TRENDS ANALYSIS OF THE EVER-CHANGING IT INDUSTRY

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SKILLS NETWORK

OUTLINE

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EXECUTIVE SUMMARY

- THE IT INDUSTRY IS COMPETITIVE AND EVER-CHANGING, REQUIRING CONSTANT REFINEMENT AND IMPROVEMENT IN PROGRAMMING AND DATABASE SKILLS.
- THIS PROJECT AIMS TO ANALYZE THE TRENDS AND UNCOVER INSIGHTS FROM:
  - CURRENT TECHNOLOGY USAGE
  - FUTURE TECHNOLOGY TRENDS
  - DEMOGRAPHICS
- ANALYZE CURRENTLY USED PROGRAMMING LANGUAGES AND DATABASES AGAINST THE LANGUAGES AND DATABASES THAT THE RESPONDENTS WISH TO LEARN, TO UNCOVER KEY INSIGHTS.
- ANALYZE THE RESPONDENTS BASED ON FACTORS LIKE AGE AND GENDER.
- COMBINE THE INFORMATION INTO A USER-FRIENDLY DASHBOARD.

INTRODUCTION

- AS A DATA ANALYST IN A GLOBAL IT AND BUSINESS CONSULTING SERVICES FIRM THAT IS KNOWN FOR THEIR EXPERTISE IN IT SOLUTIONS, IT IS MY RESPONSIBILITY TO REGULARLY ANALYSE DATA TO HELP IDENTIFY FUTURE SKILL REQUIREMENTS IN ORDER TO KEEP PACE WITH CHANGING TECHNOLOGIES AND REMAIN COMPETITIVE.
- IN ORDER TO IDENTIFY TRENDS FOR THIS YEAR'S REPORT ON EMERGING SKILLS, DATA IS COLLECTED FROM VARIOUS SOURCES:
  - JOB POSTINGS
  - TRAINING PORTALS
  - SURVEYS
- WHAT IS THE EMERGING TREND AND FUTURE SKILL REQUIREMENTS?
  - WHAT ARE THE TOP PROGRAMMING LANGUAGES IN DEMAND?
  - WHAT ARE THE TOP DATABASE SKILLS IN DEMAND?
  - WHAT ARE THE TOP IDES IN DEMAND?

METHODOLOGY

- DATA SOURCE: STACK OVERFLOW. TWO SETS OF DATA USED: SURVEY OF DEMOGRAPHICS AND SURVEY OF TECHNOLOGIES.
- THE SURVEY DATA OF TECHNOLOGIES WAS USED TO ANALYZE:
  - THE PROGRAMMING LANGUAGES, DATABASES, PLATFORMS AND WEB FRAMES BEING USED BY RESPONDENTS THIS YEAR.
  - THE PROGRAMMING LANGUAGES, DATABASES, PLATFORMS AND WEB FRAMES RESPONDENTS DESIRE TO LEARN NEXT YEAR.
- THE SURVEY DATA OF DEMOGRAPHICS WAS USED TO ANALYZE RESPONDENTS ON THE BASIS OF:
  - AGE
  - GENDER
  - FORMAL EDUCATION LEVEL
- FILTERS USED:
  - GENDER: MAN AND WOMAN ONLY

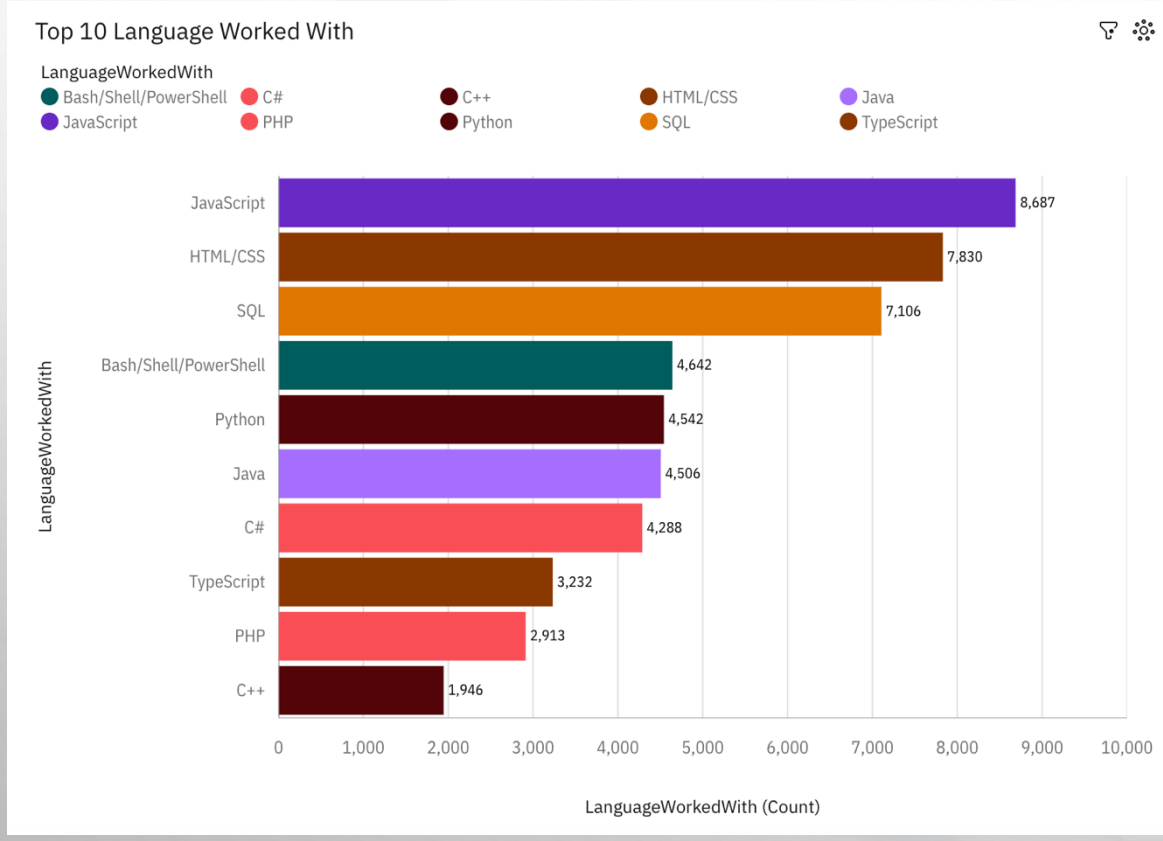
RESULTS

THE DATA IS COLLECTED, CLEANED AND ANALYSED TO FORM EASY-TO-UNDERSTAND VISUALIZATIONS TO UNCOVER TRENDS AND KEY BUSINESS INSIGHTS. THE VISUALIZATIONS ARE THEN COMBINED INTO AN INTERACTIVE AND CAPTIVATING DASHBOARD.

