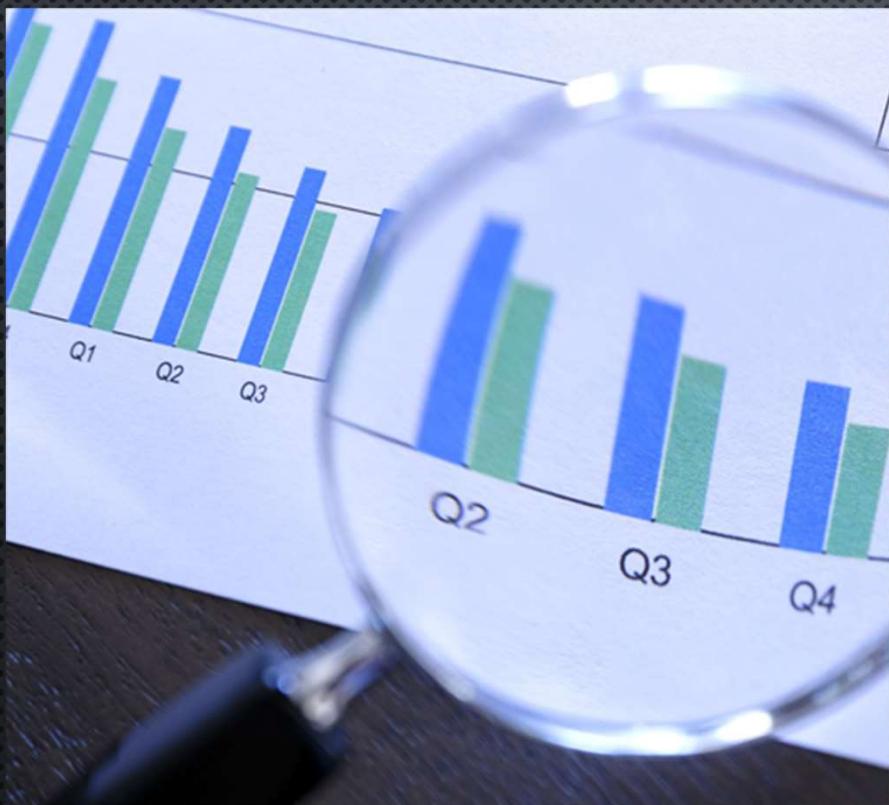


# EXPLORING SALARY TRENDS IN THE TECH INDUSTRY: AN ANALYSIS OF AGE, GENDER, AND COMPENSATION



# OUTLINE



- EXECUTIVE SUMMARY
- INTRODUCTION
- METHODOLOGY
- RESULTS
  - VISUALIZATION – CHARTS
  - DASHBOARD
- DISCUSSION
  - FINDINGS & IMPLICATIONS
- CONCLUSION
- APPENDIX

# EXECUTIVE SUMMARY



## ❖ Data Collection:

- The dataset had an initial 11,552 entries with details like respondents' employment, compensation, coding experience, etc. After cleaning, 1,008 rows remained.

## ❖ Key Insights:

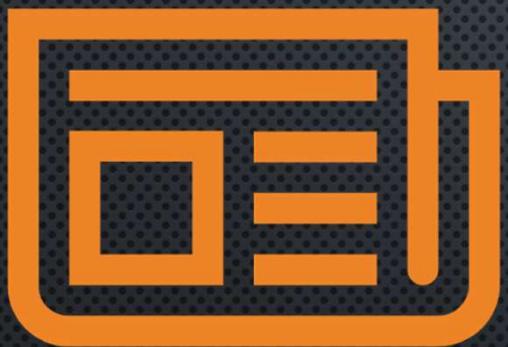
- The median annual salary is **\$52,704**, with an average of **\$59,883**.
- Outliers were detected, but only salaries between **\$24,060** and **\$85,574** were analyzed further.
- A weak positive correlation between **age** and **salary (0.40 correlation)**.
- The median age of respondents is **29 years**.

