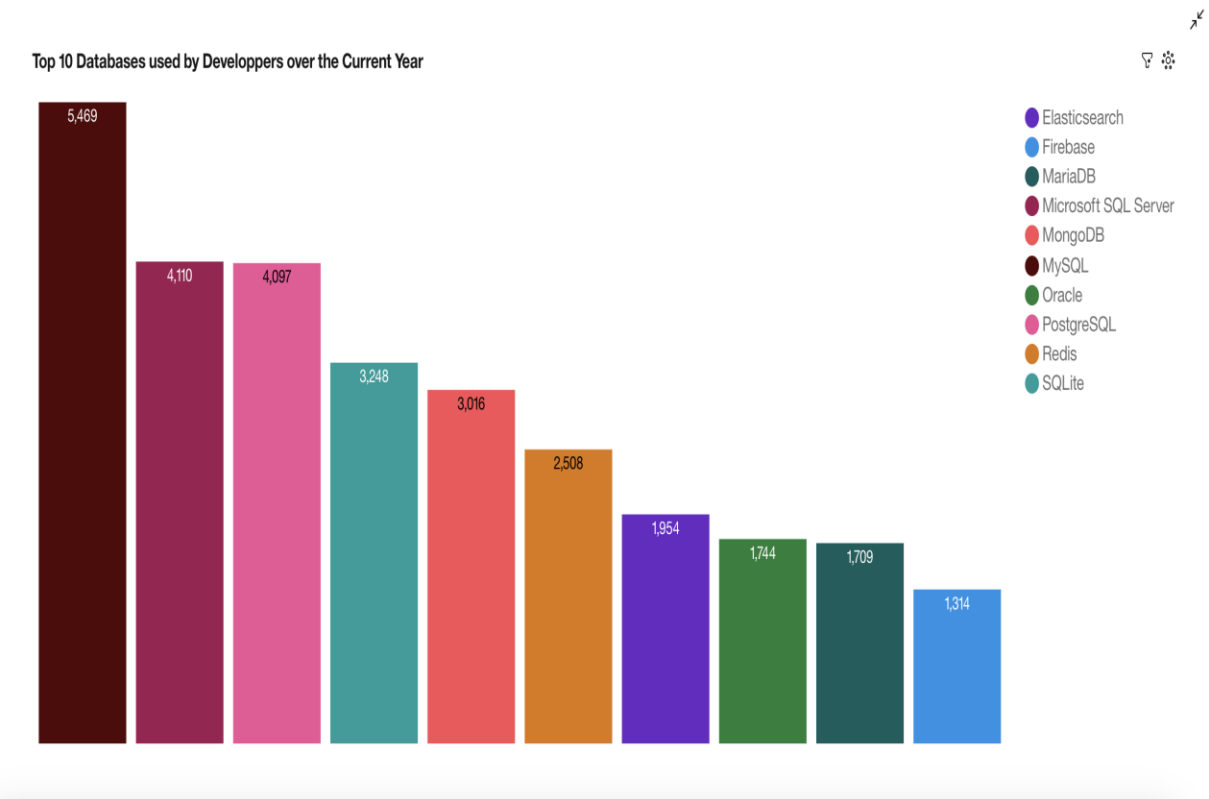
- JavaScript is the preferred language for the current next year.
- HTML is the 2nd preferred language for the current year.
- SQL is the 3rd preferred language for the current year.

Implications

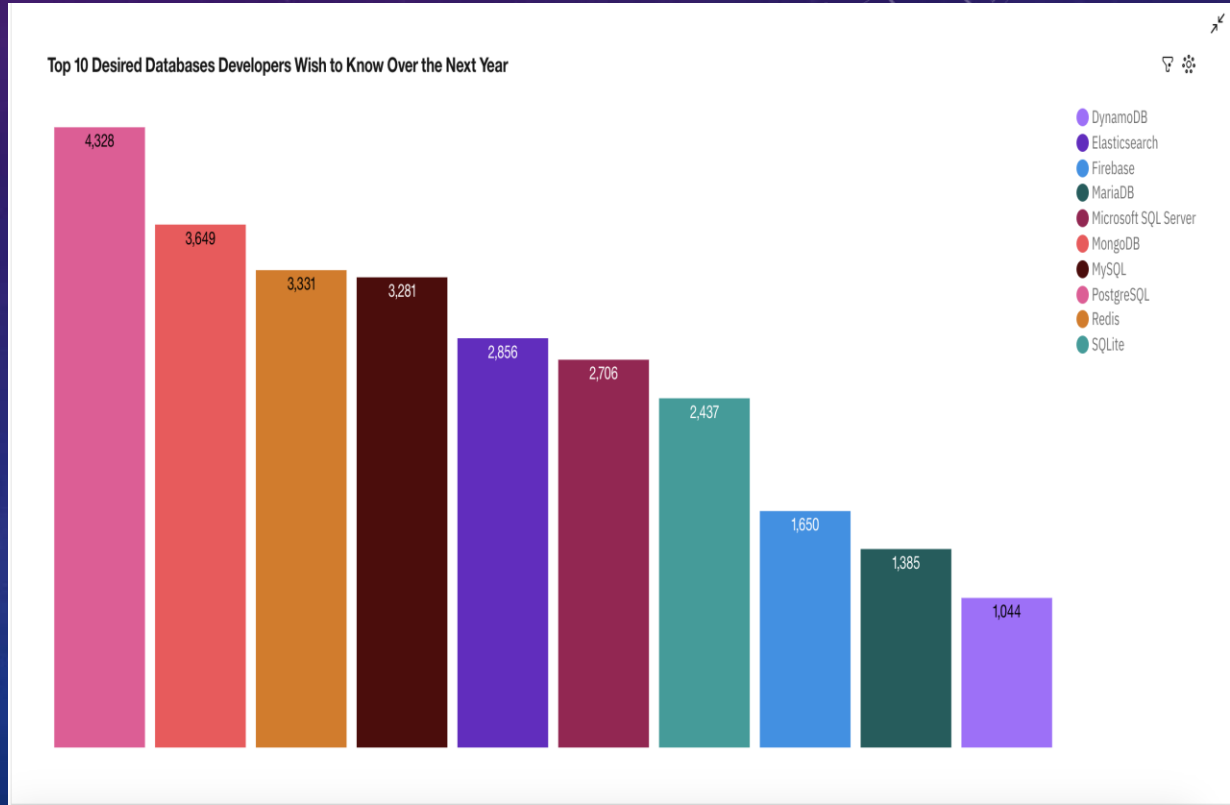
- JavaScript is the preferred language the next year.
- HTML is the 2nd preferred language the current year.
- Python is the 3rd language the next year.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is the preferred Database used by Developers for the current year.
- Microsoft SQL Server is the 2nd preferred Database used by Developers for the current year.
- PostgreSQL is the preferred Database used by Developers for the current year.