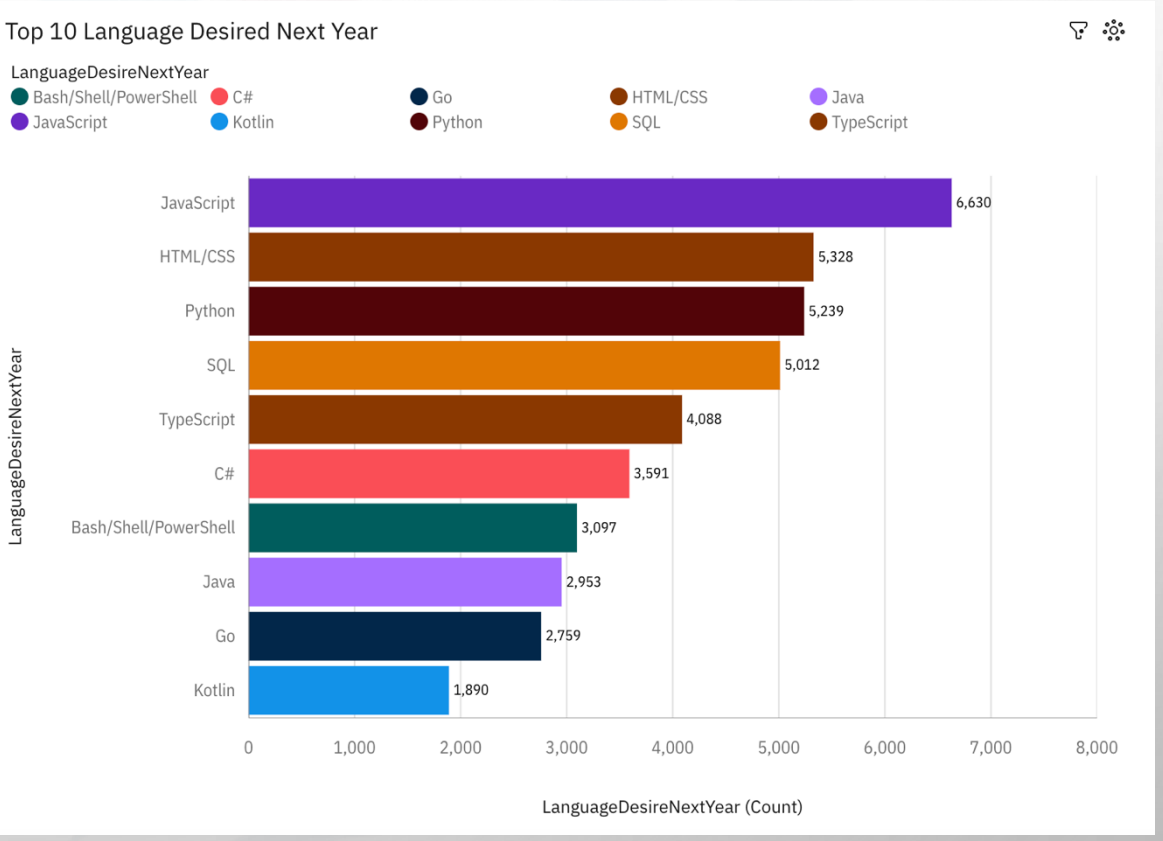
- THE ENTIRE PROCESS CAN BE REVIEWED HERE: HTTPS://GITHUB.COM/HRIDITABASU/IBM-CAPSTONE/TREE/MAIN
- THE DASHBOARD CAN BE ACCESSED HERE: HTTPS://GITHUB.COM/HRIDITABASU/IBM-CAPSTONE/BLOB/MAIN/CAPSTONE-PROJECT-DASHBOARD.PDF

PROGRAMMING LANGUAGE TRENDS

CURRENT YEAR



NEXT YEAR



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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

FINDINGS

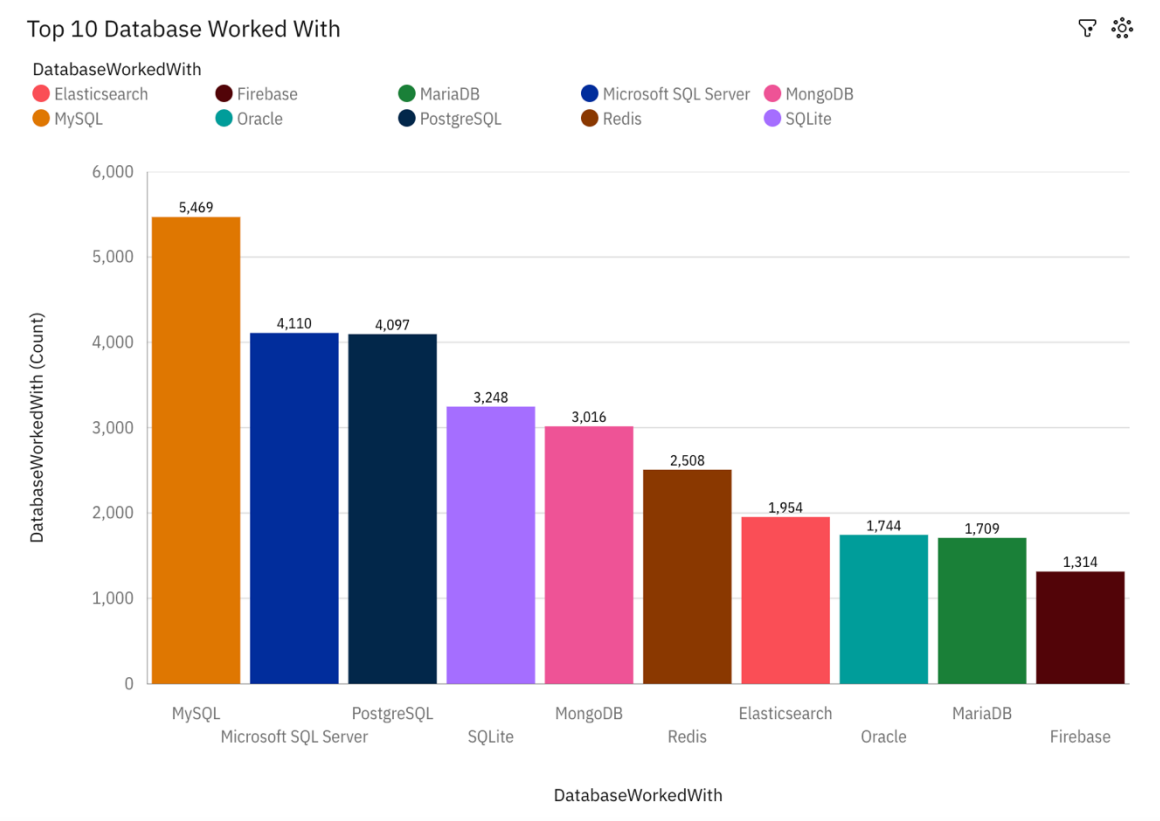
- JAVASCRIPT, FOLLOWED BY HTML/CSS CONTINUE TO BE THE TOP 2 PROGRAMMING LANGUAGES.
- PYTHON HAS JUMPED UP TO REPLACE SQL IN THE 3RD POSITION.
- LANGUAGES LIKE TYPESCRIPT ARE GAINING POPULARITY WHILE BASH/SHELL/POWERSHELL ARE LOSING POPULARITY.

