2024 Developer Survey Analysis

Dogan the Analyst

2025

[GitHub]

[Portfolio]

OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

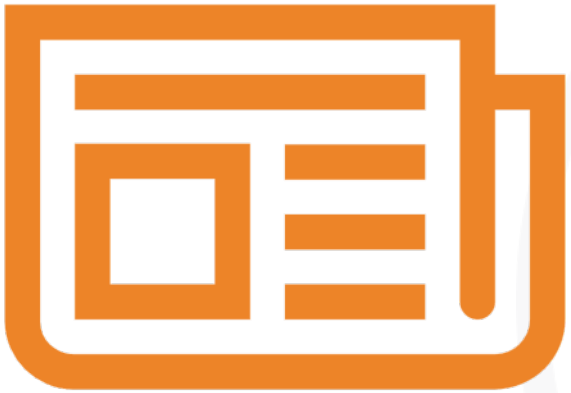
EXECUTIVE SUMMARY

- Common Technology Usage Trend
  - Programming Language
  - Database
  - Platform
  - Web framework
- Wanted Technology Trend
  - Programming Language
  - Database
  - Platform
  - Web framework
- Demographic
- Age, Education Level, Work Types
- Industry & Usage Fields of AI
- Yearly Compensation Correlations (Experience & Satisfaction)

INTRODUCTION

- Analyze global developer technology trends in software and web development
- Purpose of the analysis
  - Define the top languages, databases, platforms and web frameworks
  - Define the most wanted technologies to work with
  - Define the demographic relationships
  - Define the extra other information
- Target audience
  - Developers, Analysts
  - HR, IT workers
  - Students in computer science or related fields

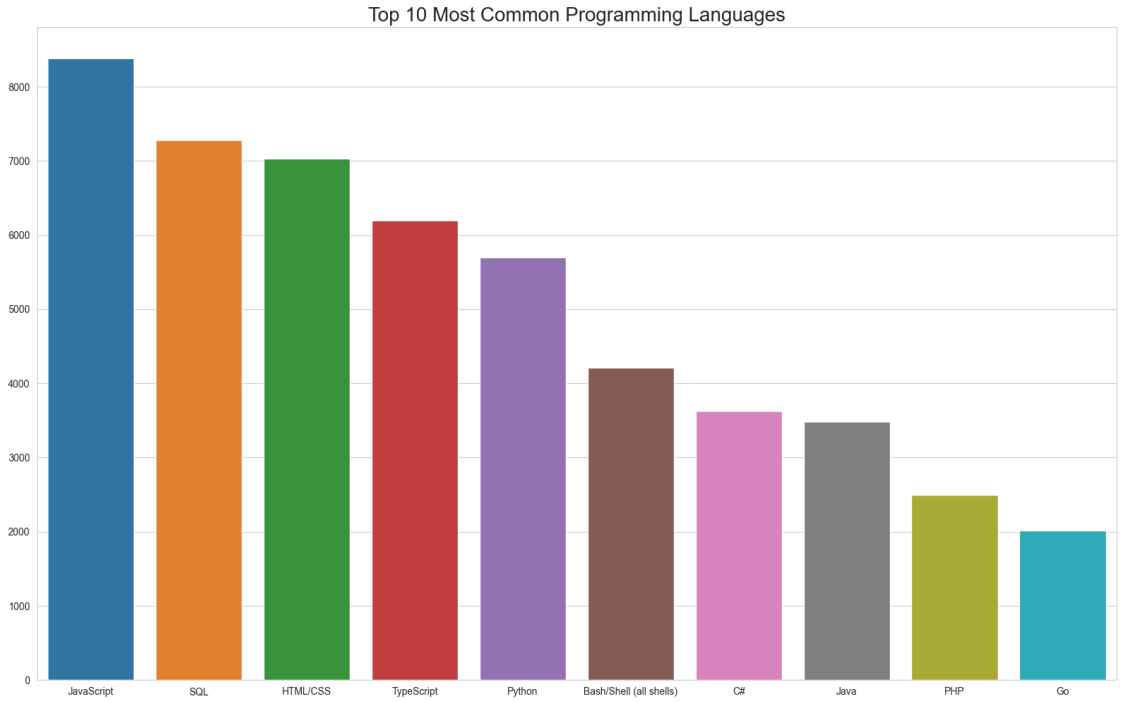
METHODOLOGY



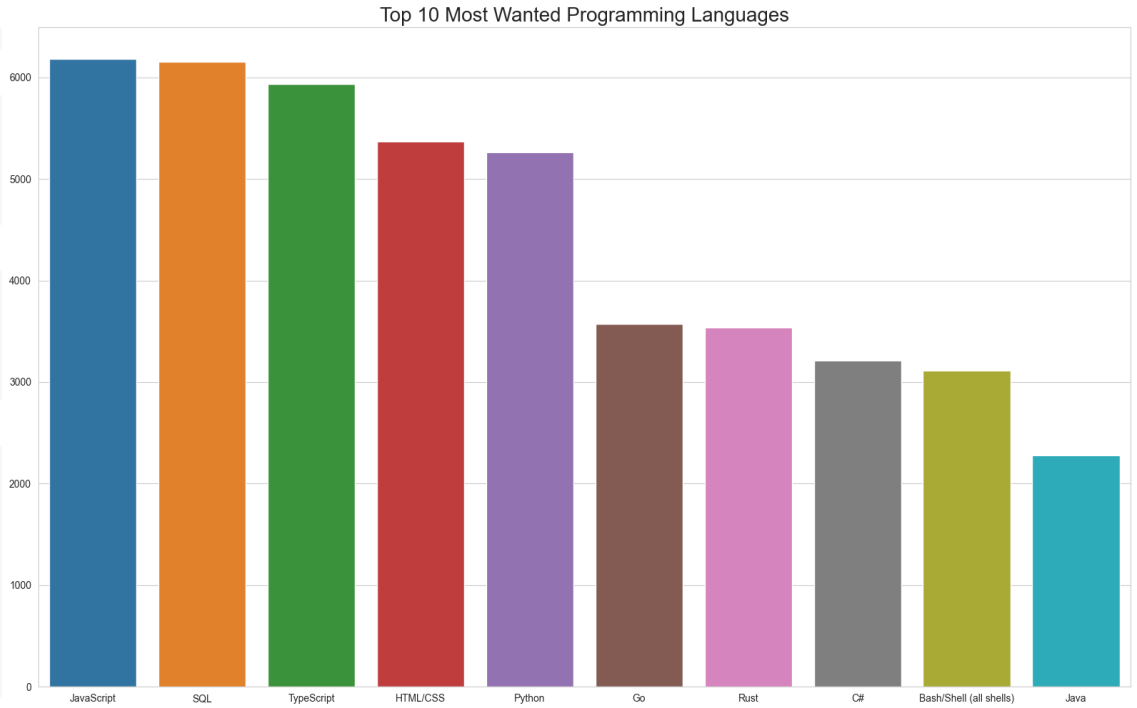
- Data Collection
  - Stack Overflow 2024 Developer Survey
  - IBM provided API
- Data Wrangling
- Exploratory Data Analysis
- Data Cleaning
- Data Visualization
- Tools
  - Python, Pandas, Numpy, Matplotlib, Seaborn
  - IBM Cognos Analytics
  - SQL (MySQL)