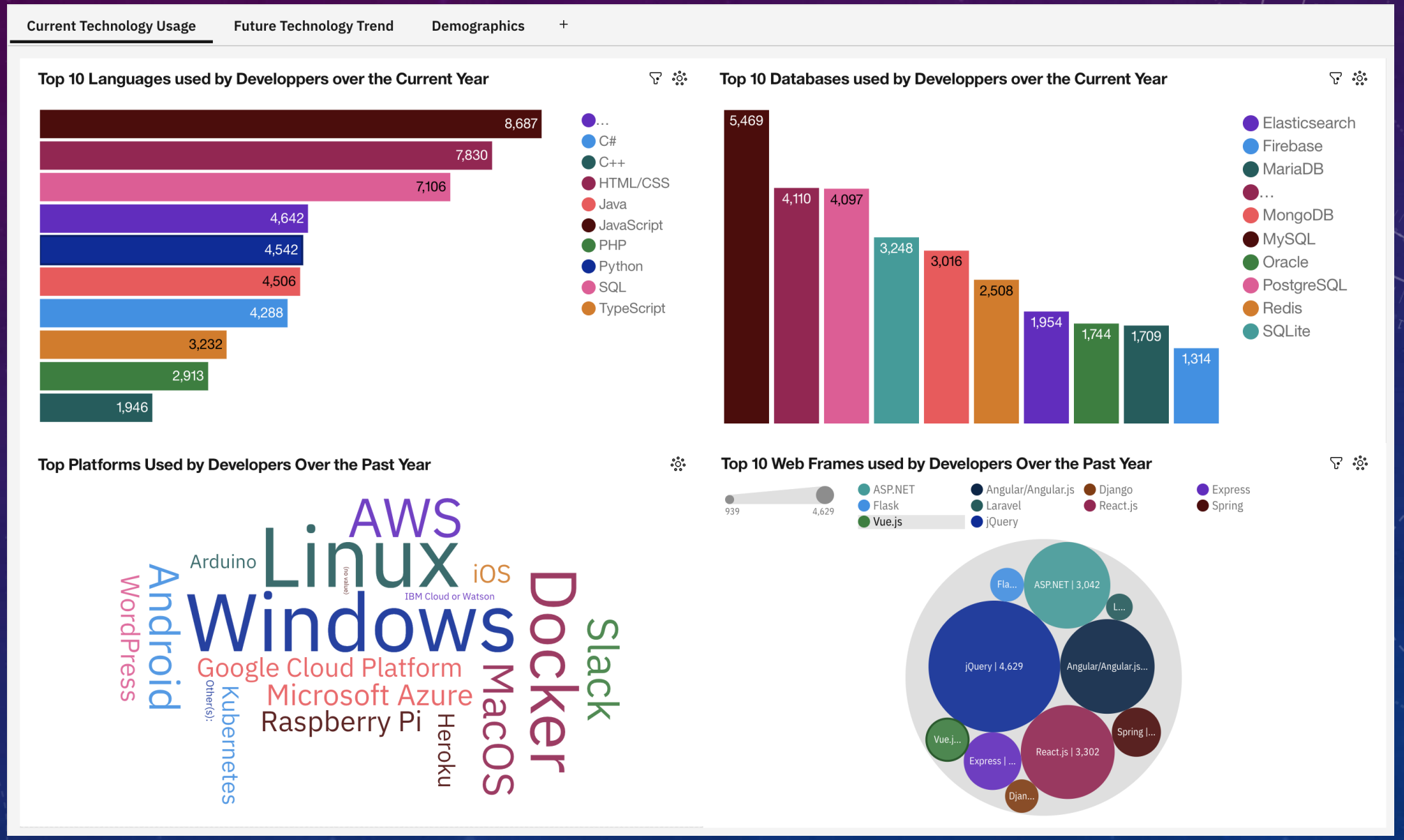
Implications

- PostgreSQL will be the preferred Database Developers wish to learn the next year.
- MongoDB will be the 2nd preferred Database Developers wish to learn the next year.
- Redis will be the 3rd preferred Database Developers wish to learn the next year.