IMPLICATIONS

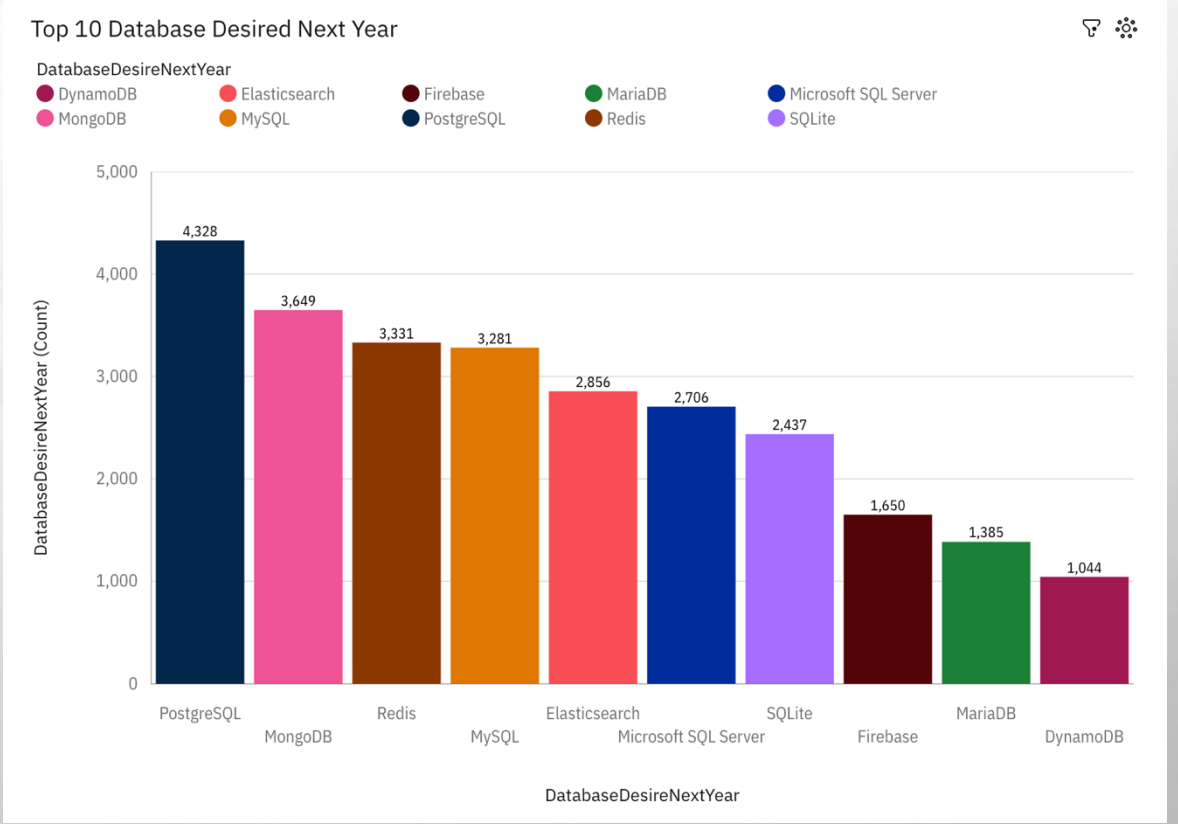
- THEY WILL CONTINUE TO BE POPULAR.
- ALTHOUGH SQL IS STILL POPULAR, PEOPLE ARE GETTING MORE INTERESTED IN PYTHON.
- THE CHANGING PREFERENCES ARE AN INDICATION OF THE EVER-CHANGING NATURE OF THE IT INDUSTRY.

DATABASE TRENDS

CURRENT YEAR



NEXT YEAR



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DATABASE TRENDS - FINDINGS & IMPLICATIONS

FINDINGS

- IN THE NEXT YEAR, POSTGRESQL COMES OUT TO BE AT THE 1ST POSITION.
- MONGODB COMES OUT AT THE 2ND POSITION FROM THE 5TH.
- MICROSOFT SQL SERVER AND SQLITE WILL BE REPLACED BY REDIS AND ELASTICSEARCH.

IMPLICATIONS

- MYSQL WILL MOST PROBABLY BE A MANDATORY SKILL TO HAVE.
- MONGODB IS GAINING POPULARITY.
- MICROSOFT SQL SERVER AND SQLITE ARE VERY POPULAR AND SINCE MOST PEOPLE ARE ALREADY AWARE OF IT, THEY WANT TO LEARN NEW DATABASE SKILLS.