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

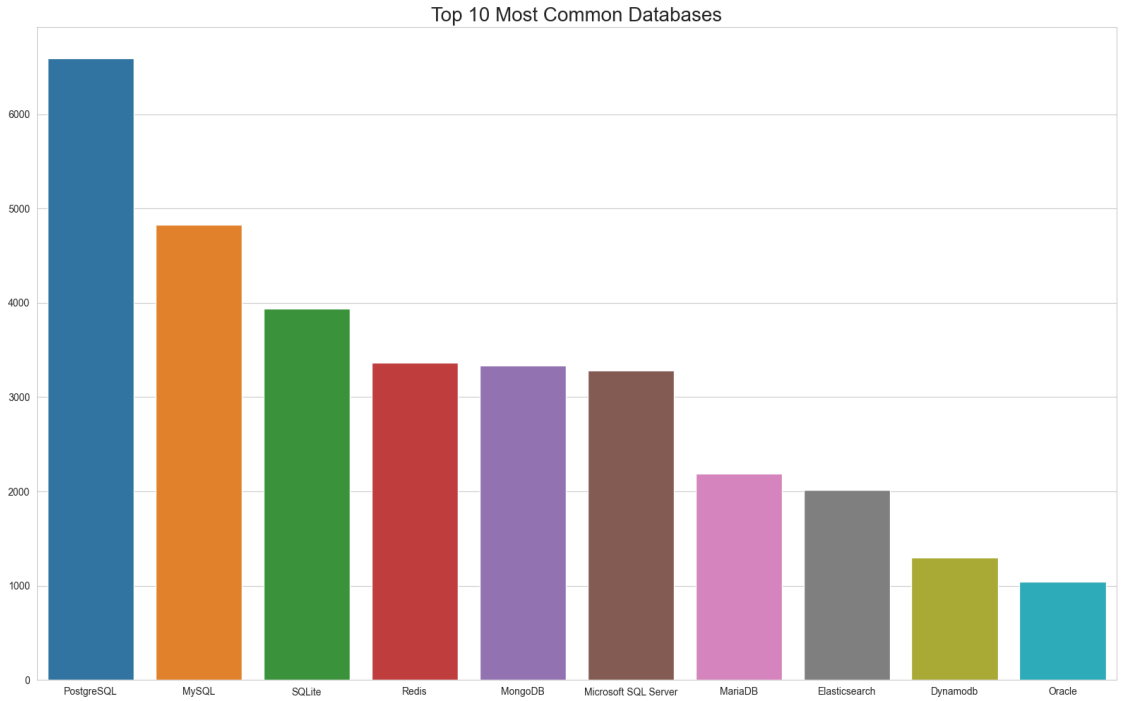
- JavaScript is top trending languages among developers
- JavaScript and SQL are still maintaining their popularity in the dev community
- Python, HTML/CSS and TypeScript can be considered popular

Implications

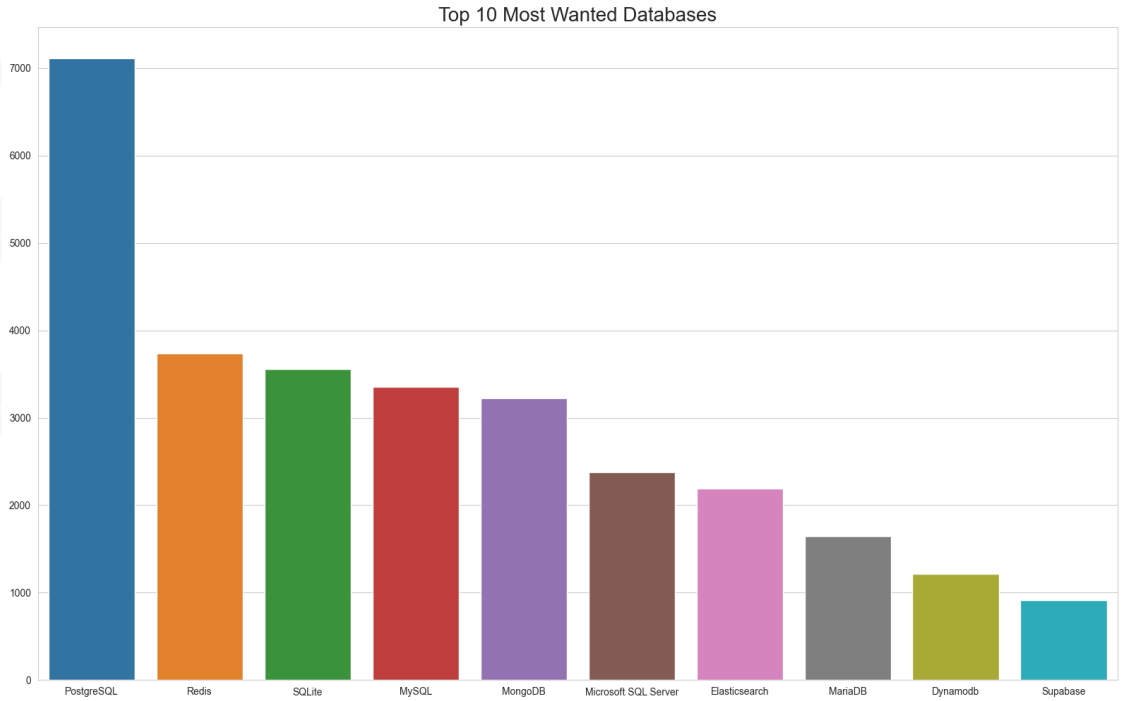
- Go and Rust are on the rise among the languages developers want to work with
- JavaScript and SQL are crucial to learn
- Java follows the others in last place

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL is by far the most popular database
- In both figures, SQLite is in third place
- The top 3 databases are SQL. They are followed by Redis and MongoDB, which are NoSQL

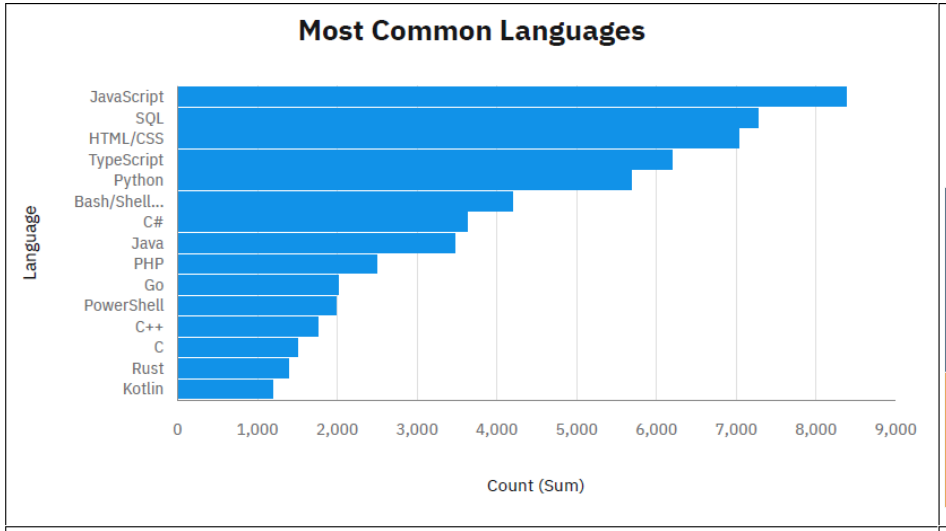
Implications

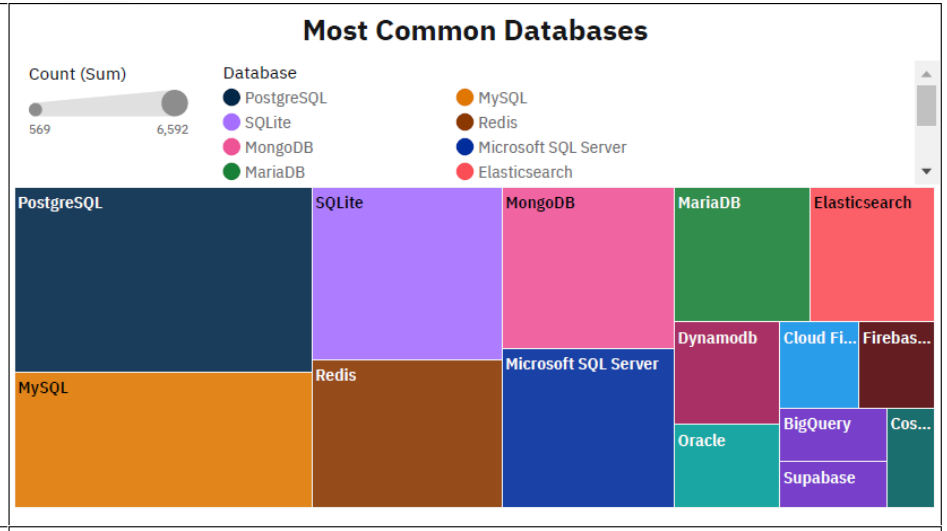
- SQL databases have important place in the development
- Redis may become more popular in the near future
- Looking at the figures, it can said that PostgreSQL is and will be dominating the field

