Staying Relevant in an Ever-Changing IT-Landscape

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IBM Developer

SKILLS NETWORK

OUTLINE

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

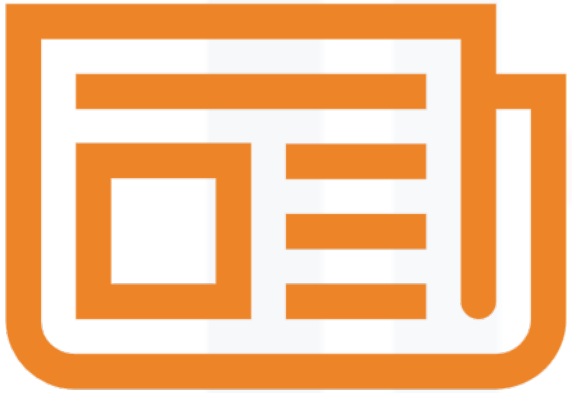
EXECUTIVE SUMMARY

- Staying relevant in the IT-space
- Data Sources
  - Job listings → Stack Overflow Survey → Programming Languages and their average salaries
- Data Analysis
  - Web scraping and API's → Data Wrangling → exploratory analysis and descriptive statistics → data visualization
- Key Findings
  - JavaScript and HTML/CSS remain dominant languages, but Python and Go are on the rise
  - Traditional SQL databases (e.g. MySQL, SQLite) are in decline while MongoDB and PostgreSQL are on the rise
  - Demographics reveal developers to be mostly 28-year-old males, holding only a bachelor's degree, situated in the USA or India
- Key Take Aways
  - Market trends show a preference for web development, AI, cloud computing and unstructured, non-relational databases
  - Barriers to entry into the development profession are relatively low. Within the female segment, as well as outside the USA and India in general there could be untapped potential in terms of labor force

INTRODUCTION

- How to stay relevant and identify opportunities in an ever-changing IT-landscape?
- Current and future Trends in Programming Languages
- Current and Future Trends in Databases
- Current Demographic Trends
- Possible Implications for:
  - HR and Recruitment
  - Individual Employee Development & Career Opportunities