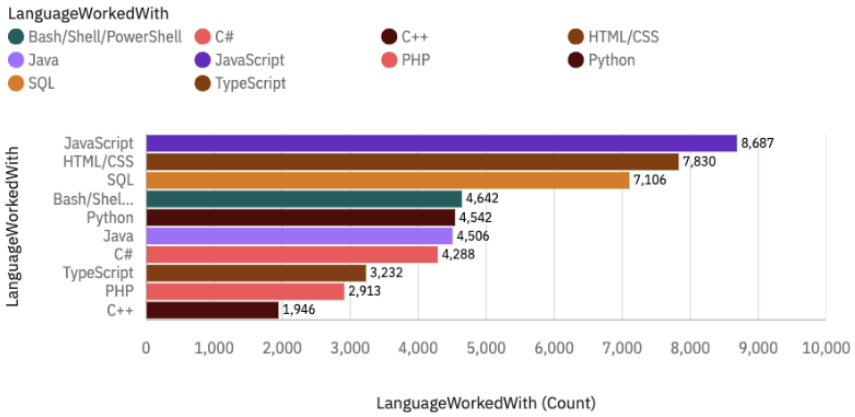
DASHBOARD

HTTPS://GITHUB.COM/HRIDITABASU/IBM-CAPSTONE/BLOB/MAIN/CAPSTONE-PROJECT-DASHBOARD.PDF

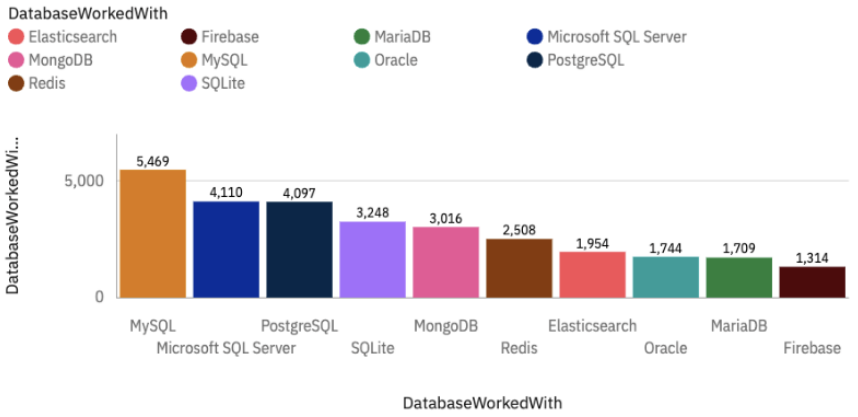
DASHBOARD TAB 1

Current Technology Usage

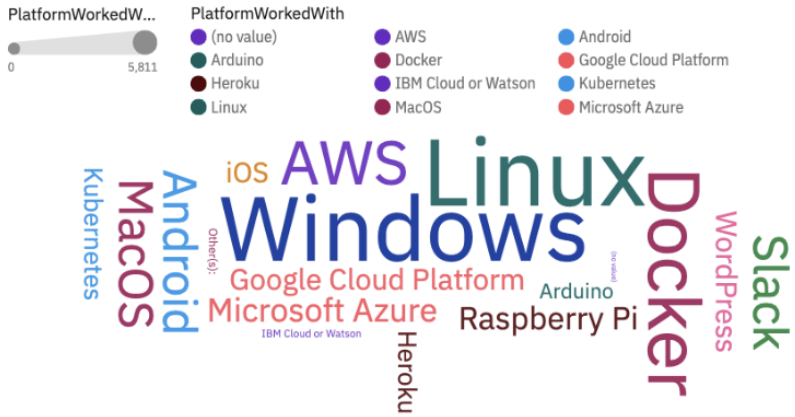
Top 10 Language Worked With



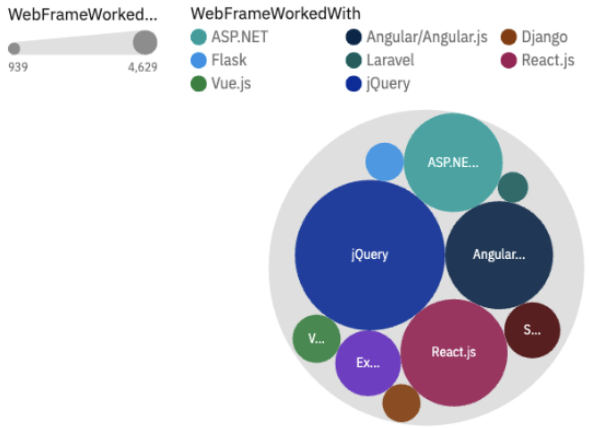
Top 10 Database Worked With



Platform Worked With



Top 10 Web Frame Worked



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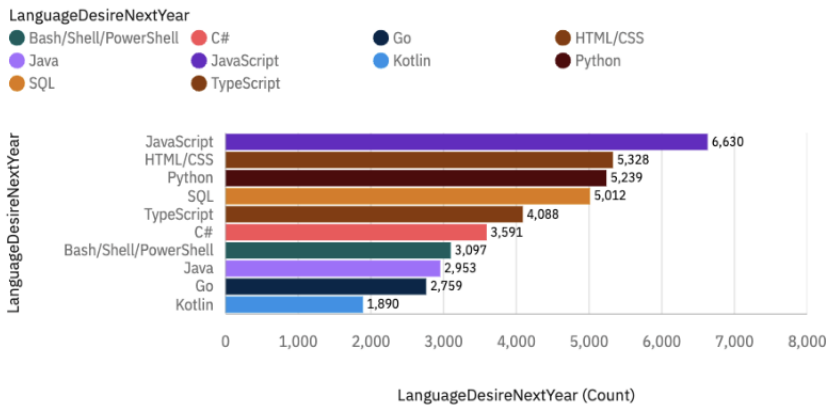
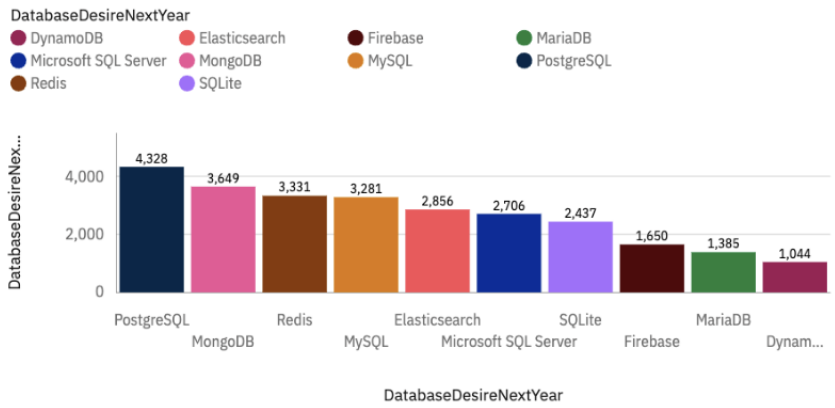
DASHBOARD TAB 2