DASHBOARD

To have a dynamic vision of the dashboard, you can click on the following link: Dashboard Link

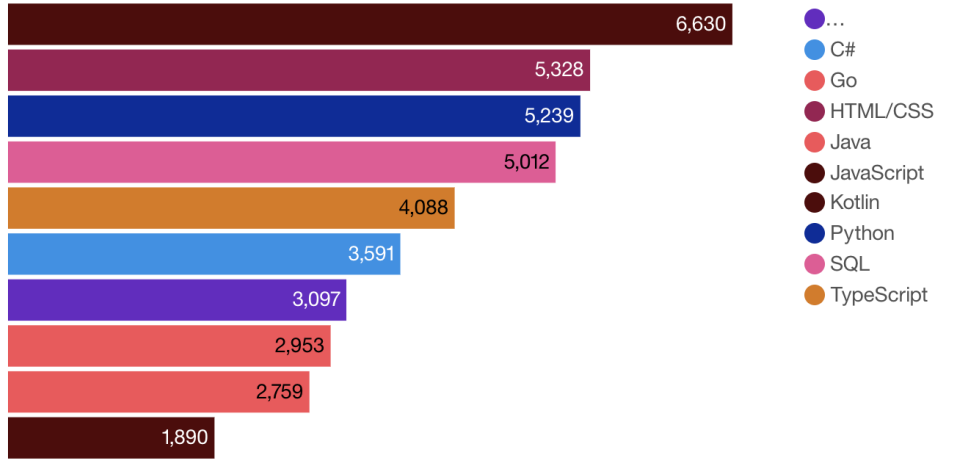
CURRENT TECHNOLOGY USAGE



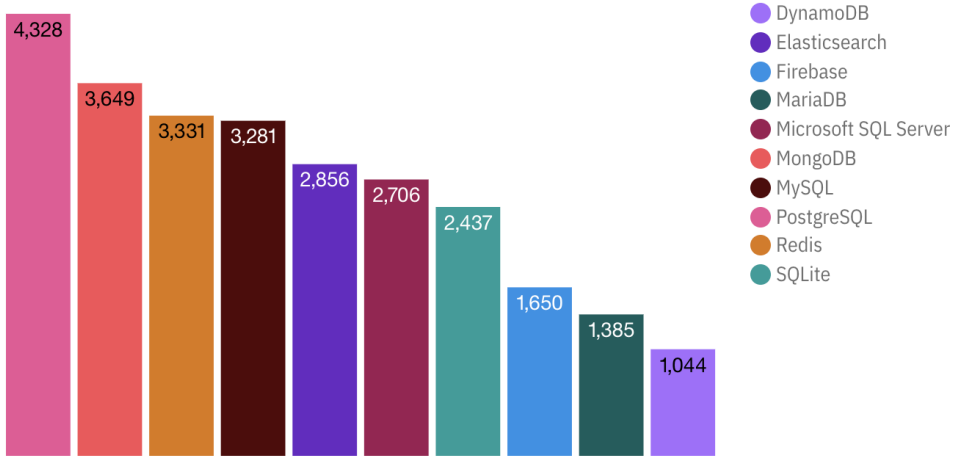
FUTURE TECHNOLOGY TREND

Current Technology Usage | Future Technology Trend | Demographics | +

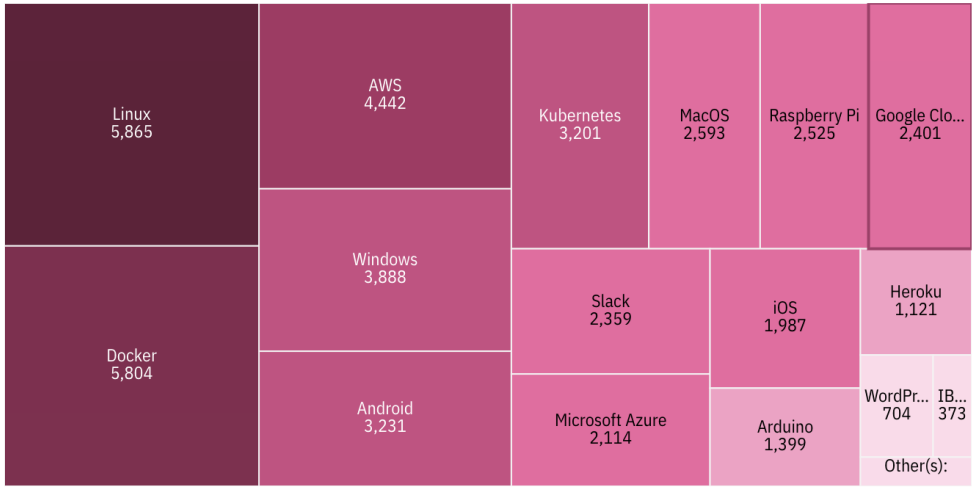
Top 10 Desired Languages Developers Wish to Know Over the Next Year