METHODOLOGY

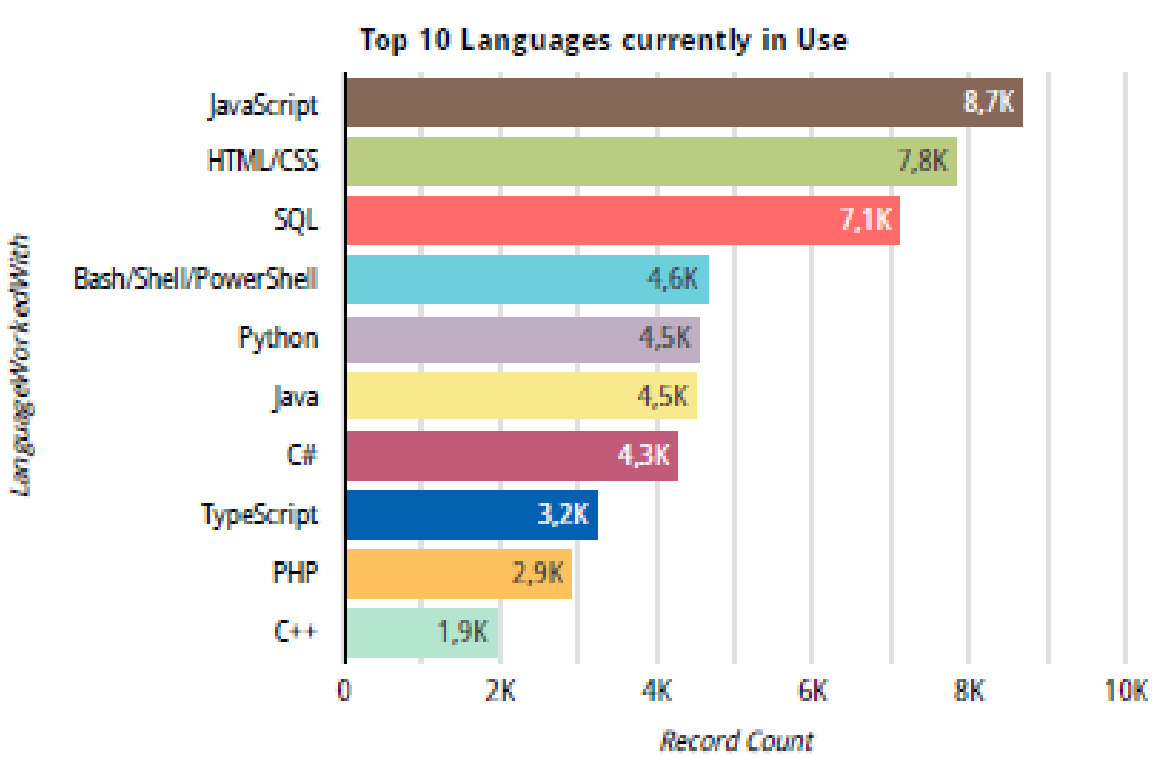


- Collecting Data from Databases through API's and Web Scraping
  - Programming Languages and Average Annual Salaries
  - Job listings
  - Stack Overflow Developers Surveys
- Data Wrangling and Cleaning
  - Removing duplicated entries
  - Replacing Missing Values (with mean, median or max depending on the data)
  - Normalizing the Data
- Data Exploration
  - Descriptive Statistics
- Data Visualization
  - Python
  - Dashboard

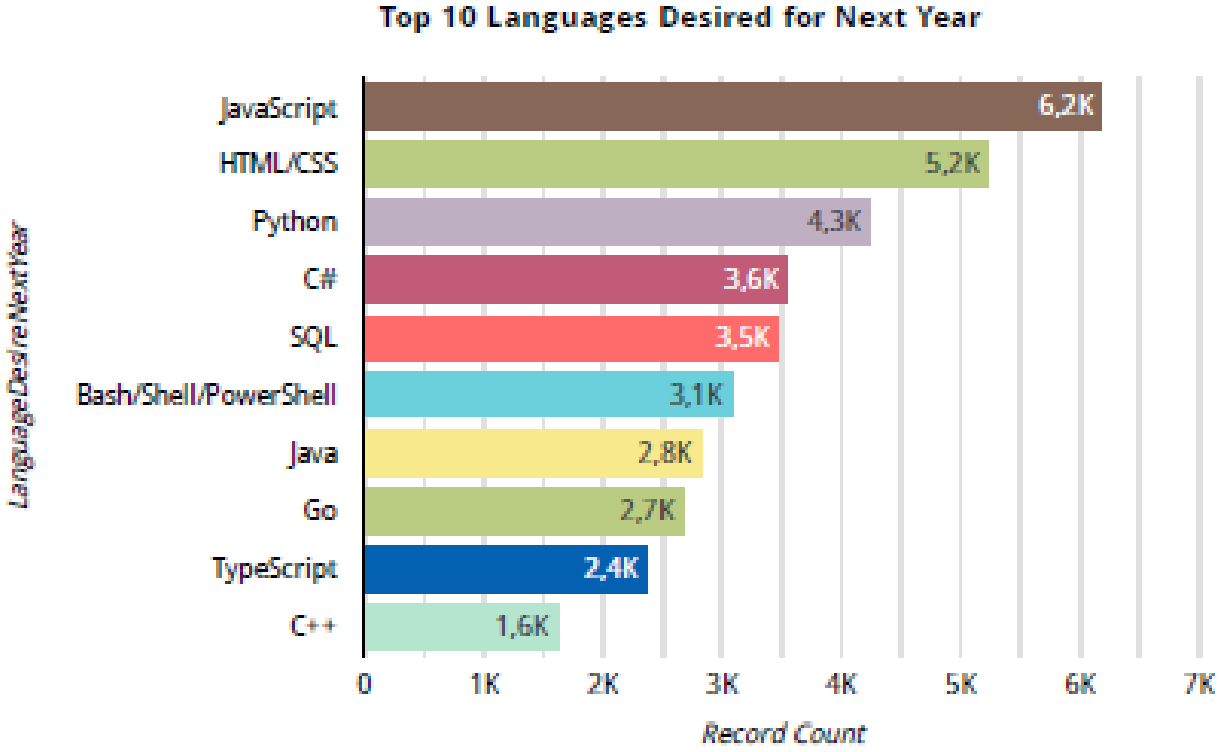
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