Future Technology Trend

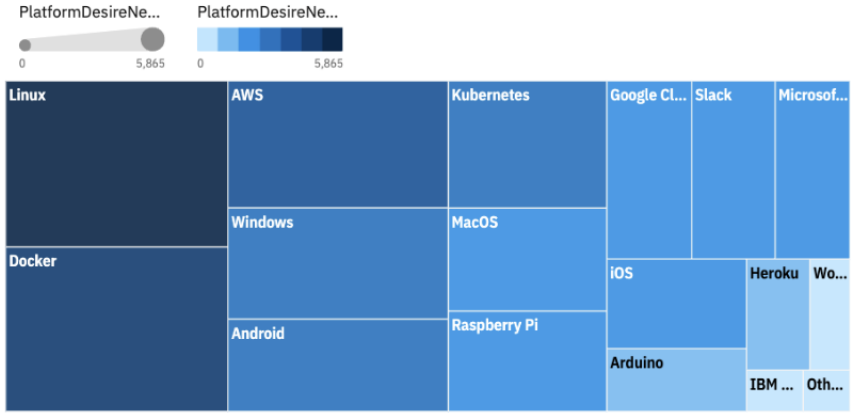
Top 10 Language Desired Next Year



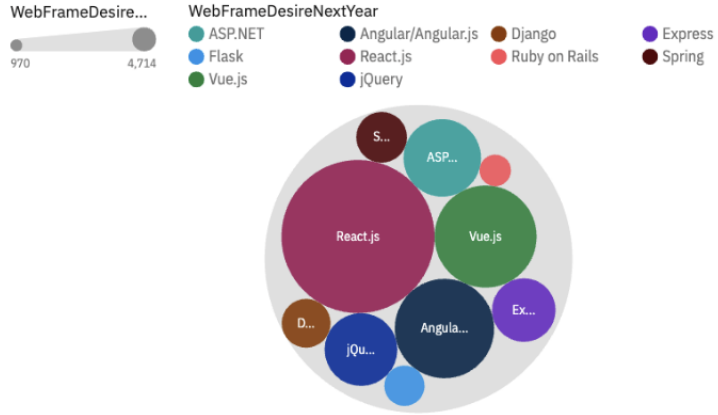
Top 10 Database Desired Next Year



Platform Desired Next Year



Top 10 WebFrame Desired Next Year



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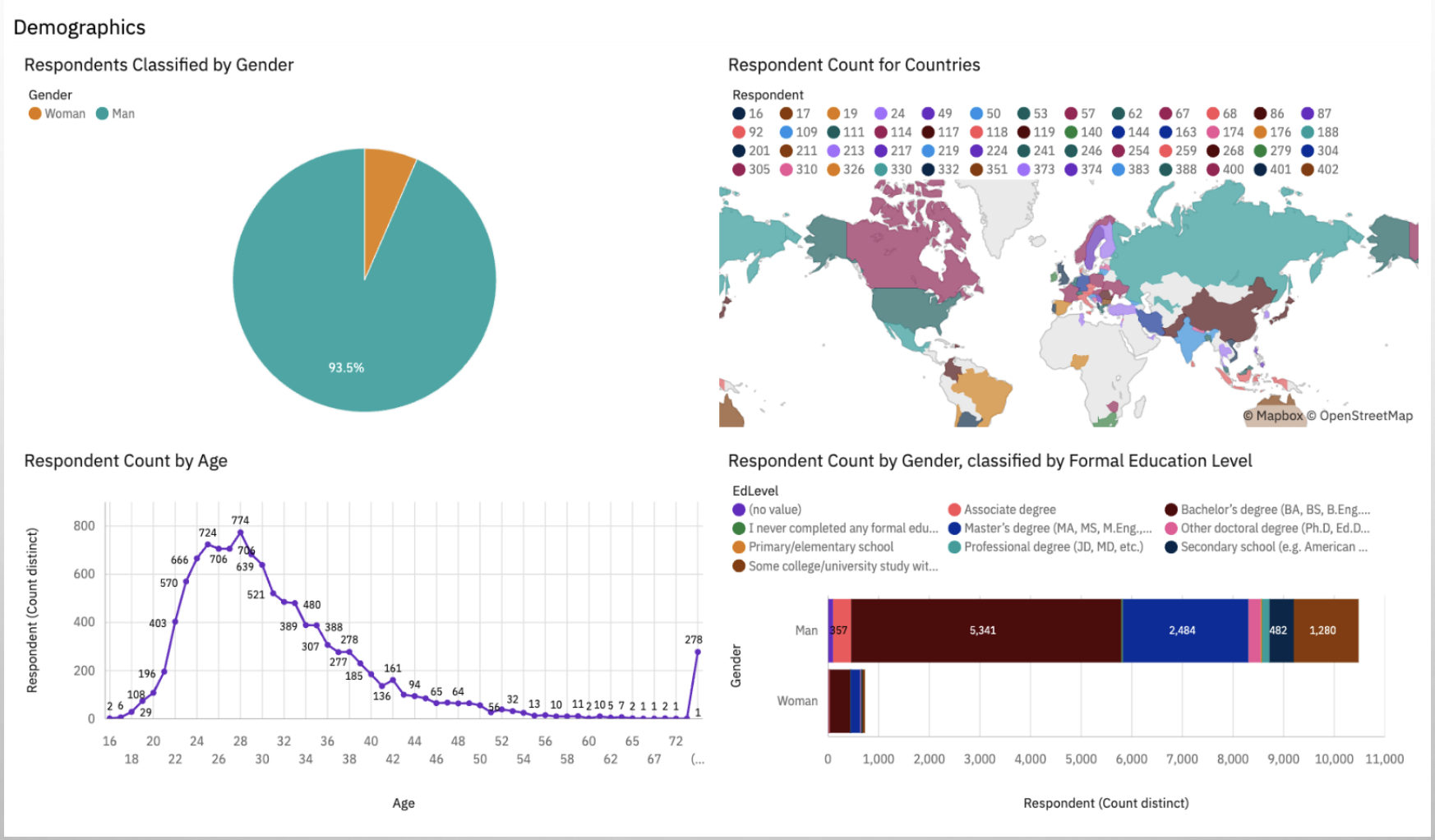
DASHBOARD TAB 3



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DISCUSSION

- WHY DO JAVASCRIPT AND HTML/CSS CONTINUE TO BE THE MOST POPULAR LANGUAGES?
- WHY IS PYTHON BECOMING SUCH A DESIRED LANGUAGE TO LEARN?
- WHY ARE POSTGRESQL, MONGODB, REDIS AND ELASTICSEARCH REPLACING THE POPULAR OPTIONS LIKE MYSQL AND MICROSOFT SQL SERVER?
- WHY ARE THERE SIGNIFICANTLY MORE MALE THAN FEMALE RESPONDENTS?

OVERALL FINDINGS & IMPLICATIONS

FINDINGS

- JAVASCRIPT, HTML/CSS, PYTHON, SQL AND TYPESCRIPT ARE THE MOST DESIRED LANGUAGES TO LEARN.
- POSTGRESQL, MONGODB, REDIS, MYSQL AND ELASTICSEARCH ARE THE MOST DESIRED DATABASE SKILLS TO LEARN.
- REACT.JS, ANGULAR/ANGULAR.JS, VUE.JS, JQUERY AND ASP.NET ARE THE MOST DESIRED IDES TO LEARN.
- THERE ARE WAY MORE MALE RESPONDENTS THAN FEMALE.
- MOST RESPONDENTS HAVE AN UNDERGRADUATE DEGREE FOLLOWED BY A MASTER'S DEGREE.

IMPLICATIONS

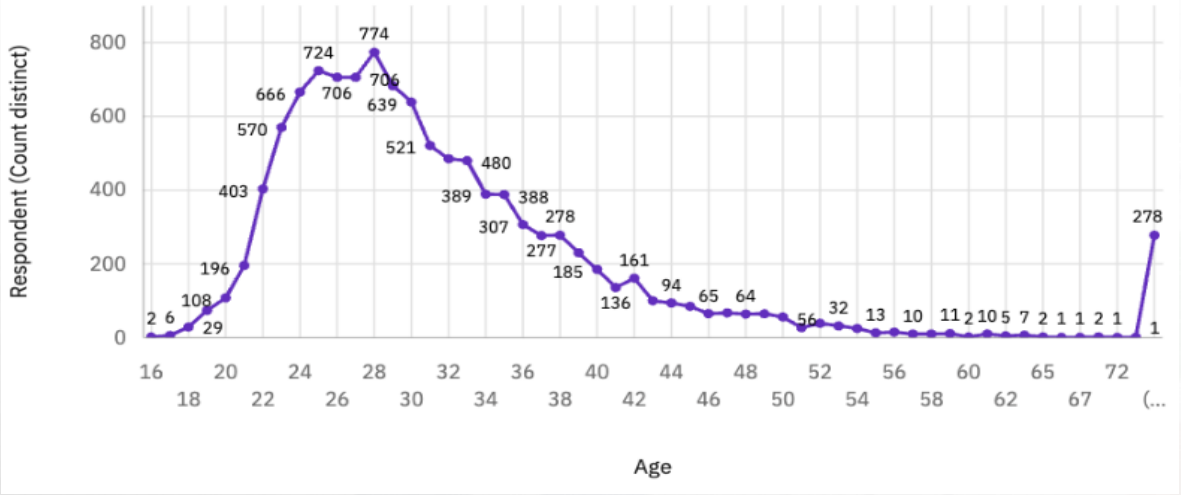
1. THE FUTURE SKILLS REQUIREMENTS WOULD BE:
   - PROGRAMMING: JAVASCRIPT, HTML/CSS, PYTHON, SQL AND TYPESCRIPT.
   - DATABASE: POSTGRESQL, MONGODB, REDIS, MYSQL AND ELASTICSEARCH.
   - IDE: REACT.JS, ANGULAR/ANGULAR.JS, VUE.JS, JQUERY AND ASP.NET.
2. THERE ARE WAY MORE MEN THAN WOMEN WORKING IN THE IT INDUSTRY.
3. HAVING AN UNDERGRADUATE DEGREE IS AN IMPORTANT PREREQUISITE FOR MOST JOBS IN THE INDUSTRY.