# INTRODUCTION



- 1. Objective of the Analysis**
- 2. Dataset Overview**
- 3. Key Features of the Data**
- 4. Importance of the Analysis**
  - Scope of the Analysis
  - Limitations

# METHODOLOGY



## Data Collection

- retrieve dataset
- Preprocess data

## Data Cleaning

- Duplicate removal
- Handling missing values
- Normalization of compensation data

## Data Transformation

- Creation of normalized annual compensation column
- Identification and exclusion of outliers

## Data Wrangling and Exploratory Analysis

- Descriptive statistics (median and mean values)
- Correlation analysis between factors

## Data Visualization

- Generation of charts and graphs
- Visualization of salary distributions and outliers

## Dashboard Visualization

- Interactive dashboards created using Looker Studio
- Key insights on compensation trends, job satisfaction, and coding experience

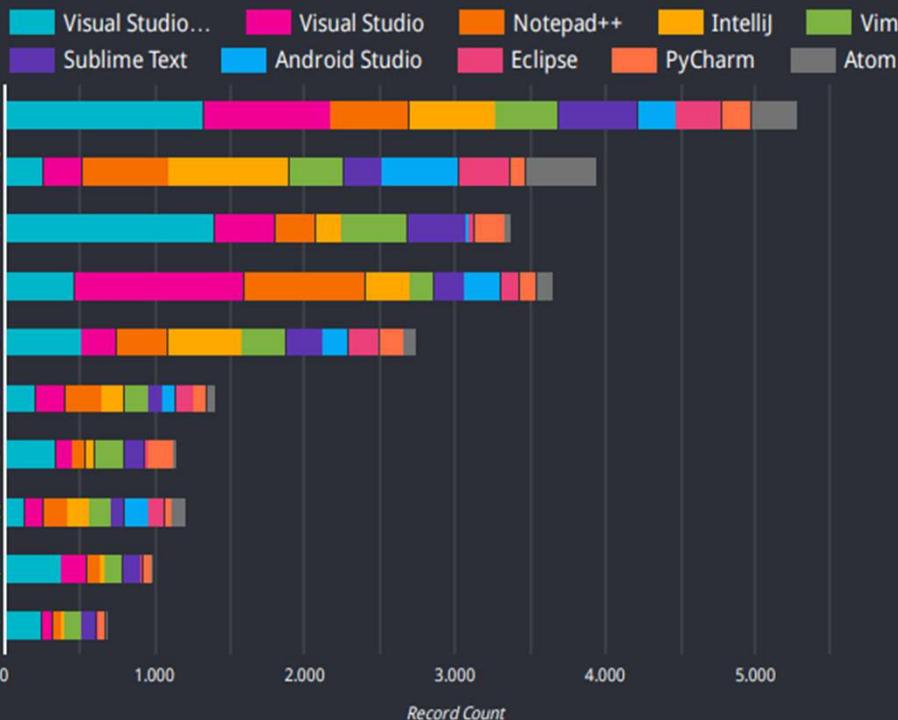
# RESULTS

General Data Overview:	Demographics:	Compensation Insights:	Gender-Specific Insights:	Age and Salary Correlation:	Key Salary Statistics:
<ul style="list-style-type: none"><li>-Initial dataset contained <b>11,552 respondents</b>.</li><li>-After data cleaning (removal of duplicates and rows with missing values), <b>1,008 respondents</b> remained for final analysis.</li></ul>	<p>Median age of respondents is <b>29 years</b>, with an age range between <b>16 and 99 years</b>.</p> <p>Gender distribution skewed heavily towards men (10,480 men).</p>	<ul style="list-style-type: none"><li>Median annual salary across all respondents is <b>\$52,704</b>.</li><li>Average salary: <b>\$59,883</b>.</li><li>50% of respondents earn between <b>\$24,060</b> and <b>\$85,574</b></li><li>Outliers: <b>\$209,698</b> and above were removed for clearer analysis.</li></ul>	<ul style="list-style-type: none"><li>The median salary for <b>female respondents</b> is <b>\$57,708</b>, closely matching the overall dataset's median.</li><li>No significant salary gap was observed between male and female respondents.</li></ul>	<ul style="list-style-type: none"><li>A <b>positive correlation</b> between <b>age</b> and <b>salary</b> was identified (<b>0.40 correlation</b>).</li><li>Younger respondents (ages <b>25–35</b>) see steady salary growth, peaking in the 30s.</li><li>After age 50, salary growth appears to plateau.</li></ul>	<ul style="list-style-type: none"><li>Salary Distribution:<ul style="list-style-type: none"><li><b>25th percentile</b>: \$24,060.</li><li><b>50th percentile (Median)</b>: \$52,704.</li><li><b>75th percentile</b>: \$85,574.</li></ul></li><li>Most salaries cluster around the median with <b>large variance</b>, reflected in a <b>standard deviation</b> of <b>\$43,394</b>.</li></ul>