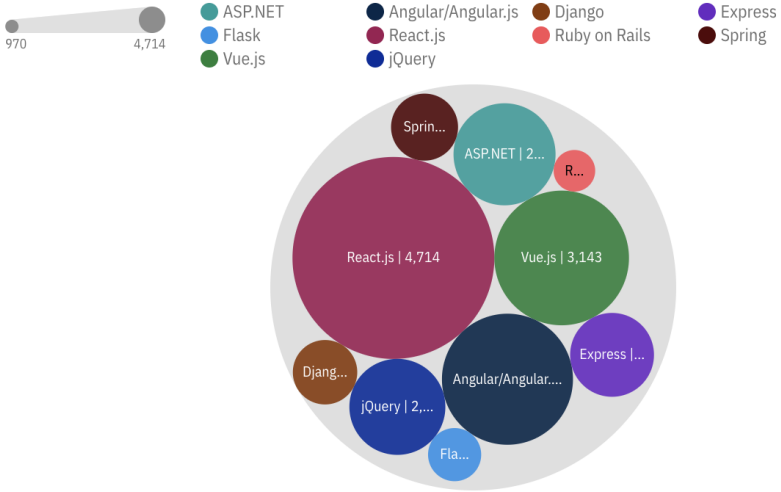
Top 10 Desired Databases Developers Wish to Know Over the Next Year



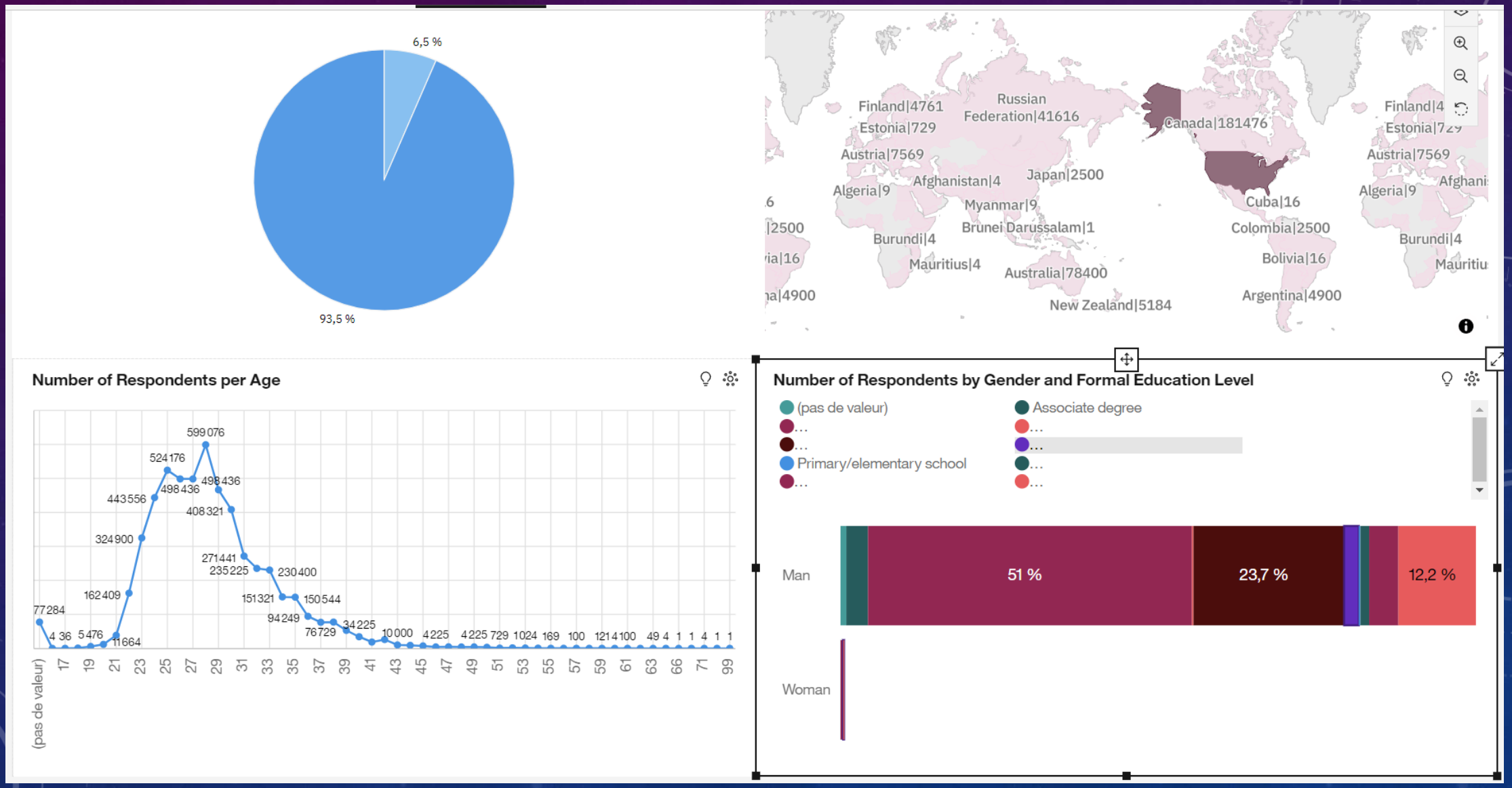
Desired Platform Developers Wish to Learn Over the Next Year



Top 10 Desired Web Frames by Developers Over The Next Year



DEMOGRAPHICS



DEMOGRAPHICS

- Most of the respondents come from The United States.
- 93.5 % of respondents are men vs 6.5% of women.
- 51 % of male respondents earn a Bachelor's Deegree.

DISCUSSION

DISCUSSION – AGE AND HABITS OF RESPONDENTS

- The majority of respondents are young people.
- Most of them go frequently to the office and don't have dependents.
- Very little respondents code as a hobby.

- Insights:
  - StackOverflow is blocked at some workplaces --> Expand the product "For Teams" to some companies.
    - Improve companies data security.
  - Organize contests to encourage the remaining developers to start coding as a hobby.