CONCLUSION

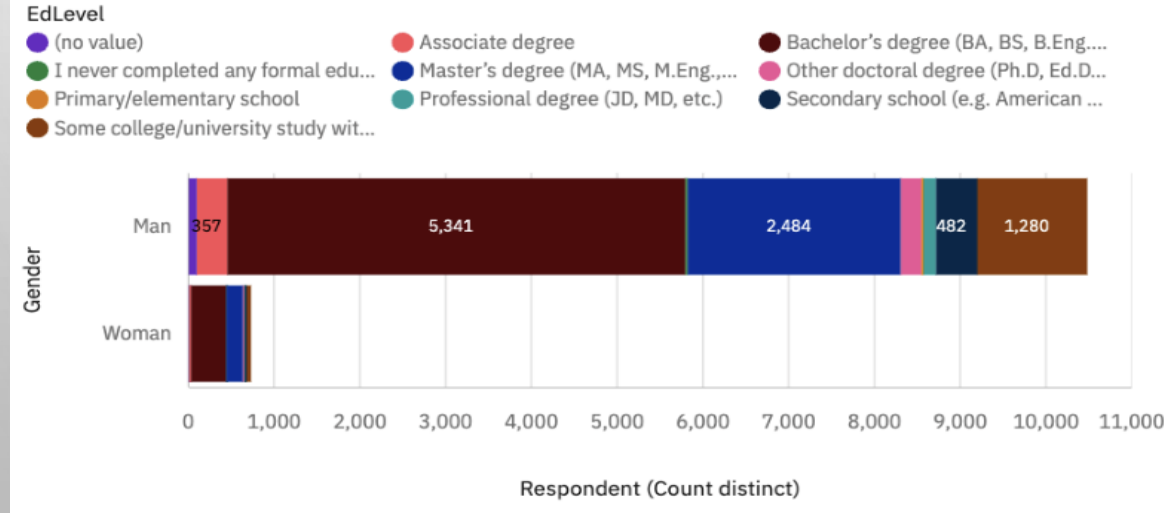
- JAVASCRIPT AND HTML/CSS REMAIN THE MOST POPULAR, WITH AN INCREASED DESIRE TO LEARN PYTHON.
- POSTGRESQL AND MONGODB WILL EMERGE AS THE MOST DESIRED DATABASE SKILLS TO LEARN.
- LINUX, DOCKER, WINDOWS AND AWS REMAIN THE MOST POPULAR PLATFORMS.
- REACT.JS IS THE MOST DESIRED WEBFRAME TO LEARN WITH JQUERY LOSING POPULARITY.
- THERE ARE WAY MORE MEN WORKING IN THE INDUSTRY THAN WOMEN.
- AN UNDERGRADUATE DEGREE IS THE MINIMUM REQUIREMENTS FOR MOST IT ROLES.
- MOST RESPONDENTS ARE 22-30 YEARS OLD.

APPENDIX

Respondent Count by Age

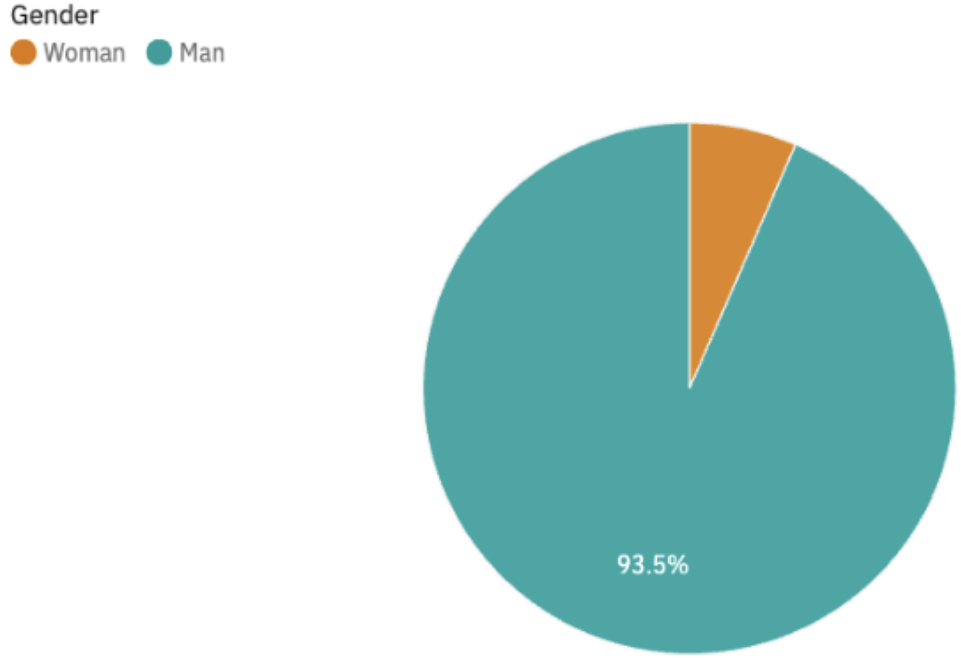


Respondent Count by Gender, classified by Formal Education Level



Demographics

Respondents Classified by Gender



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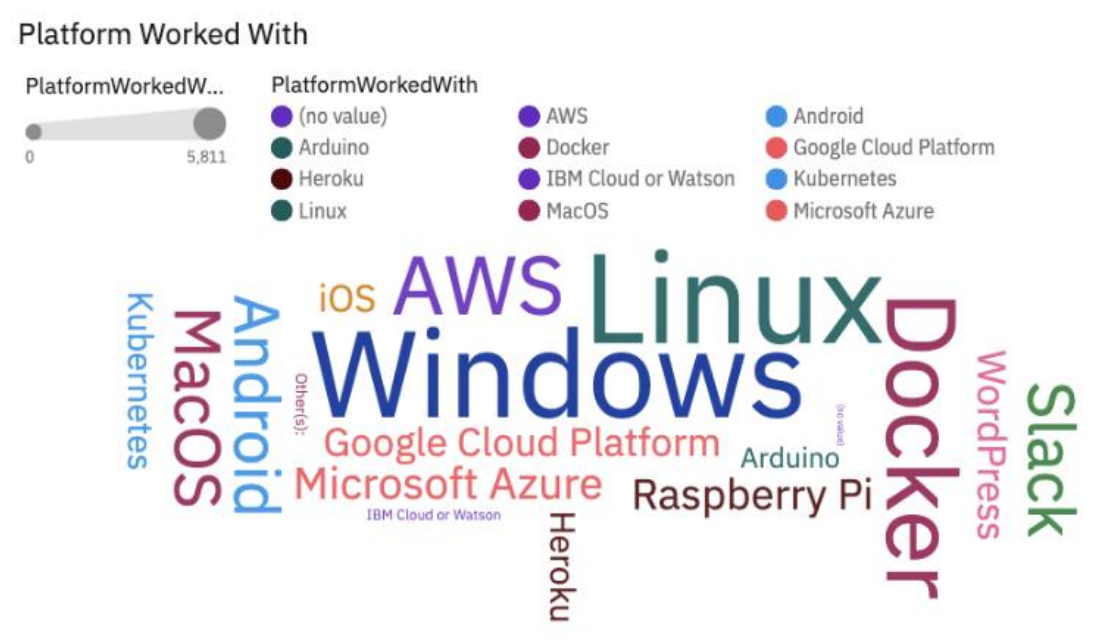