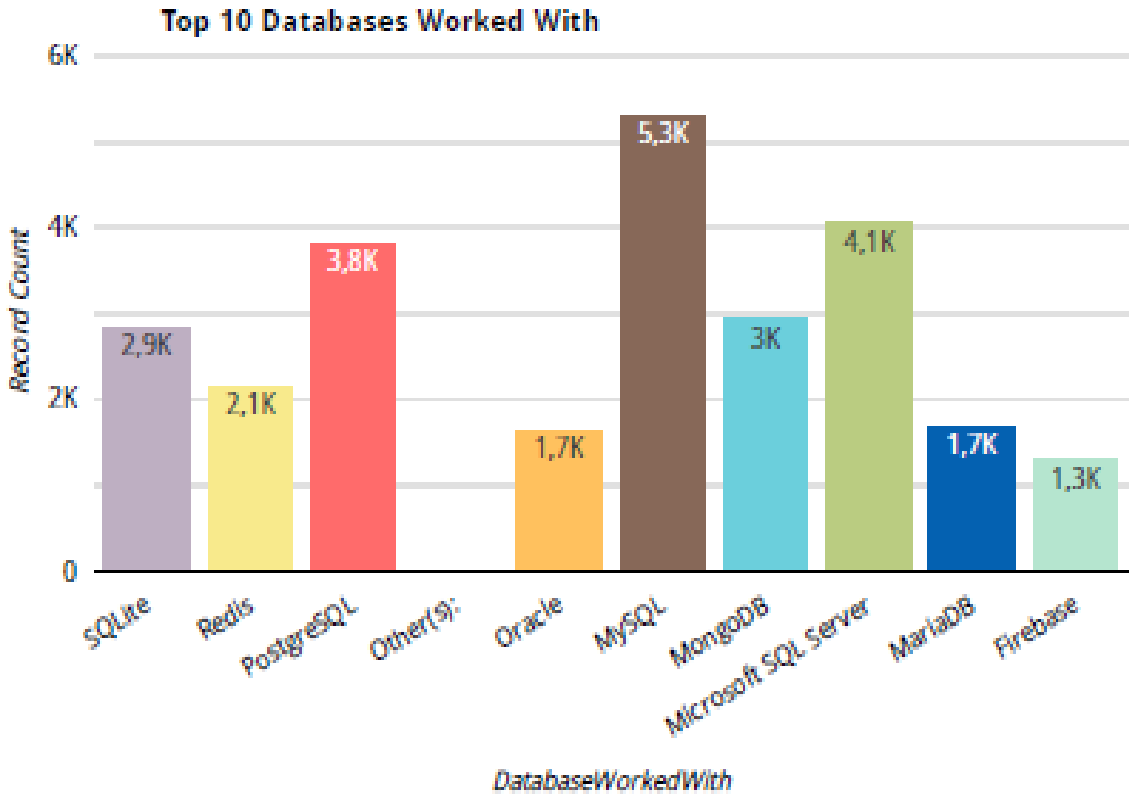
- JavaScript and HTML/CSS remain firmly on top for this year and the next
- Python is the 3rd desired language for next year, trading places with SQL, which is in decline
- While not present this year, Go is a rising language for next year

Implications

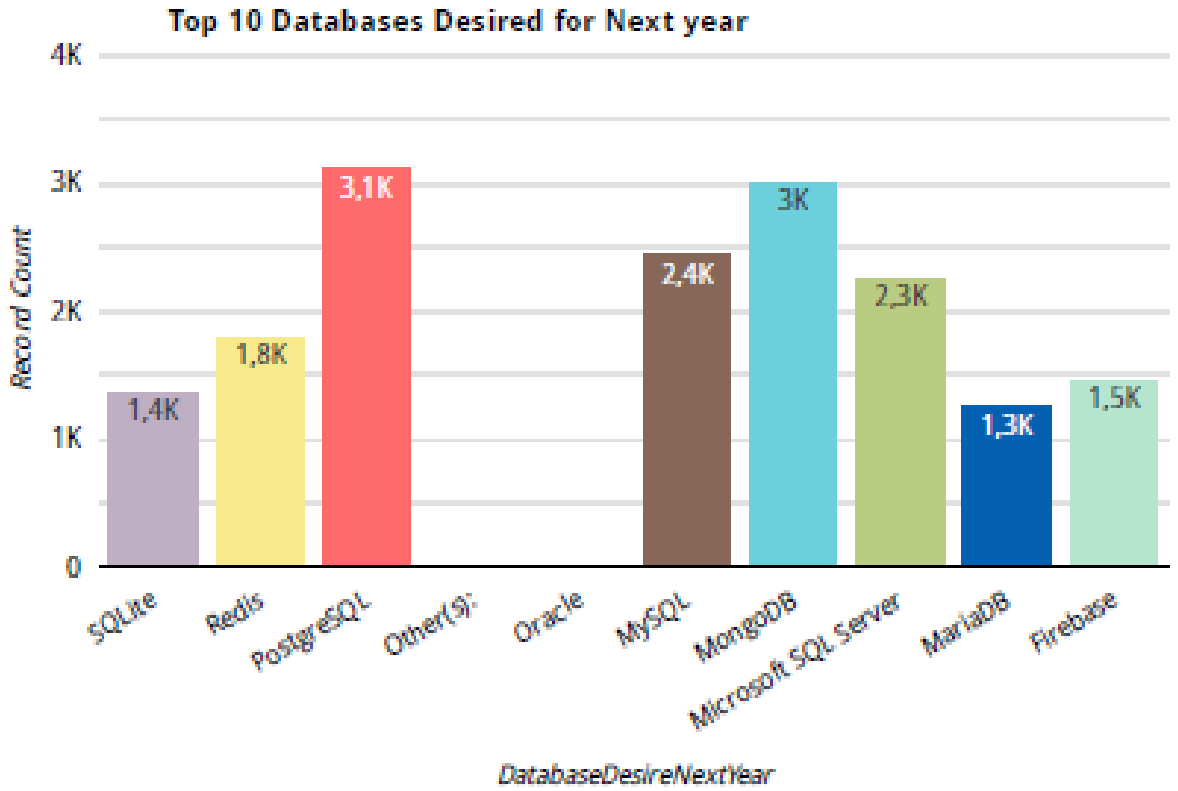
- JavaScript and HTML/CSS are used for Web development, indicating a strong continuing trend in this field
- Python is highly associated with AI and Machine Learning. The recent boom in this field most likely correlates to the rise of Python
- Go is associated with cloud-based server applications, which are also booming since the lockdowns of COVID-19