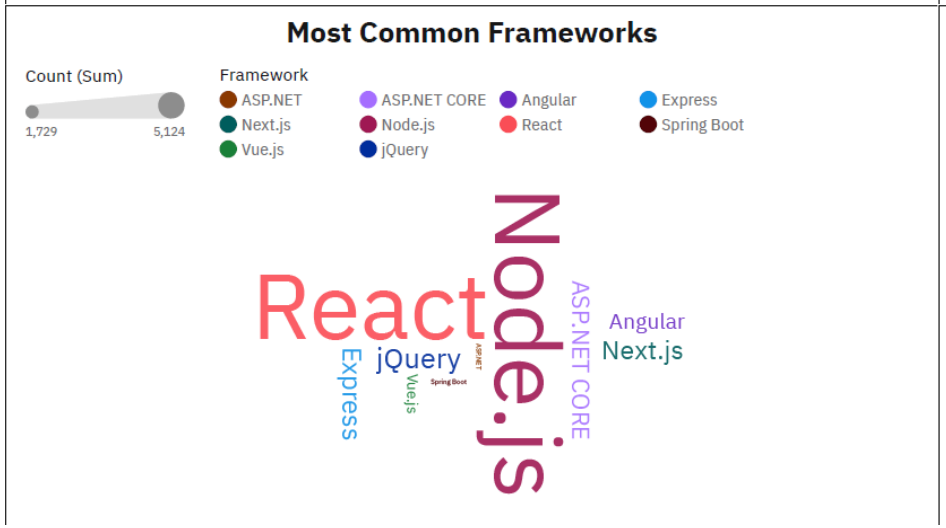
DASHBOARD

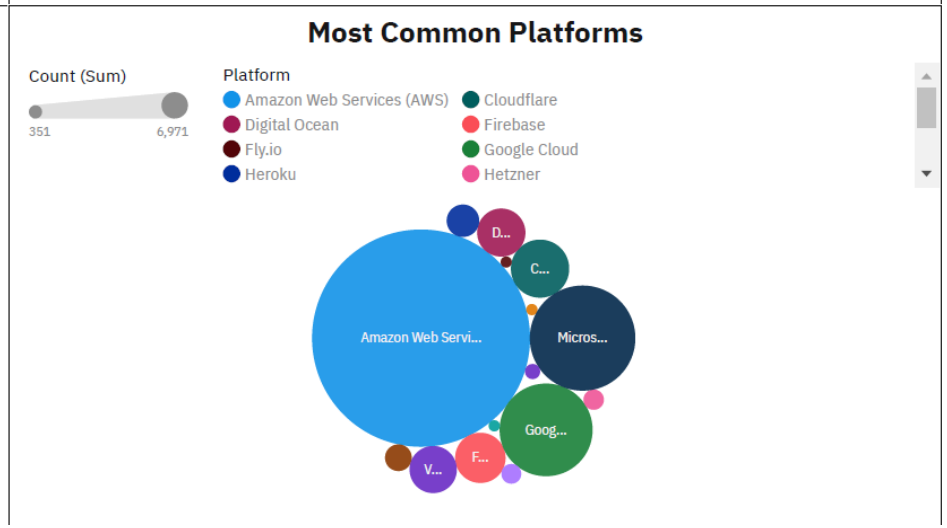
- Current Technologies
  - Language, database, platform, web framework
- Wanted Technologies
  - Language, database, platform, web framework
- Demographic
  - Average salary by country
  - Distribution of education level
  - Countries with the most respondents
  - Job satisfaction by industry