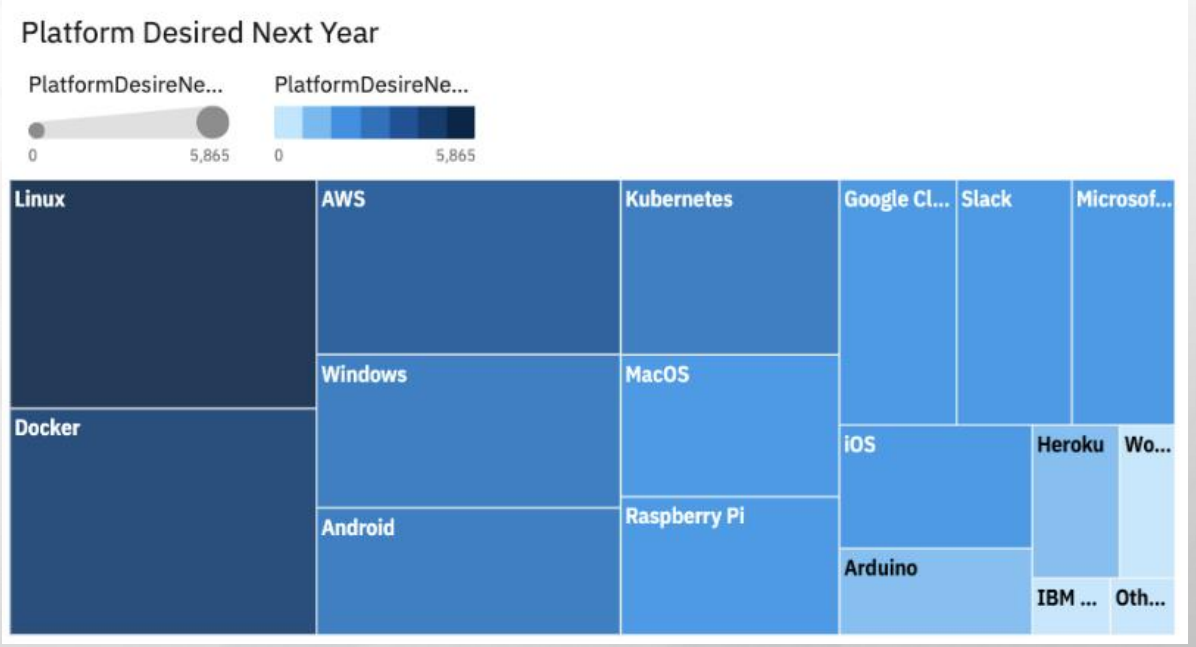

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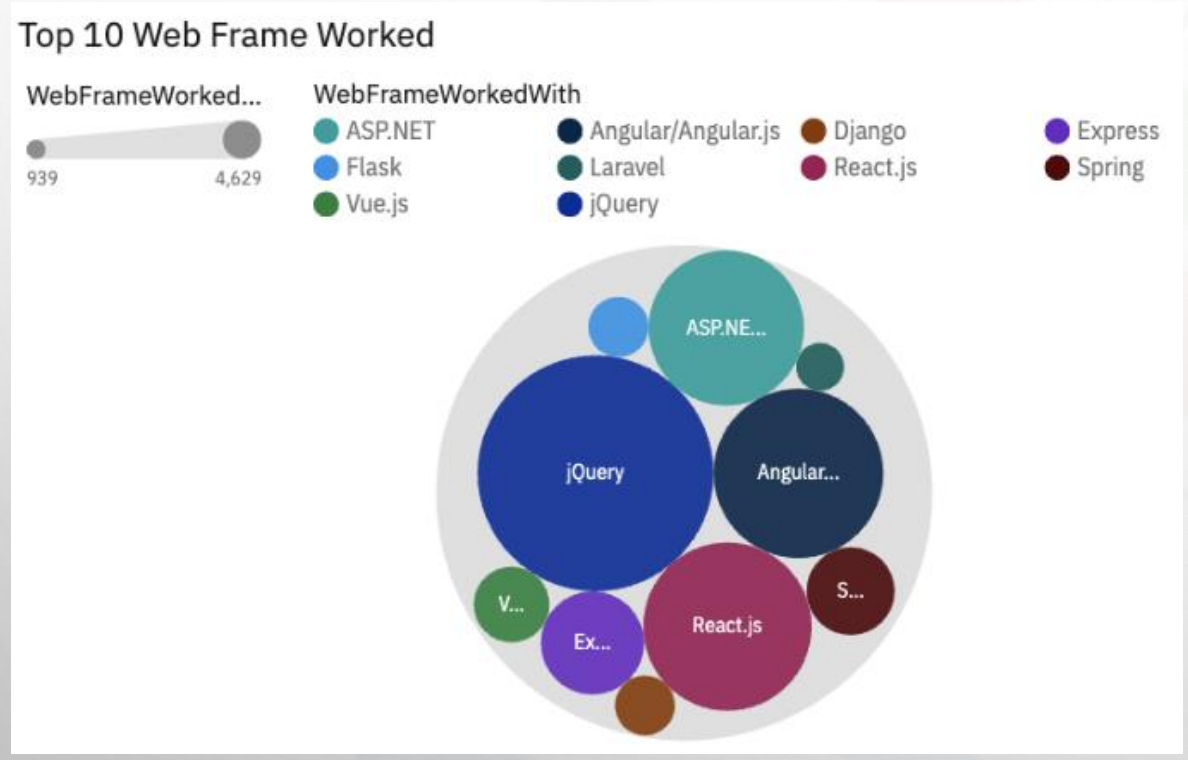
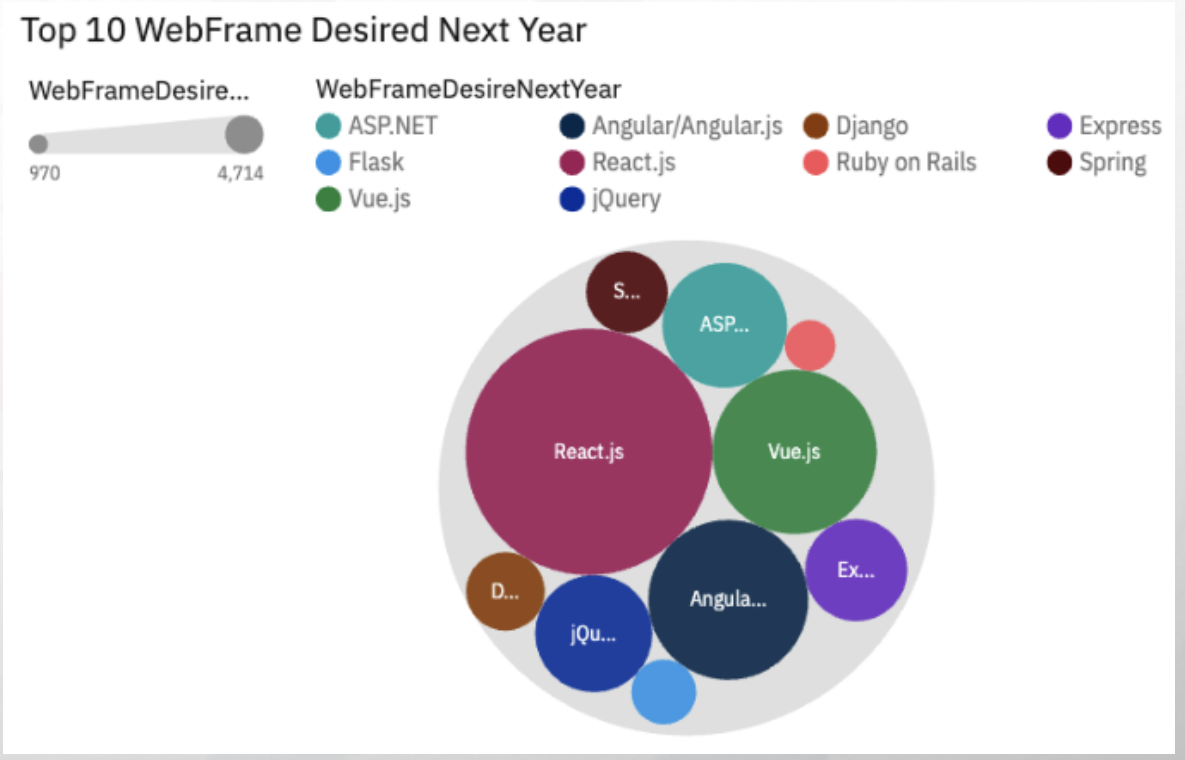
APPENDIX