DISCUSSION – ANNUAL COMPENSATIONS

- It is normal for incomes to increase between the ages of 25 to 30 years.
- Many developer types are represented by men.

- Insights:
  - To sell again merchandise, because young people is more eager to consume.
  - Encourage women to discover new developer types:
    - More advertising.
    - Visitng Schools and organizing activities and talks.

DISCUSSION – PROFESSIONAL VS NON-PROFESSIONAL DEVELOPERS

- The time spent by developers to review code is very few.
- Age and experience are not important factors to determine if a developer reviews his code very often.

- Insights:
  - Write posts in the blog about the importance to review code very frequently.

DISCUSSION – TECHNOLOGIES USED

- Python is becoming a popular language amongst developers.
- However JavaScript is still the Number 1.
- MySQL and Postgre SQL are the preferred Databases used by developers.

- Insights:
  - Create more content aobut Python, JavaScript, MySQL and PostgreSQL.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Many respondents are young people without dependents.
- Respondents don't review their code very often
- JavaScript is and will be the preferred language of respondents.
- Python is the 3rd language, developers wish to learn in the future.
- Men are more represented than women.
- Most of the respondents come from the USA.

Implications

- Encourage people from all ages to visit the webpage.
- Create encouragement strategies through the blog.
- Create a special Category for JavaScript developers.
- Create a special Category for Python developers.
- Work towards more gender equality.
- More advertising for the rest of the World.

CONCLUSION

In conclusion, ...

- Respondents are younger people.
- More work needs to be done in advertising and encouragement.
- The blog is necessary in order to motivate developers to review their code.

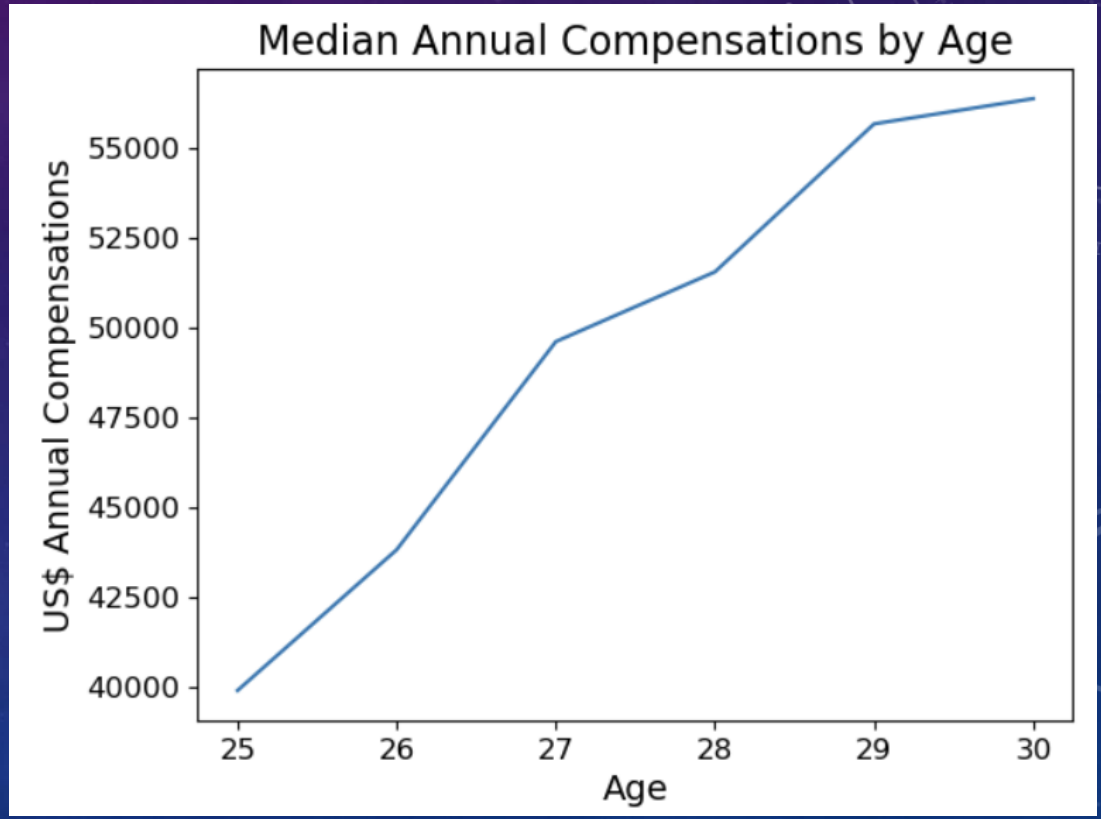
ADDITIONAL VALUE

- It will be interesting to engage discussions with CEO's and politicians around the World to encourage the use of computers and programming in countries that don't have access to technology (poor countries, emerging countries, etc..).
- Therefore, StackOverflow can be implemented as the Number 1 Worldwide Open Source web page to solve coding problems.