DASHBOARD CURRENT TECHNOLOGIES

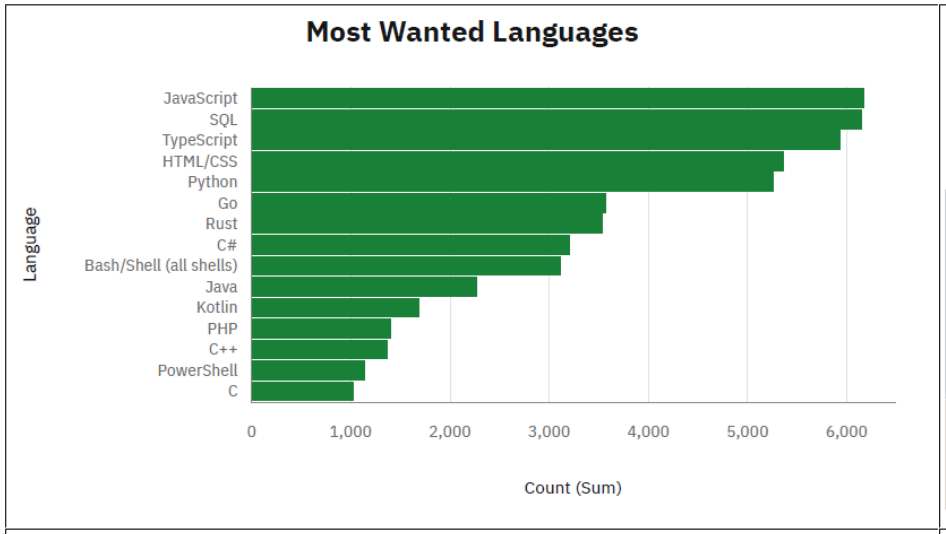


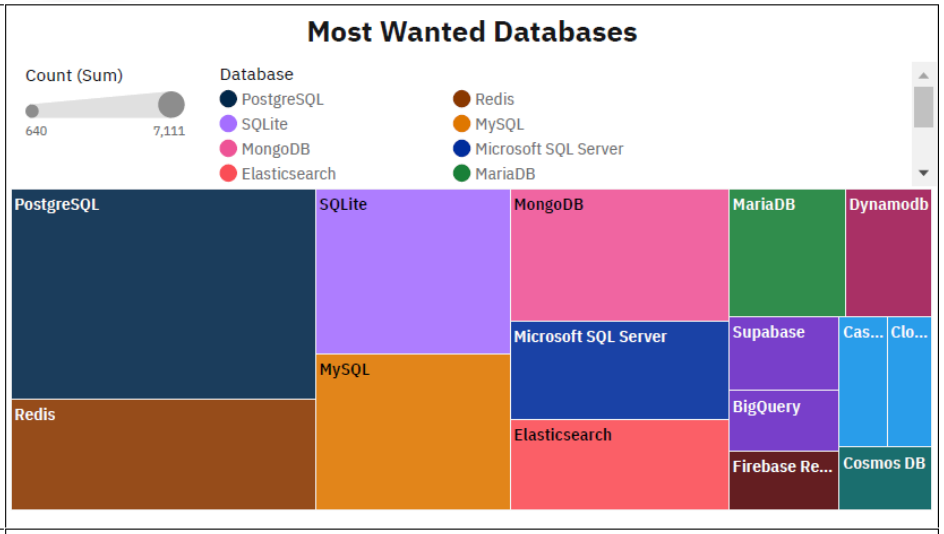


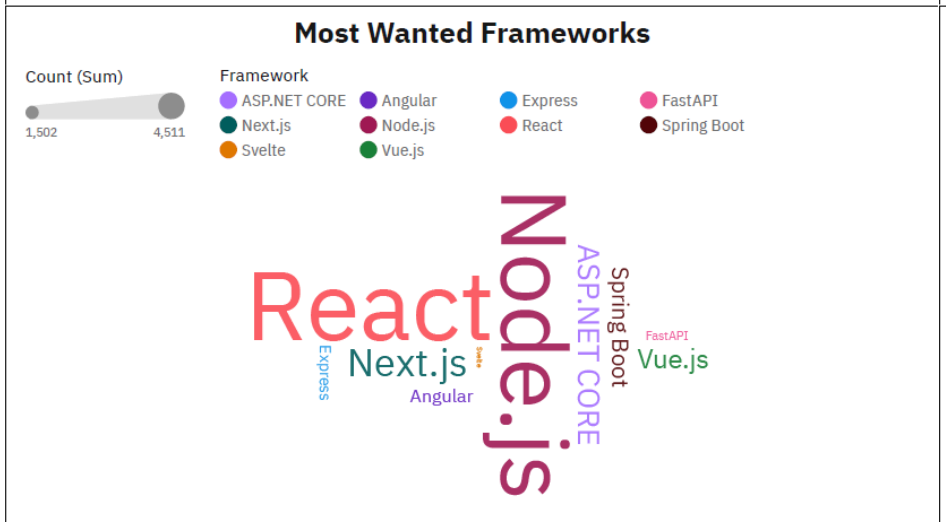


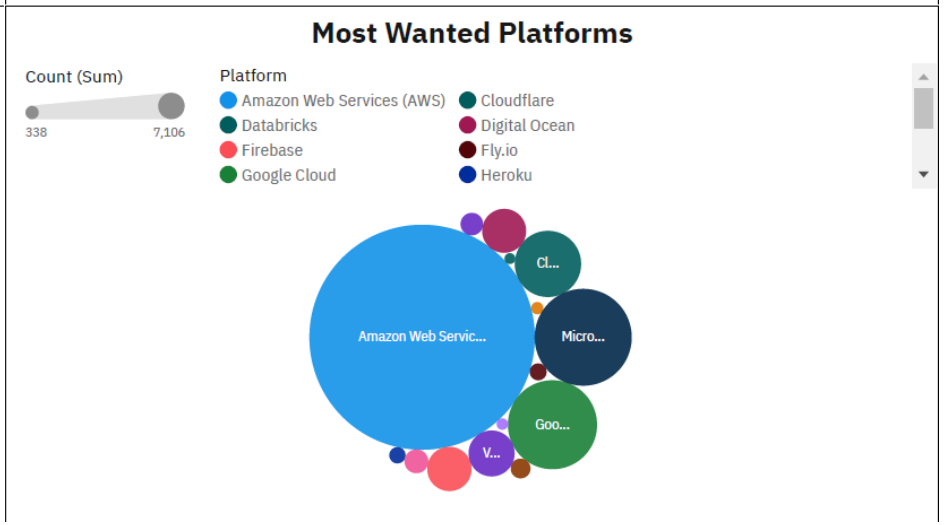


DASHBOARD WANTED TECHNOLOGIES

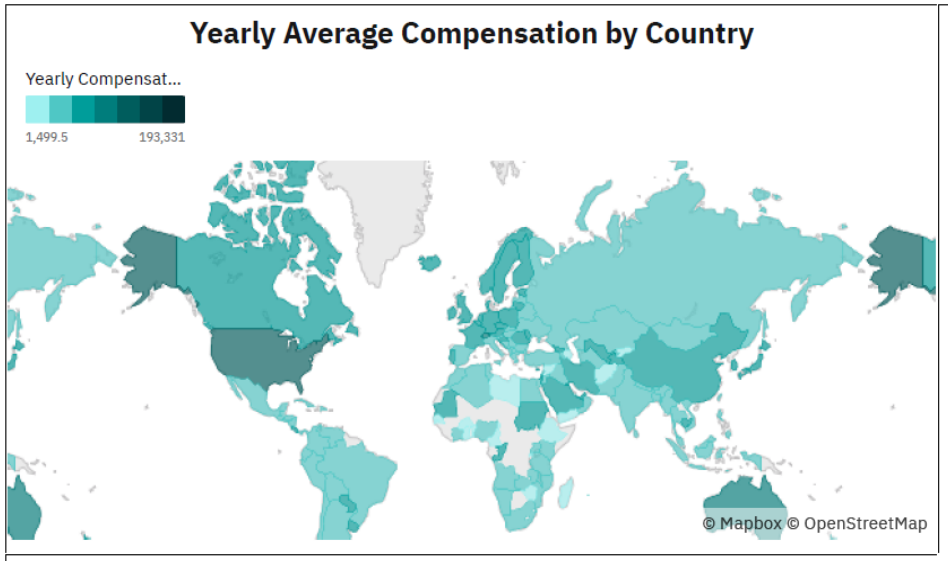


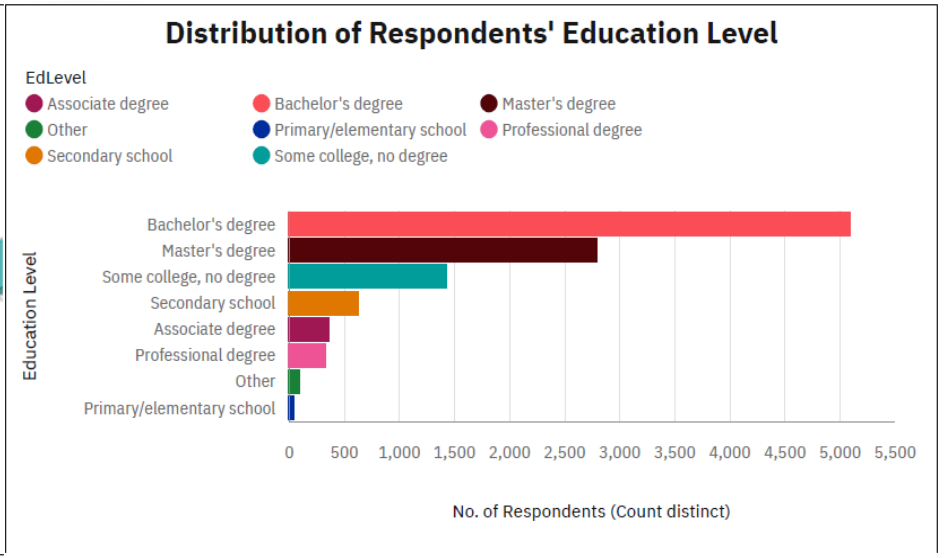


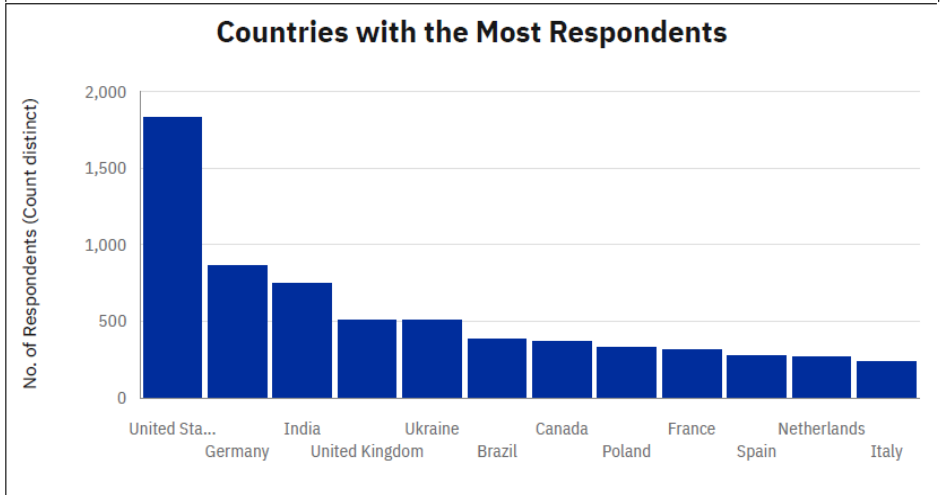


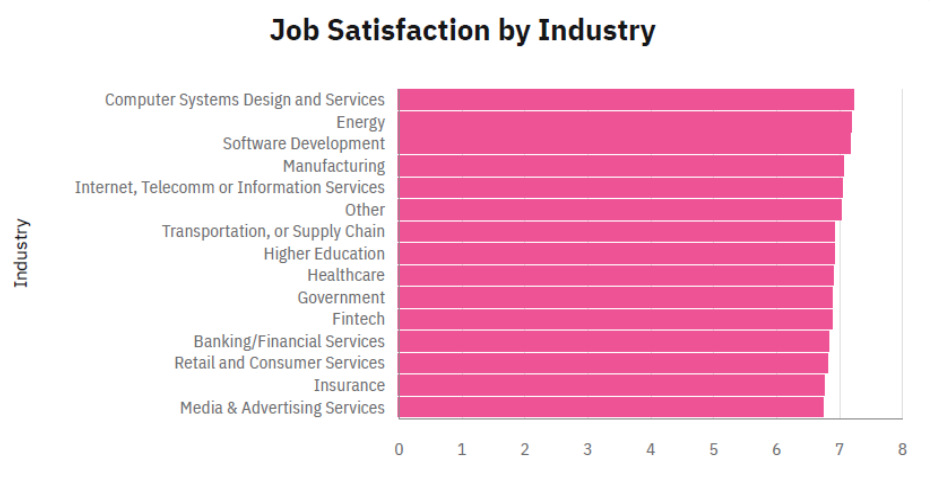


DASHBOARD DEMOGRAPHIC









DISCUSSION

- Technology preferences
- Average salary, education level, respondents, industry