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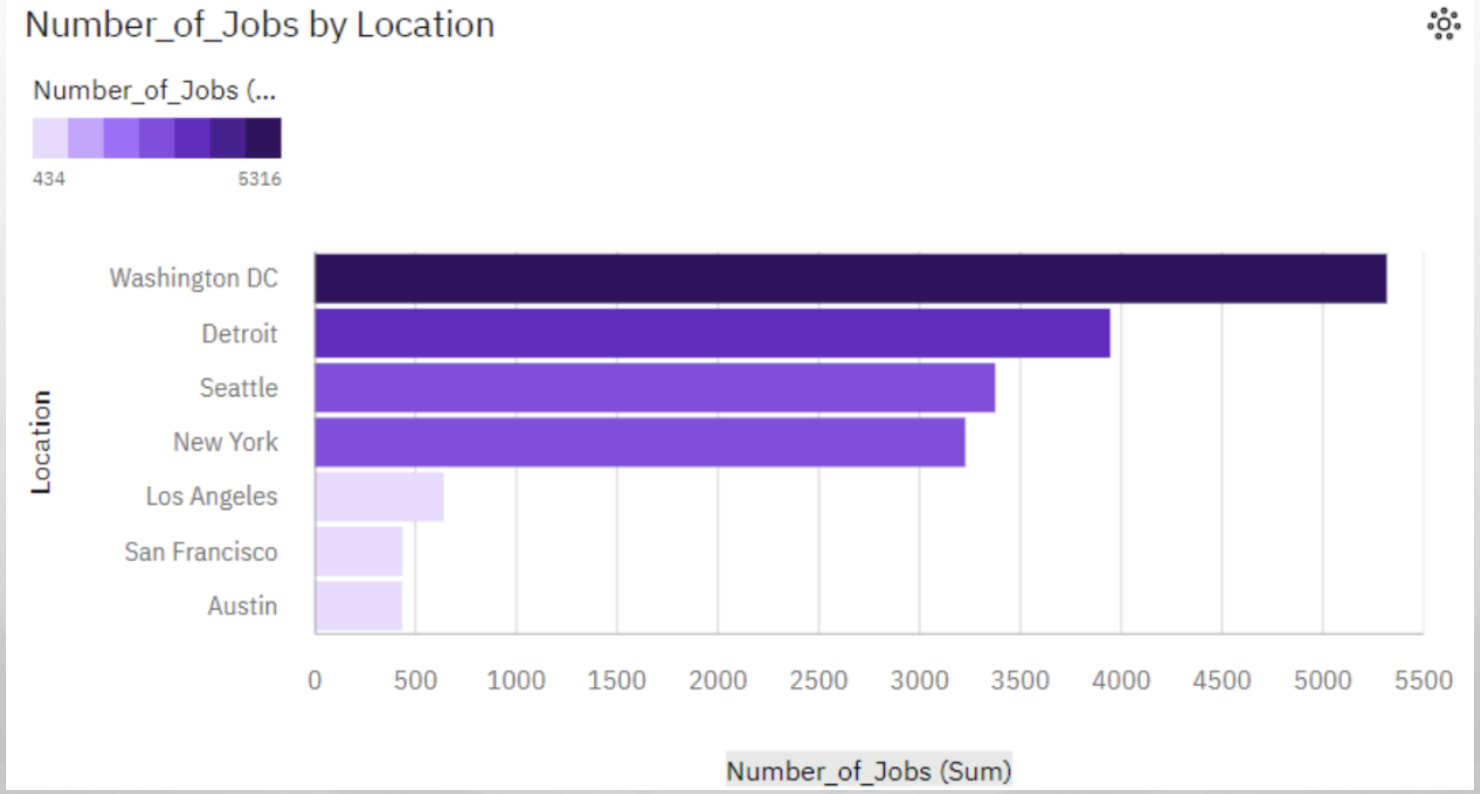
JOB POSTINGS

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. ORDER THE BAR CHART IN THE DESCENDING ORDER OF THE NUMBER OF JOB POSTINGS.



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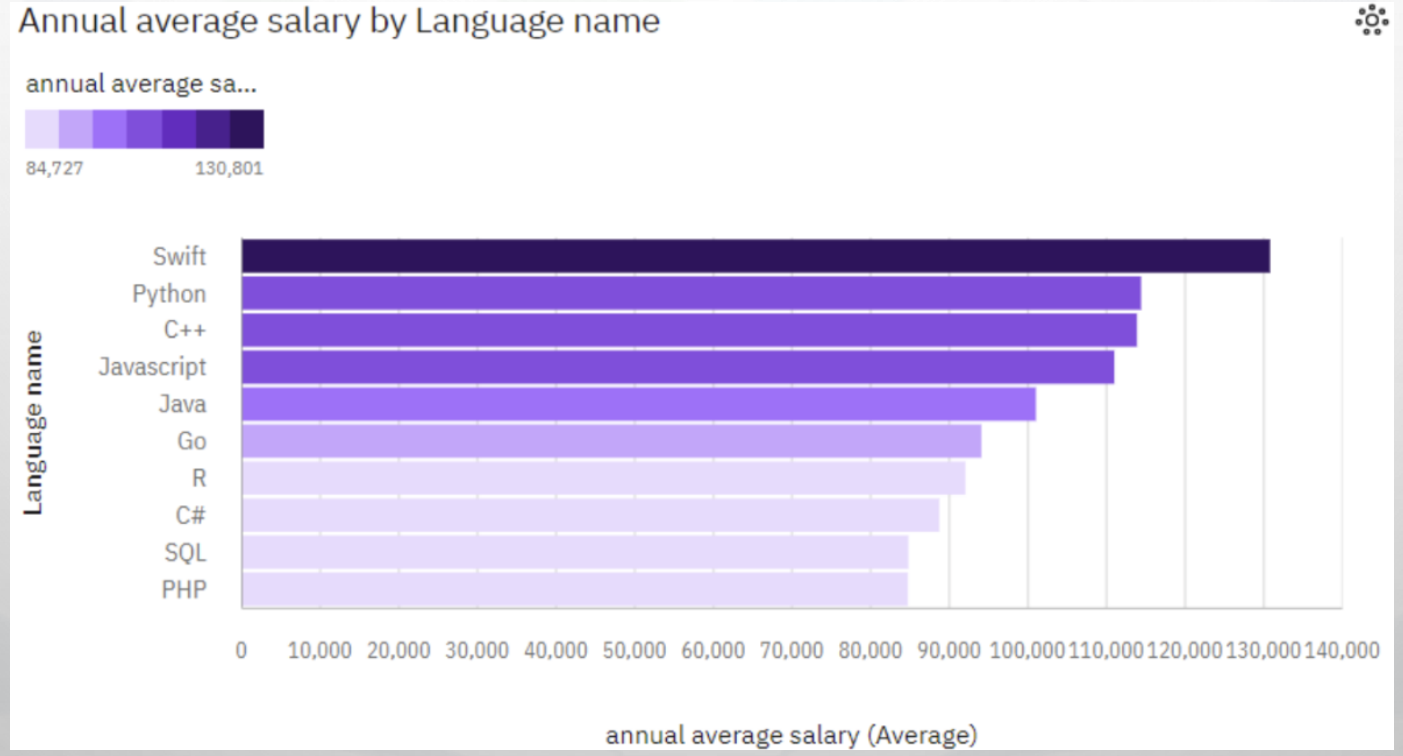
POPULAR LANGUAGES

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.



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