# PROGRAMMING LANGUAGE TRENDS

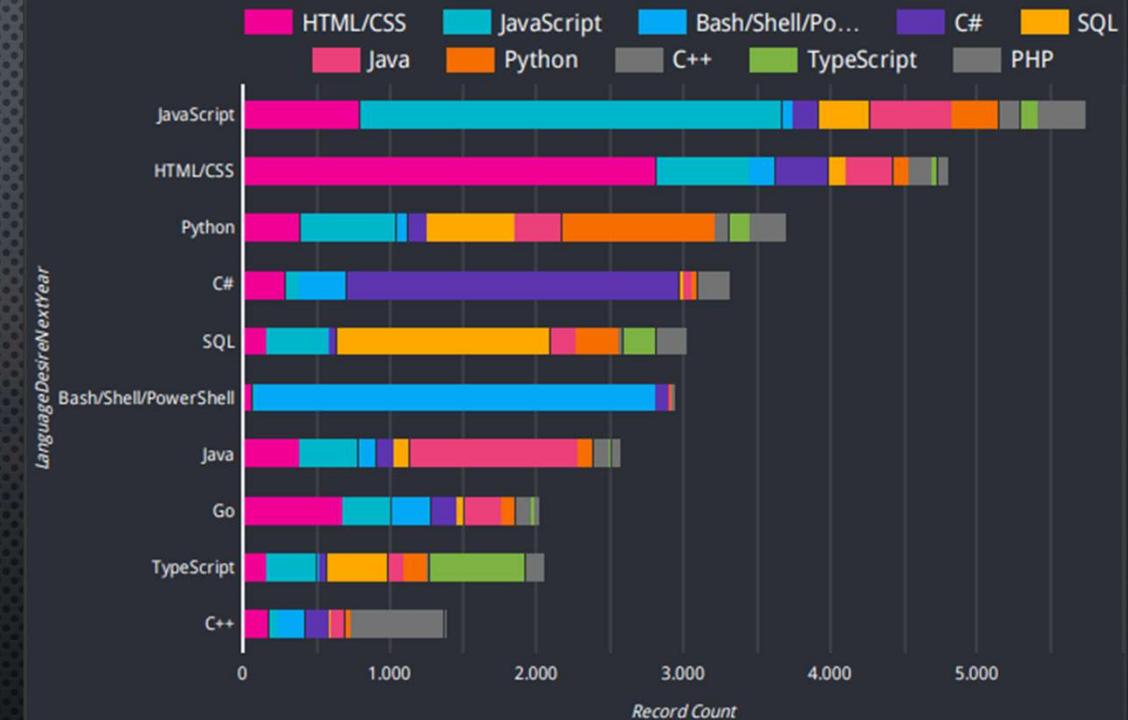
CURRENT YEAR

***Top 10 Languages and code editors worked with***



NEXT YEAR

***Most Desired Languages grouped by current language***



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

## Findings on Technology Usage

### TOP LANGUAGES:

- ❖ HTML/CSS, BASH/SHELL/POWERSHELL, JAVASCRIPT AND PYTHON
- ❖ VISUAL STUDIO CODE IS THE MOST POPULAR CODE EDITOR ACROSS ALL LANGUAGES