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- SQL related databases (MySQL, Microsoft SQL Server, SQLite, PostgreSQL are currently most in demand
- For next year the demand for SQL Databases (with the exception of PostgreSQL) is in rapid decline
- MongoDB and PostgreSQL are the leading databases for next year

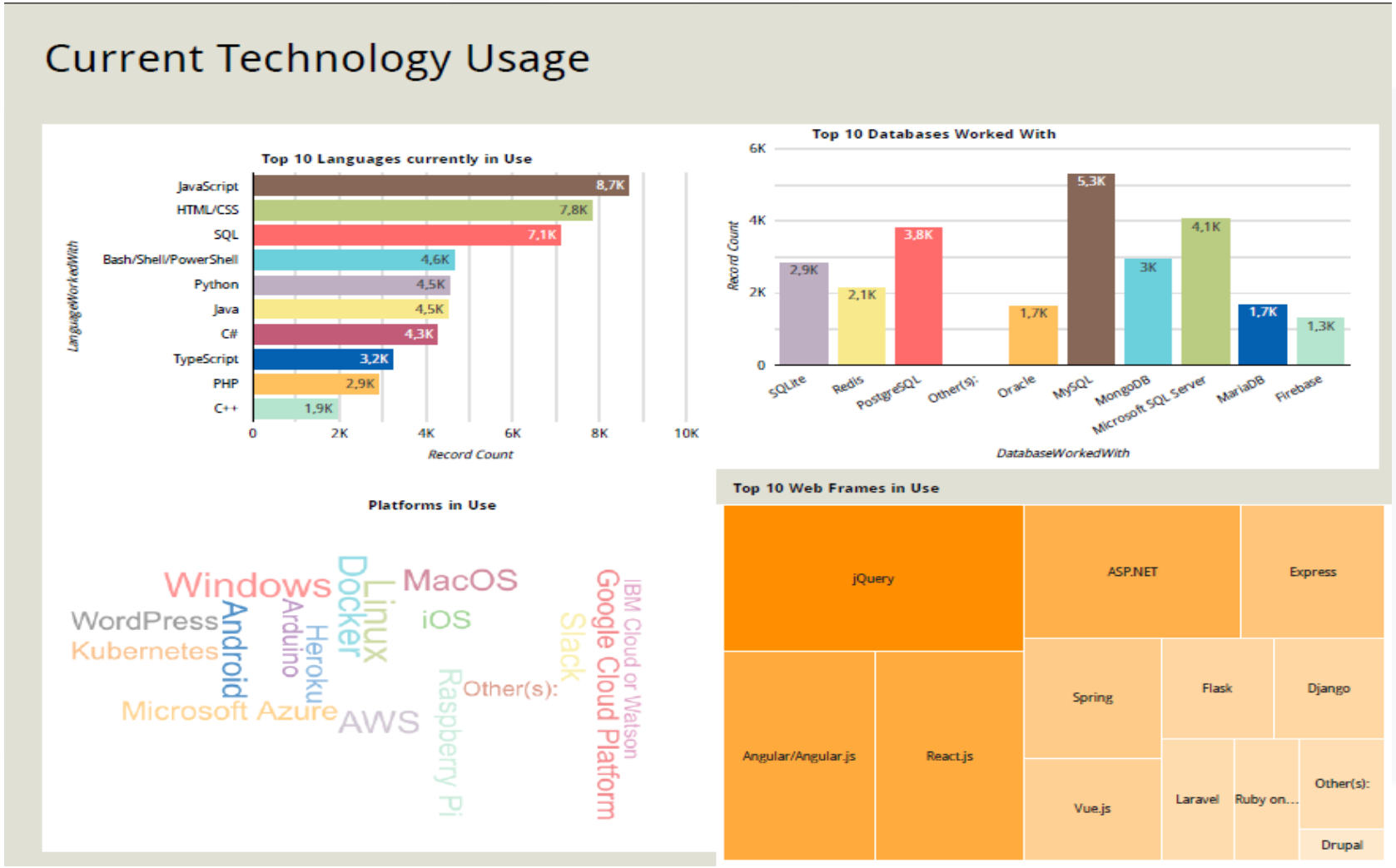
Implications

- Developers are turning away from the traditional SQL databases used for structured relational data
- PostgreSQL and MongoDB are databases for both relational, non-relational, structured and unstructured data
- The market has more need to handle unstructured and non-relational data