APPENDIX

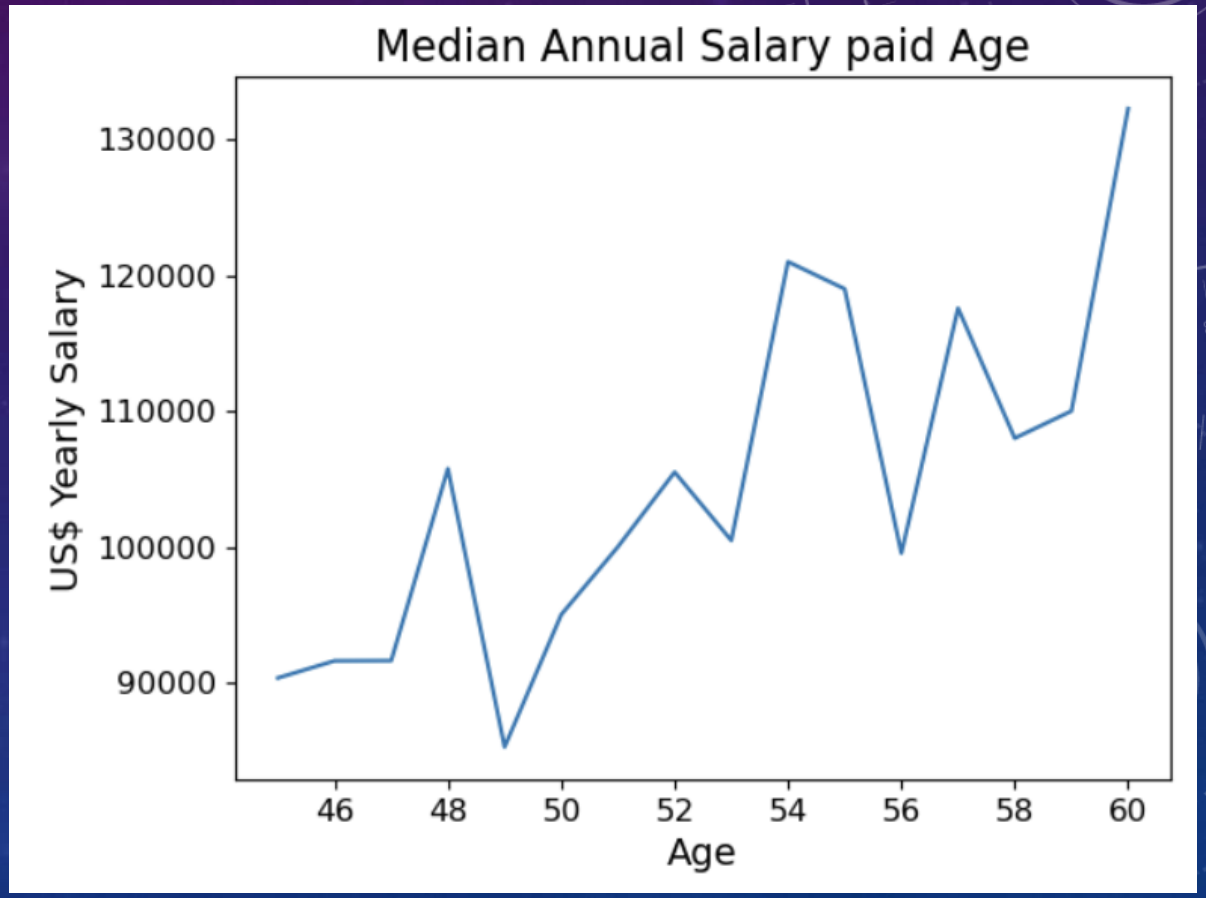
ANNUAL COMPENSATIONS BY AGES 25 TO 30

- MAC varies from 39 k$ to 56 k$.
- MAC and Age are linearly related.
- The slope is steep.
- Pearson = 0.98, p = 6e-4