### FUTURE TRENDS:

- ❖ DESIRED LANGUAGES FOR NEXT YEAR: JAVASCRIPT, PYTHON, TYPESCRIPT
- ❖ JAVASCRIPT REMAINS CRUCIAL
- ❖ GROWING DEMAND FOR PYTHON AND TYPESCRIPT
- ❖ GO IS EMERGING AS A KEY LANGUAGE

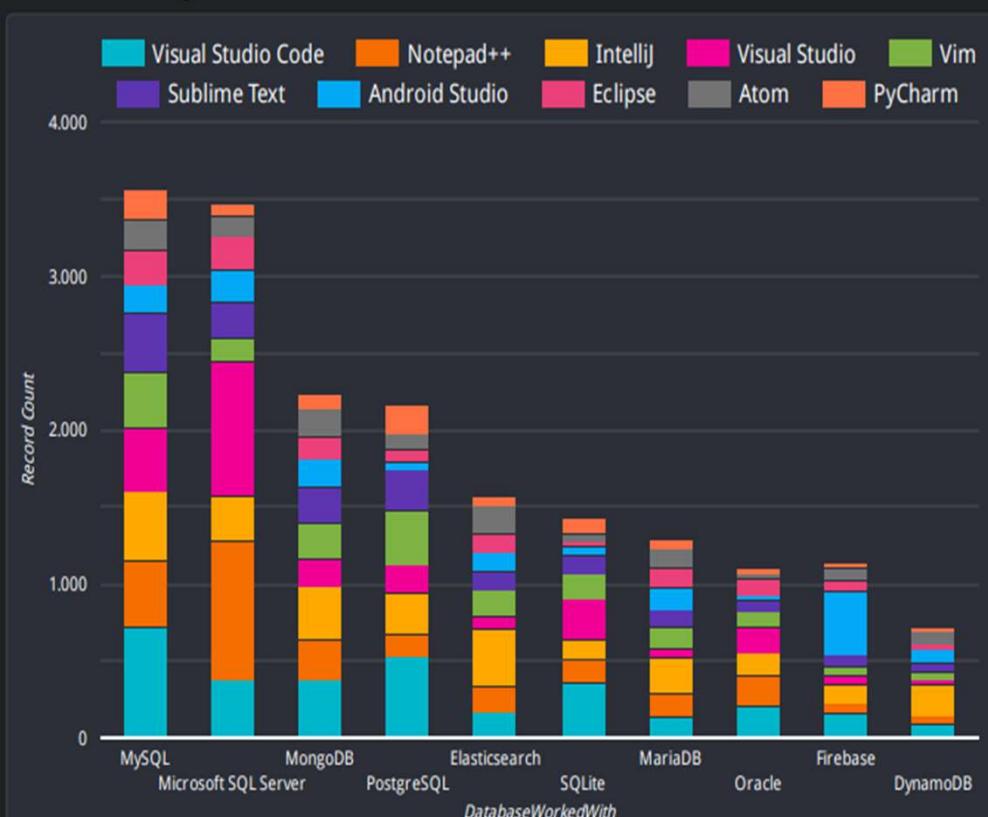
## Implications

- ❖ **JAVASCRIPT:** KEY FOR WEB DEVELOPMENT AND FULL-STACK ROLES; MASTERING IT ENSURES HIGH EMPLOYABILITY.
- ❖ **TYPESCRIPT & Go:** GROWING DEMAND FOR PERFORMANCE AND STRONGLY TYPED LANGUAGES; UPSKILLING IN THESE IMPROVES BACKEND OPPORTUNITIES.
- ❖ **PYTHON:** VERSATILITY ACROSS WEB, DATA SCIENCE, AND AUTOMATION KEEPS IT IN DEMAND ACROSS MULTIPLE SECTORS