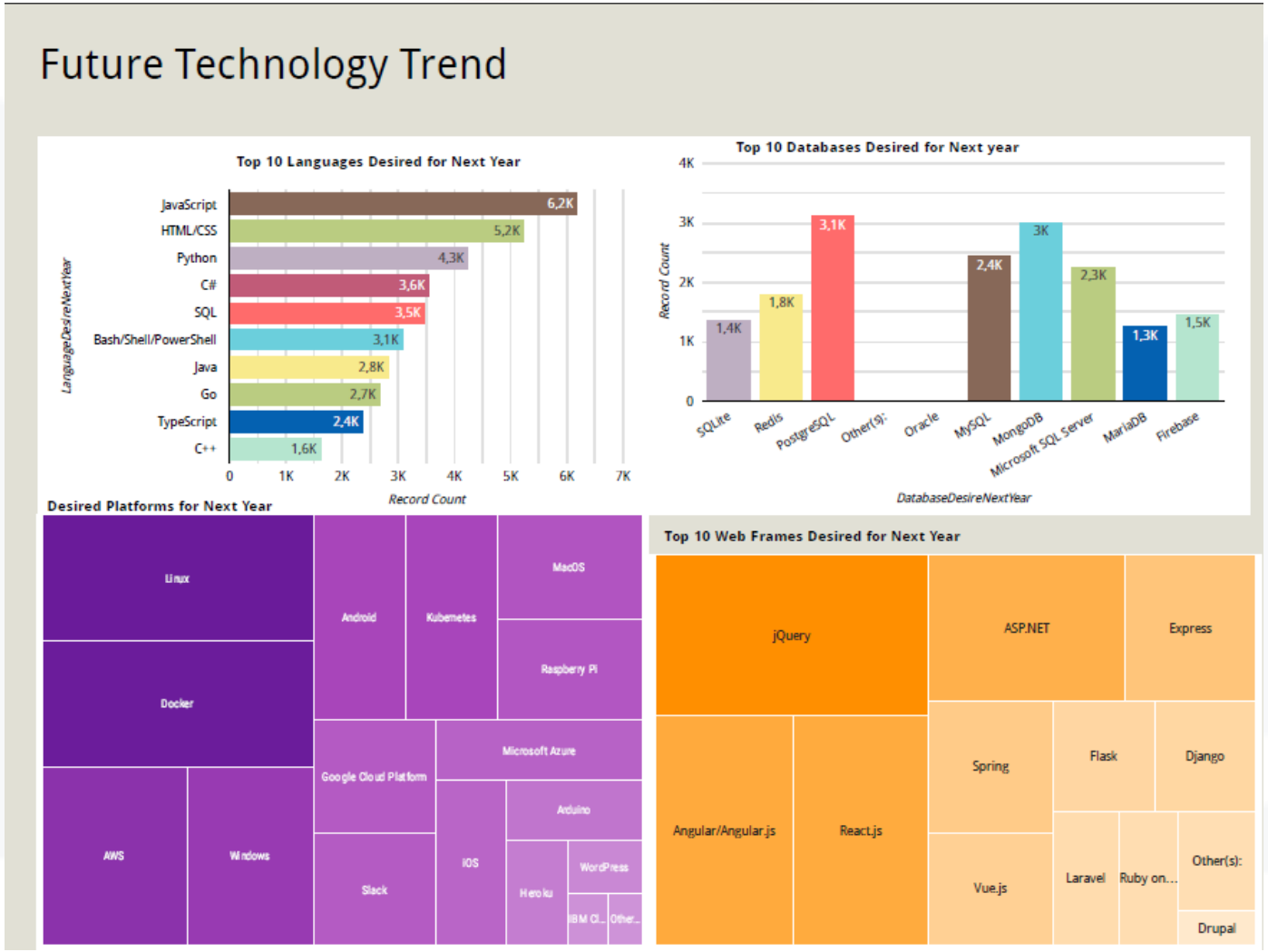
DASHBOARD

https://github.com/Mister-Sippi/IBM-Data-Analyst-Capstone-Project.git

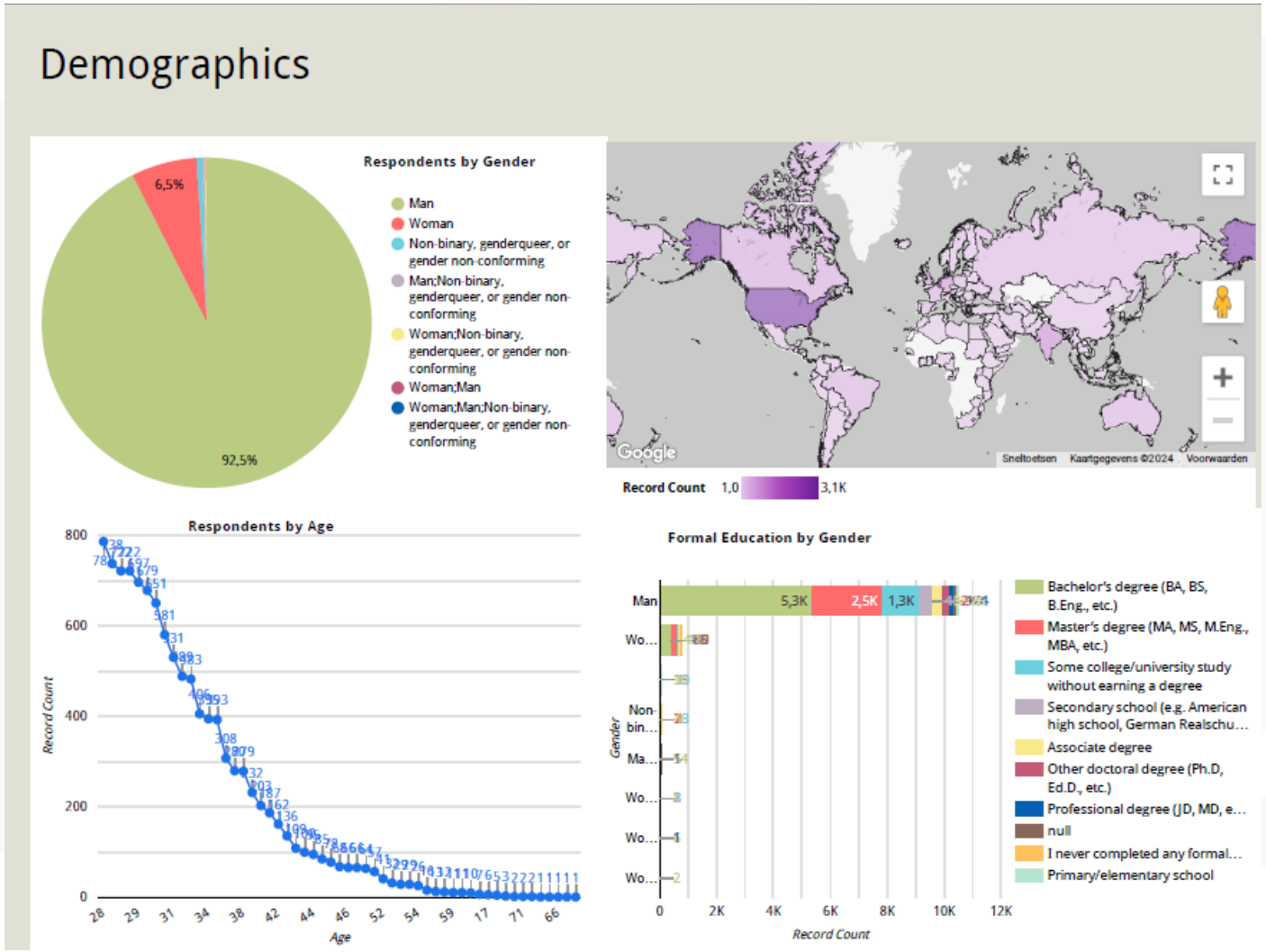
DASHBOARD TAB 1



DASHBOARD TAB 2



DASHBOARD TAB 3



DISCUSSION

- The market shows a trend towards web development, cloud computing AI and unstructured, non-relational databases. Should you follow?
- Developers are concentrated around the USA and India, and males with only a bachelor degree. Should we look for untapped potential amongst non-males and people from outside the USA and India?