OVERALL FINDINGS & IMPLICATIONS

Findings

- Most satisfied industries are Computer Systems Design and Services, Energy, and Software Development
- The largest number of respondents are from the USA, followed by Germany and India
- Most of the respondents have Bachelor's degree
- Developers in the USA earn higher salaries
- The top most popular and most wanted technologies are in almost the same order, but there are, of course, attention-grabbers

Implications

- There are some essential programming languages to recognize, such as JavaScript, SQL, HTML/CSS and Python
- Getting a degree is not necessary to land a tech job
- North America countries' developers earn more compared to some other countries. This could depend on distribution of respondents' location

CONCLUSION

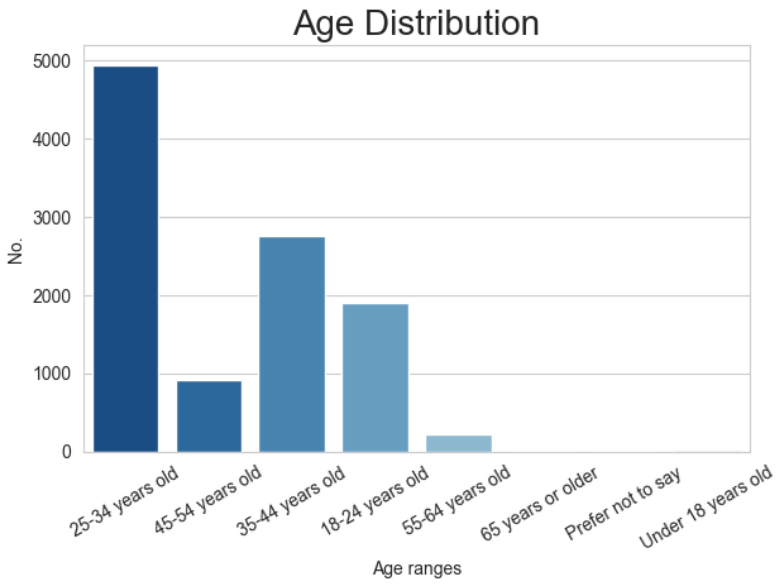
- JavaScript, SQL, and HTML/CSS are the most popular languages
- PostgreSQL is by far the most popular database
- Developers in the USA earn more compared to others
- Having a degree is not a prerequisite for getting a job in technology

APPENDIX

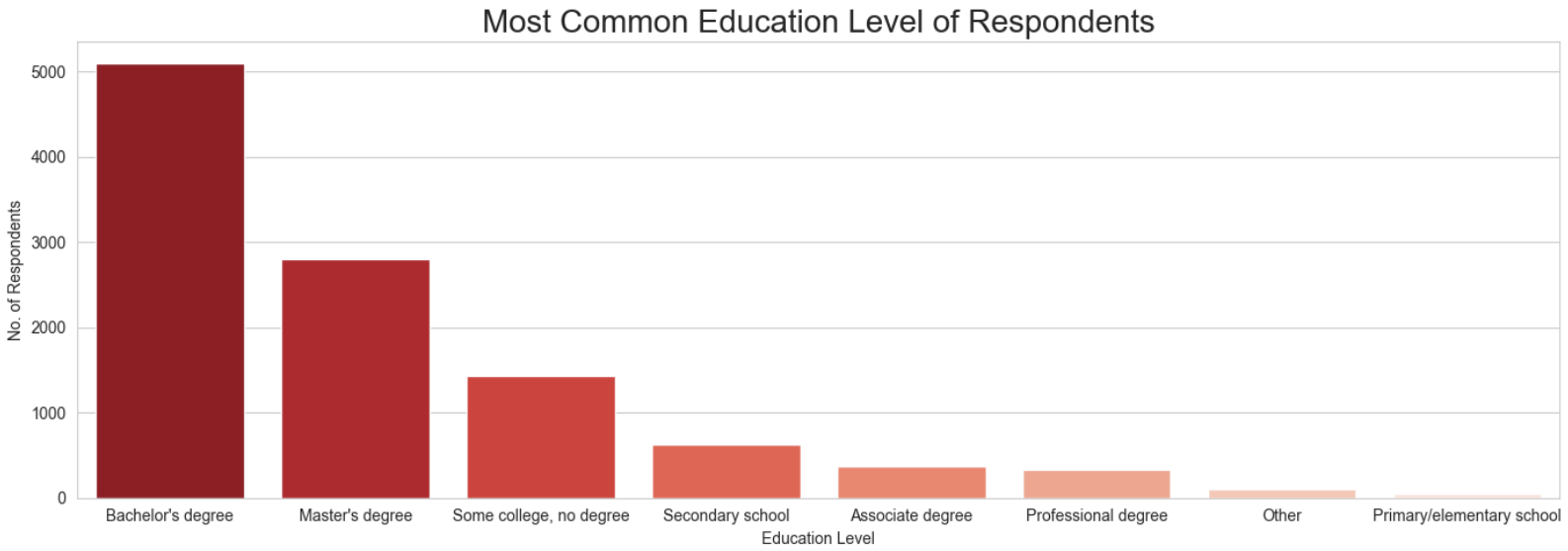
- Age & Education Level
- Work Types
- Industry
- Usage Fields of AI
- Yearly Compensation Corr.
- Job Postings & Popular Languages
- More Insights from SQL