# DATABASE TRENDS

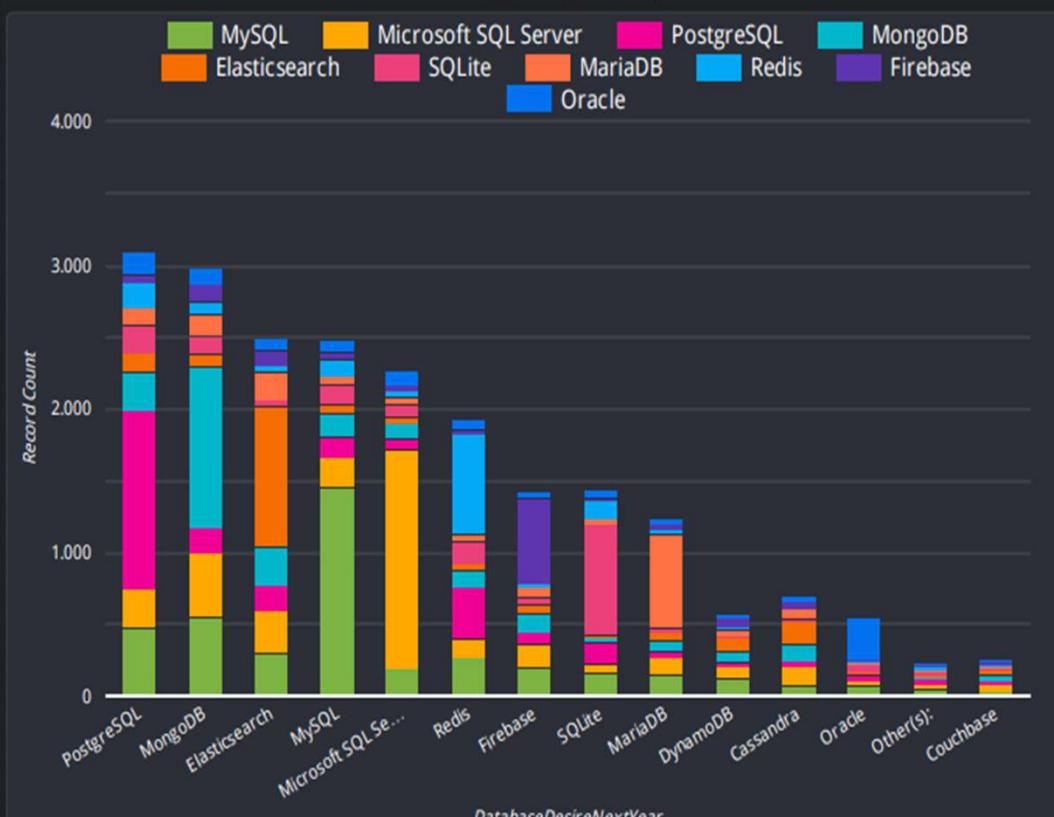
## CURRENT YEAR

*Top 10 Databases and code editors worked with*



## NEXT YEAR

*Most Desired Databases grouped by current databases*



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

## Current Database Usage:

- ❖ Top 3 databases currently worked with: MySQL, Microsoft SQL Server, MongoDB.
- ❖ PostgreSQL and Elasticsearch also widely used but slightly lower in popularity.
- ❖ Code editors like Visual Studio Code, Notepad++, and IntelliJ are used across the board for most databases.

## Most Desired Databases (Next Year):

- ❖ PostgreSQL and MongoDB are the most desired databases for future work, with a significant lead over others.
- ❖ Elasticsearch, MySQL, and Redis show strong demand in the future.
- ❖ Cassandra and Couchbase are less desired compared to others, indicating niche use.

## •Database Skills Demand:

- ❖ PostgreSQL and MongoDB will remain highly valuable, indicating the need for developers to enhance their proficiency with these databases.
- ❖ Elasticsearch and Redis are gaining traction, suggesting increased demand for developers skilled in search and caching technologies.
- ❖ Familiarity with MySQL and Microsoft SQL Server remains important but may plateau as newer technologies like PostgreSQL gain ground.