OVERALL FINDINGS & IMPLICATIONS

Findings

- The market shows a strong preference for web development, AI, cloud computing and databases for unstructured and non-relational data
- This also reflects in the average salary per programming language, however, most job postings are centered around C as a programming language
- Developers are mostly 28-year-old males with a bachelor degree coming from the USA or India

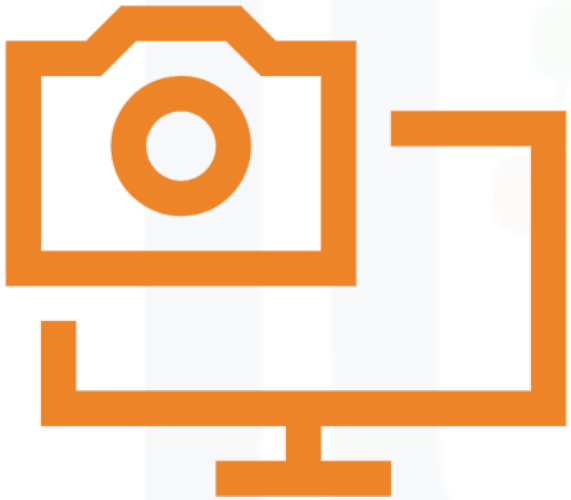
Implications

- The market gives us a clear indication of the IT-skills in demand, and companies do well to take notice
- There is a discrepancy between the skills in demand and the developer jobs available. Most likely this calls for opportunities for companies trying to move into one of the aforementioned spaces
- Highest education of developers show us that barriers to entry into the developing space are low. There is a whole labor force segment that can be used to move forward

CONCLUSION

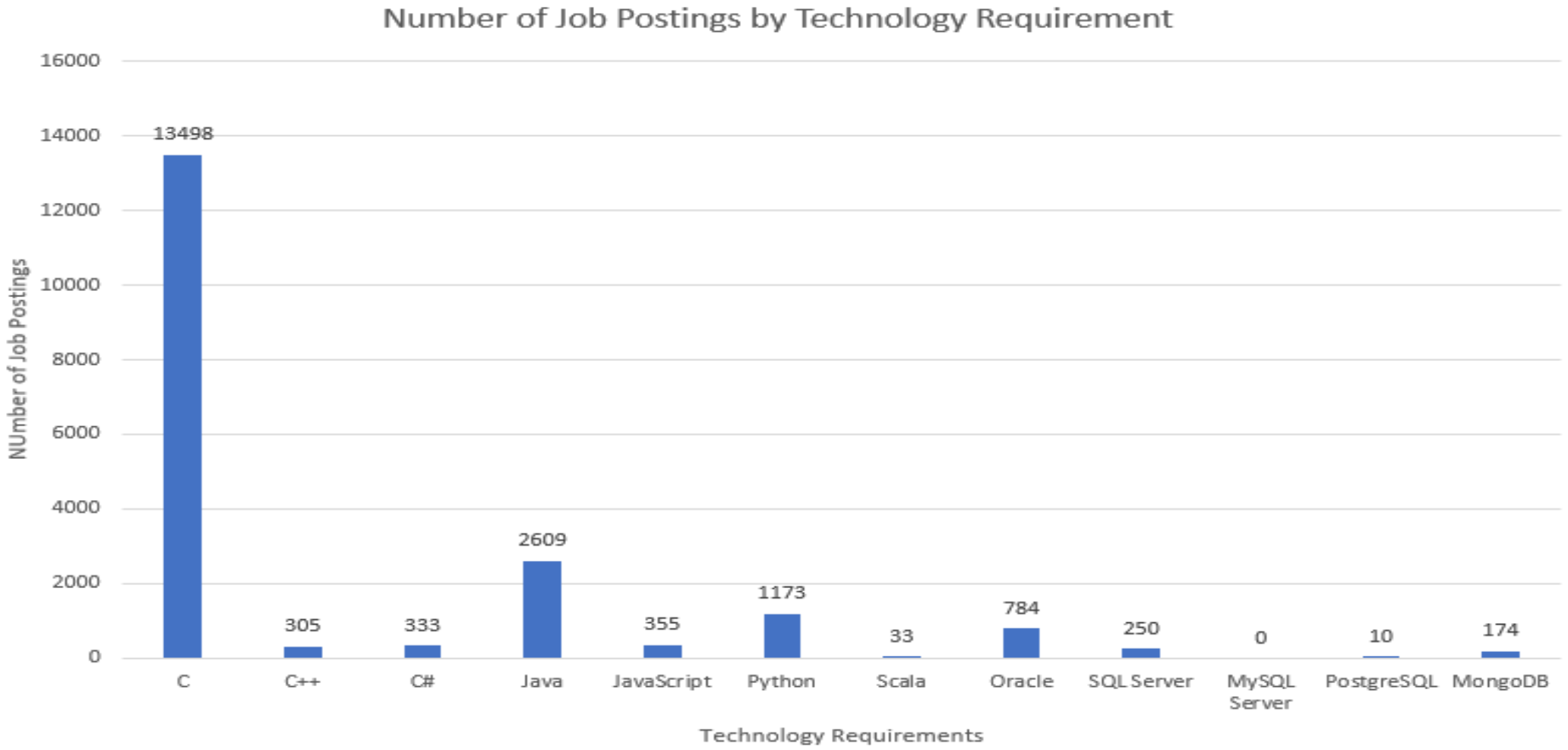
- Market trends show a preference for web development, cloud computing, AI, and unstructured, non-relational databases
- Based on the average salary per skill it is expected that both companies and individual developers will try to move into these spaces
- Barriers to entry of the development space seem low. The gap between the genders and the gap between the USA and other countries show there could be much untapped labor force potential