AGE & EDUCATION LEVEL

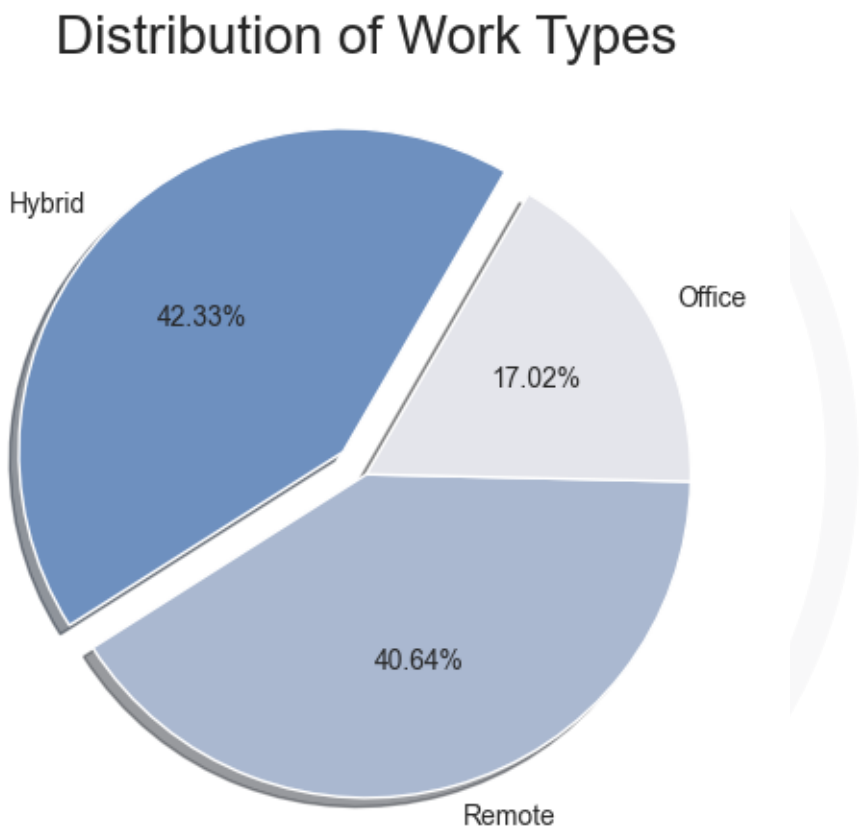
Age



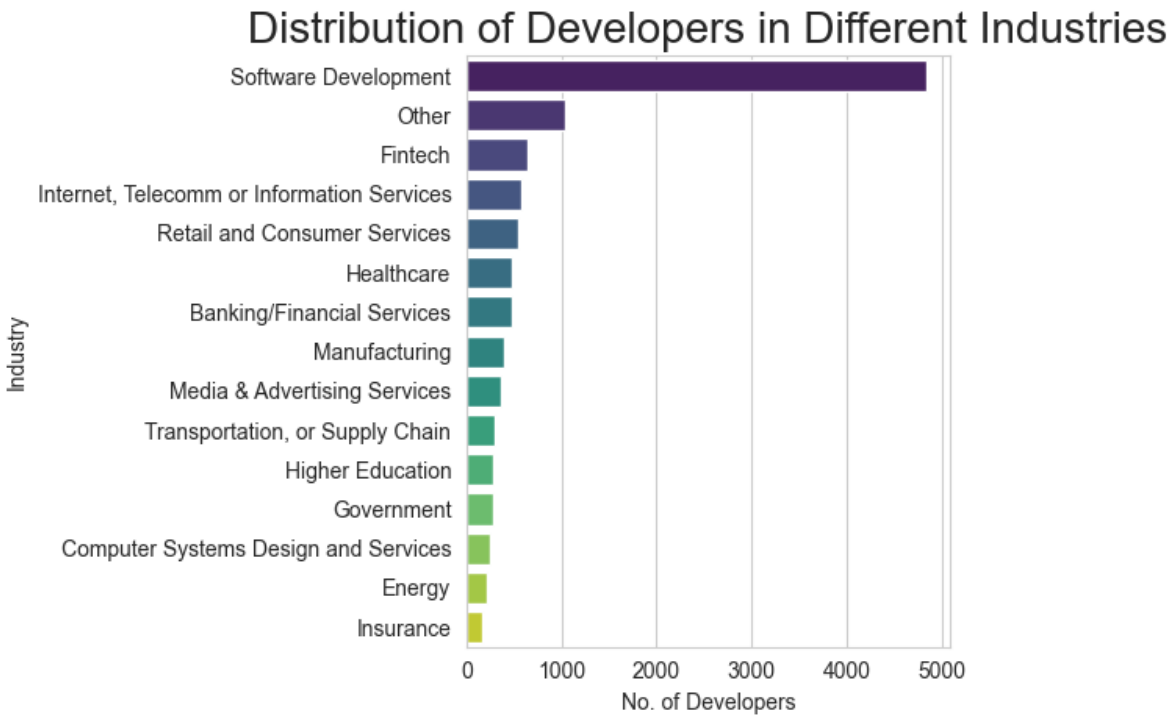
Education Level

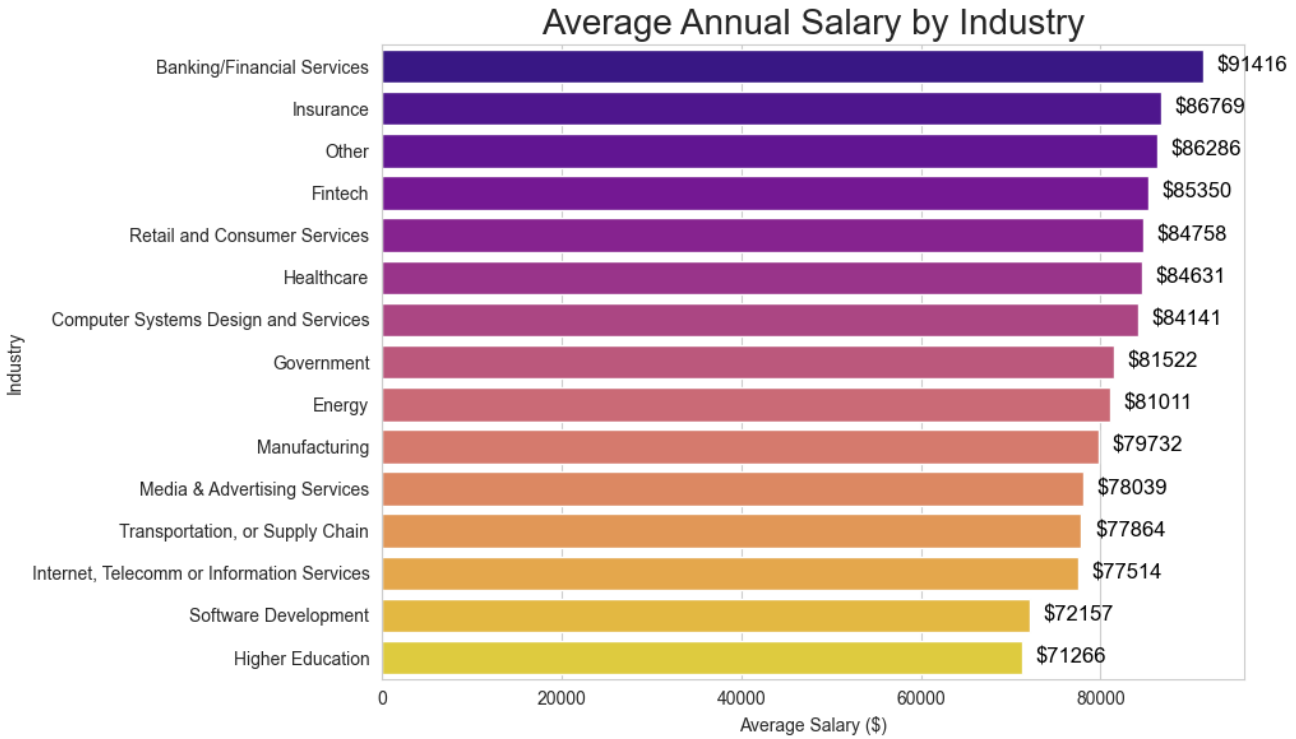


WORK TYPES

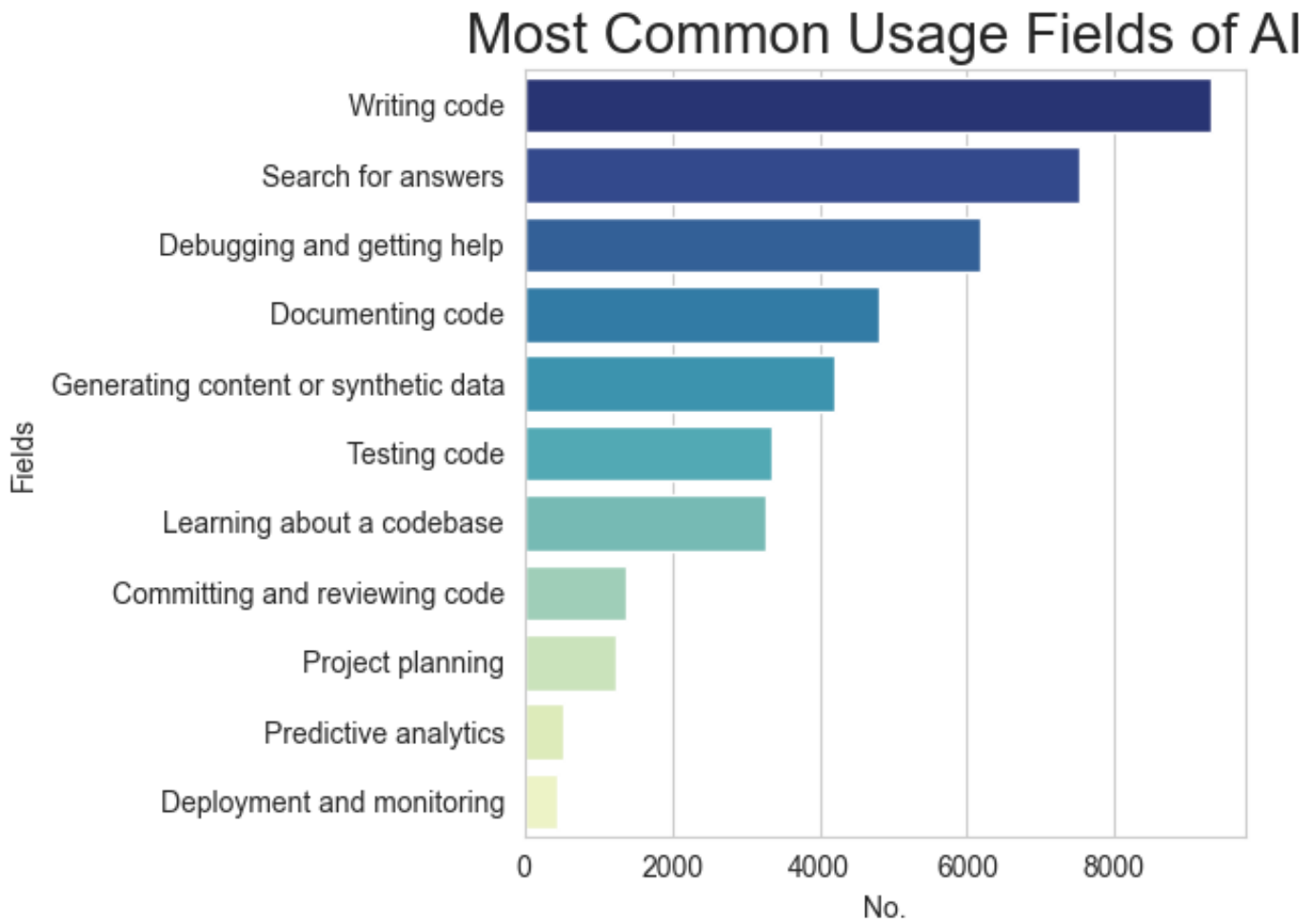

Distribution of Work Types
Hybrid
42.33%
Office
17.02%
40.64%
Remote

INDUSTRY


Distribution of Developers in Different Industries
Industry
Software Development
Other
Fintech
Internet, Telecomm or Information Services
Retail and Consumer Services
Healthcare
Banking/Financial Services
Manufacturing
Media & Advertising Services
Transportation, or Supply Chain
Higher Education
Government
Computer Systems Design and Services
Energy
Insurance
0