## Specialization in Niche Databases:

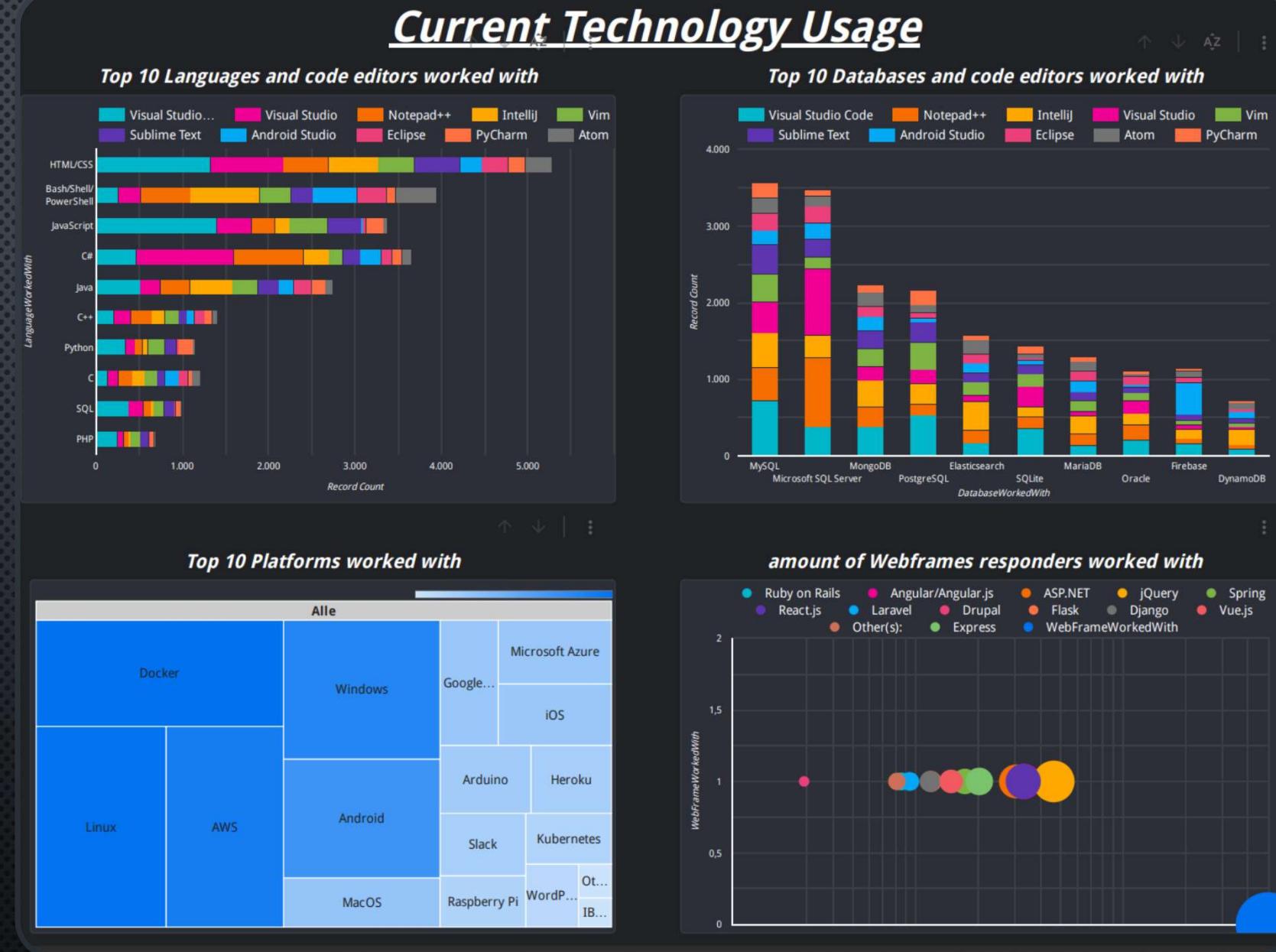
- ❖ Lesser-used databases like Cassandra and Couchbase might still provide opportunities in specialized sectors, but broader demand is limited compared to mainstream databases.