APPENDIX

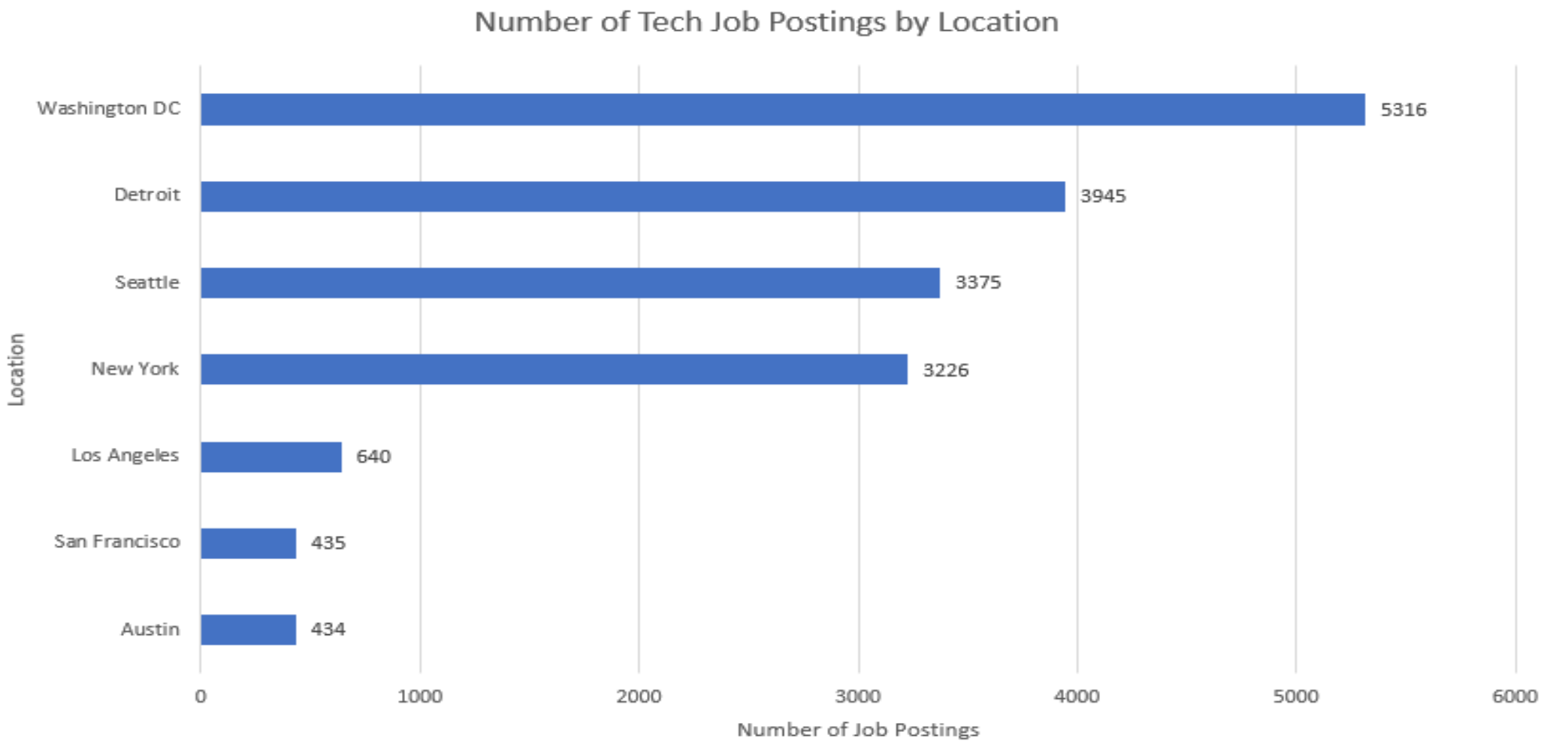


- Job Postings by Technology
- Job Postings by Location
- Average Salary per Programming Language

JOB POSTINGS



JOB POSTINGS



POPULAR LANGUAGES