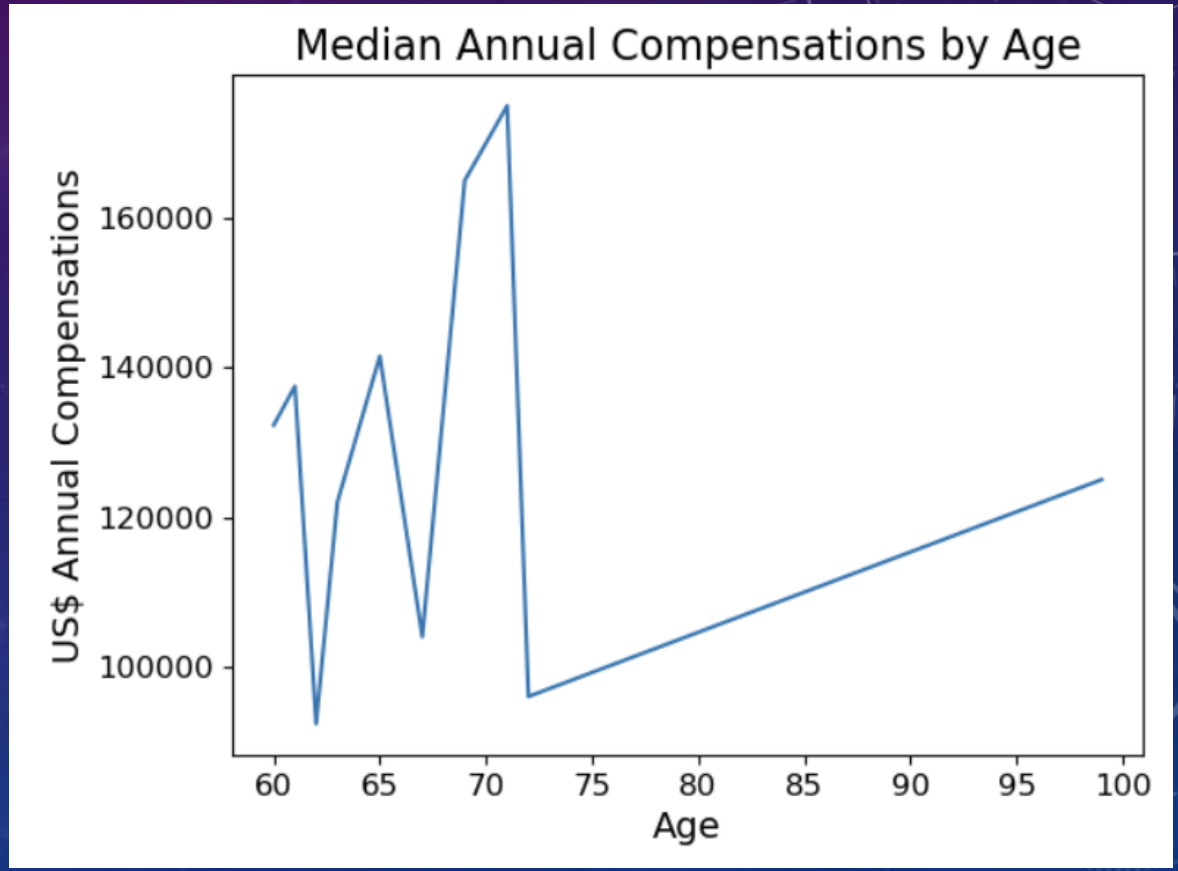
ANNUAL COMPENSATIONS BY AGES 45 TO 60

- MAC varies from 85 k$ to 132 k$.
- MAC and Age are linearly related.
- The slope is less steep and uniform
- Pearson = 0.77, p = 44e-5



ANNUAL COMPENSATIONS BY AGES 60 TO 99

- MAC fluctuates between 92 k$ and 175 k$.
- MAC and Age are less linearly related.
- The slope is less steep and uniform
- Pearson = 0.02, p = 0.94



APPENDIX - AGE

Table of the full statistical description concerning the Respondent's age.

	Age
count	11111.000000
mean	30.778895
std	7.393686
min	16.000000
25%	25.000000
50%	29.000000
75%	35.000000
max	99.000000

APPENDIX – COMPENSATIONS AGES 25 TO 30

Table of the full statistical description concerning Compensations for ages 25 to 30.

	ConvertedComp
count	6.000000
mean	49497.166667
std	6535.004833
min	39920.000000
25%	45280.500000
50%	50589.500000
75%	54645.250000
max	56376.000000

APPENDIX – COMPENSATIONS AGES 45 TO 60

Table of the full statistical description concerning Compensations for ages 45 to 60.

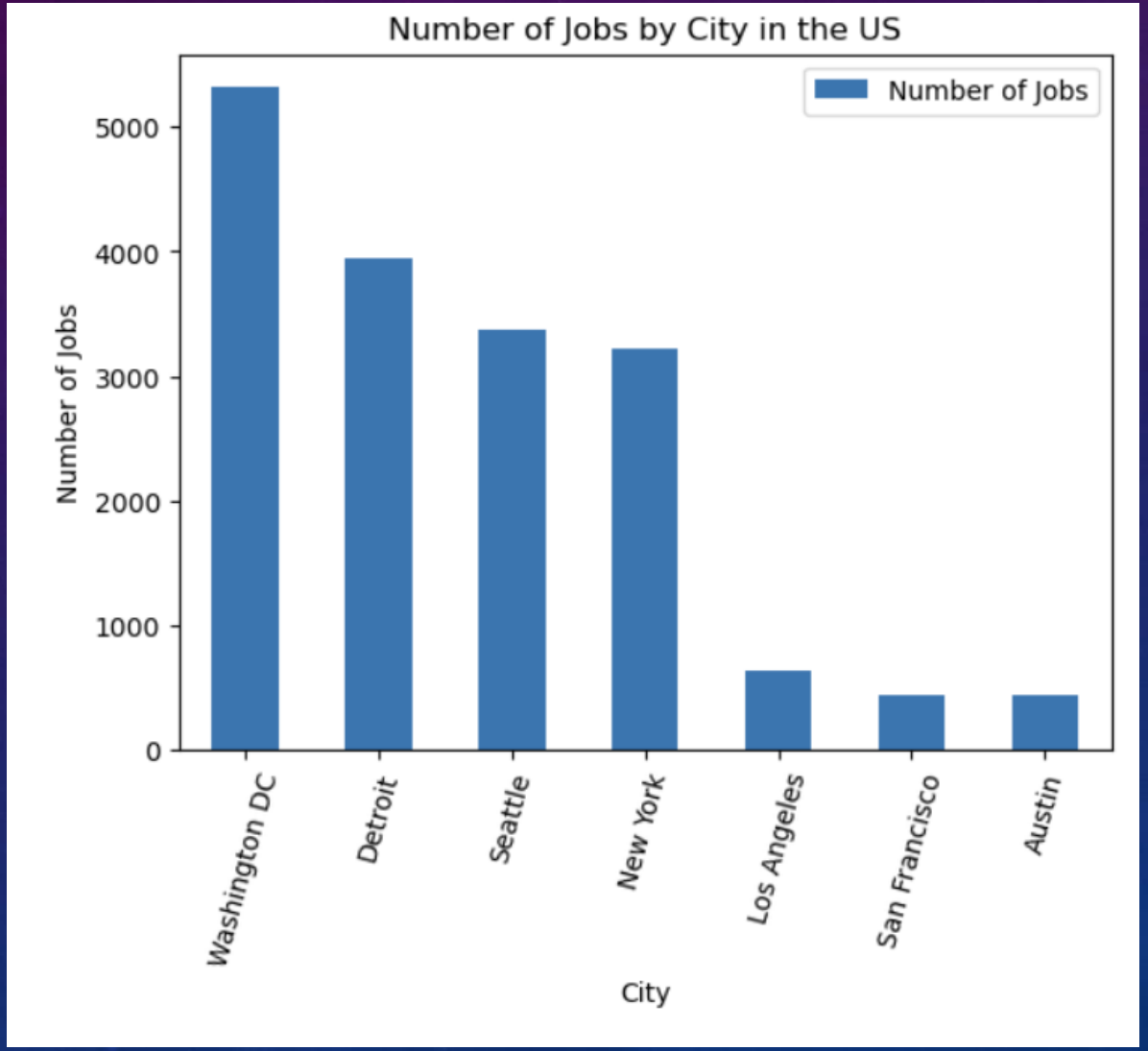
	ConvertedComp
count	16.000000
mean	104555.375000
std	12978.084775
min	85248.000000
25%	94151.500000
50%	102981.500000
75%	111894.500000
max	132287.500000