1000
2000
3000
4000
5000
No. of Developers

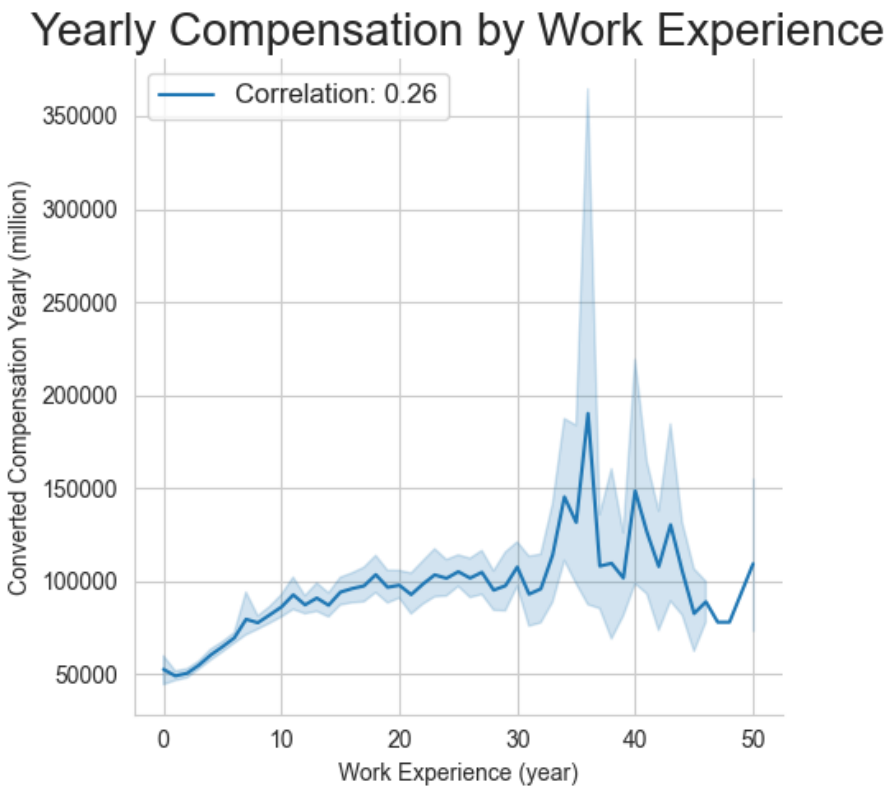

Average Annual Salary by Industry
Industry
Banking/Financial Services
$91416
Insurance
$86769
Other
$86286
Fintech
$85350
Retail and Consumer Services
$84758
Healthcare
$84631
Computer Systems Design and Services
$84141
Government
$81522
Energy
$81011
Manufacturing
$79732
Media & Advertising Services
$78039
Transportation, or Supply Chain
$77864
Internet, Telecomm or Information Services
$77514
Software Development
$72157
Higher Education
$71266
0
20000
40000
60000
80000
Average Salary ($)

USAGE FIELDS OF AI

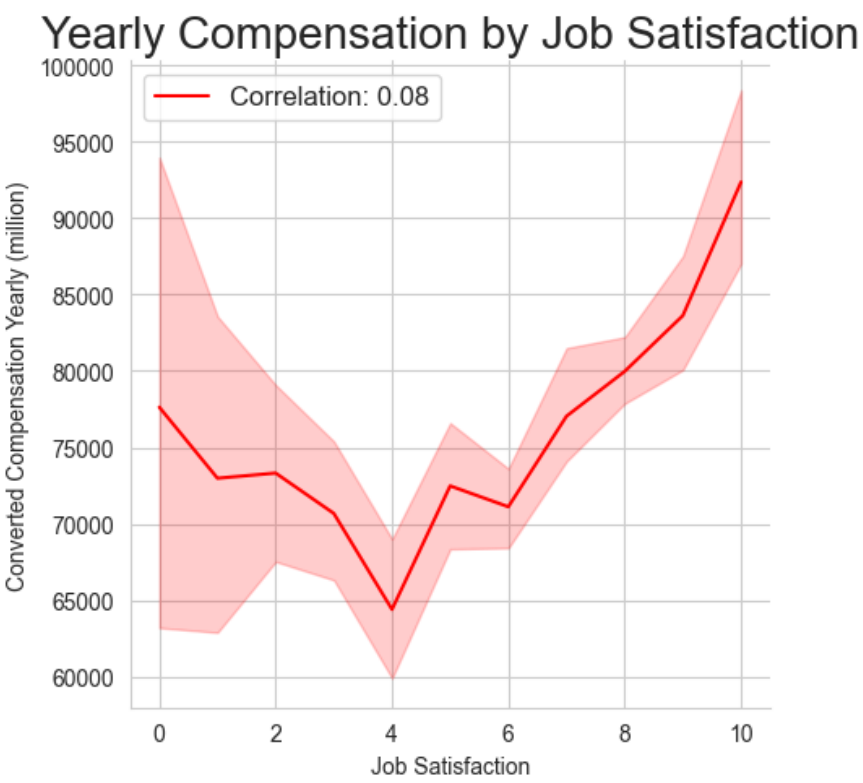


YEARLY COMPENSATION CORR.