APPENDIX – COMPENSATIONS AGES 60 TO 99

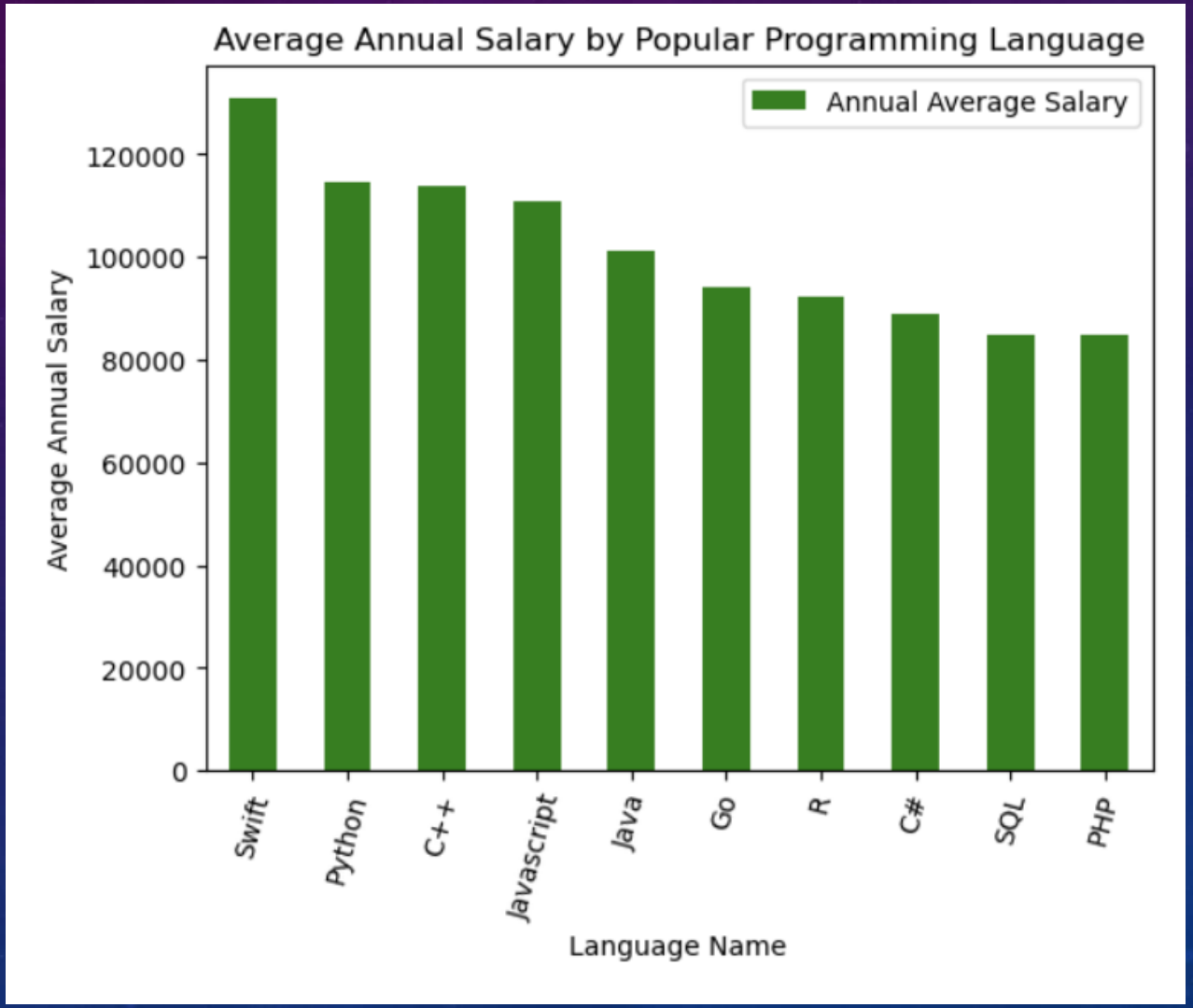
Table of the full statistical description concerning Compensations for ages 60 to 99.

	ConvertedComp
count	10.000000
mean	129067.150000
std	27430.275255
min	92376.000000
25%	108500.000000
50%	128643.750000
75%	140506.000000
max	175000.000000

JOB POSTINGS



POPULAR LANGUAGES



AVERAGE ANNUAL COMPENSATIONS BY DEVELOPER TYPE