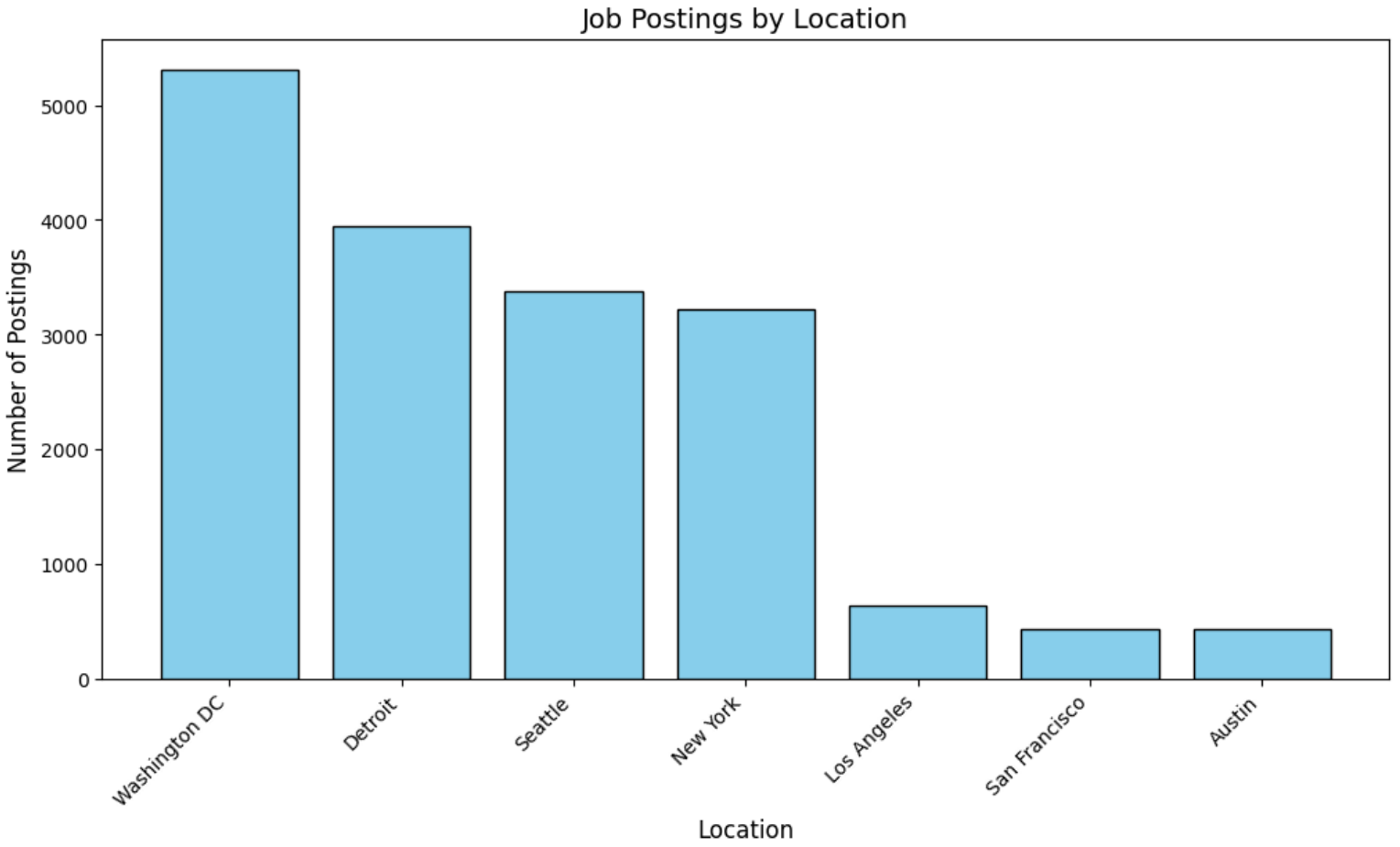
by Work Experience



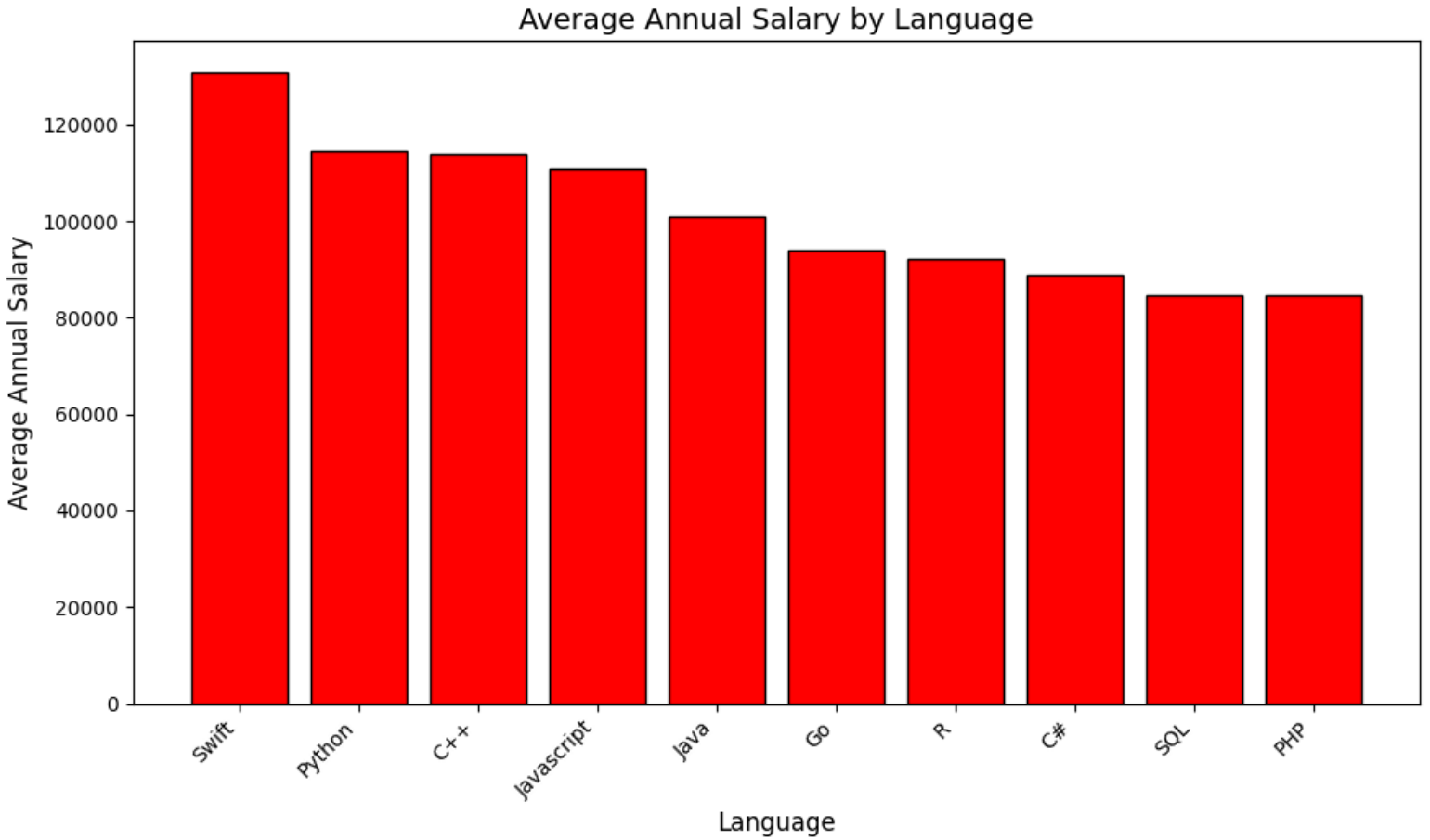
by Job Satisfaction



JOB POSTINGS (using API)



POPULAR LANGUAGES (Web Scraping)



MORE INSIGHTS FROM SQL

- Average Age of Respondents:
  - 32
- Average Compensation by Job Title (USD) (Top Roles):
  - Senior Executive: $126,566
  - Developer Advocate: $116,443
  - Engineering Manager: $108,346
  - Back-End Developer: $78,611
  - Data Analyst: $71,102
- Top 5 Respondent Countries:
  - USA: 16.86%
  - Germany: 7.91%
  - India: 6.83%
  - United Kingdom: 4.67%
  - Ukraine: 4.65%
- Education Level Distribution:
  - Bachelor's: 47.08%
  - Master's: 25.89%
  - Some College, no degree: 13.26%