# DASHBOARD

- [HTTPS://LOOKERSTUDIO.GOOGLE.COM/S/uuW9w-kMkRk](https://lookerstudio.google.com/s/uuW9w-kMkRk)



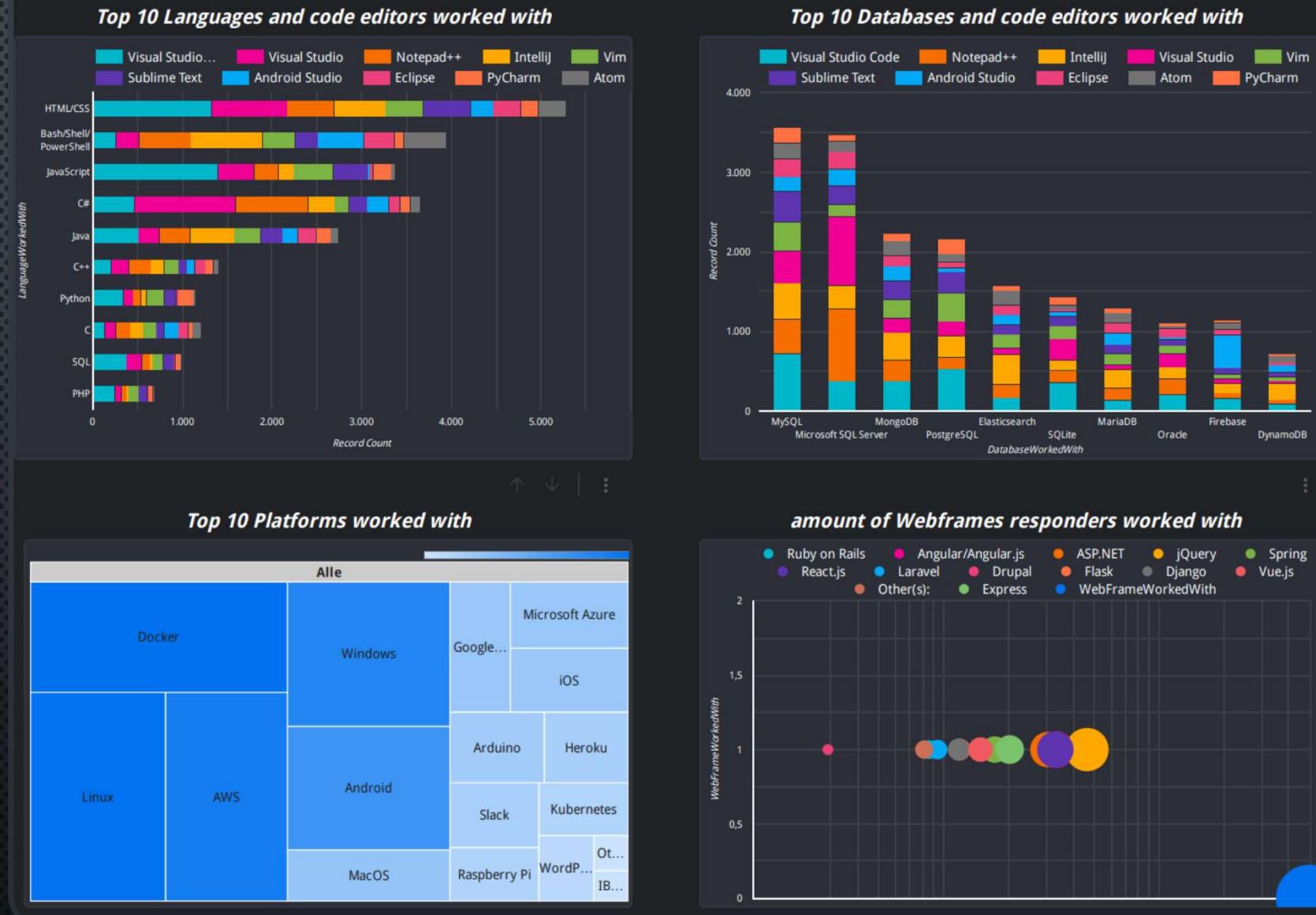
# CURRENT TECHNOLOGY USAGE



# FUTURE TECHNOLOGY USAGE

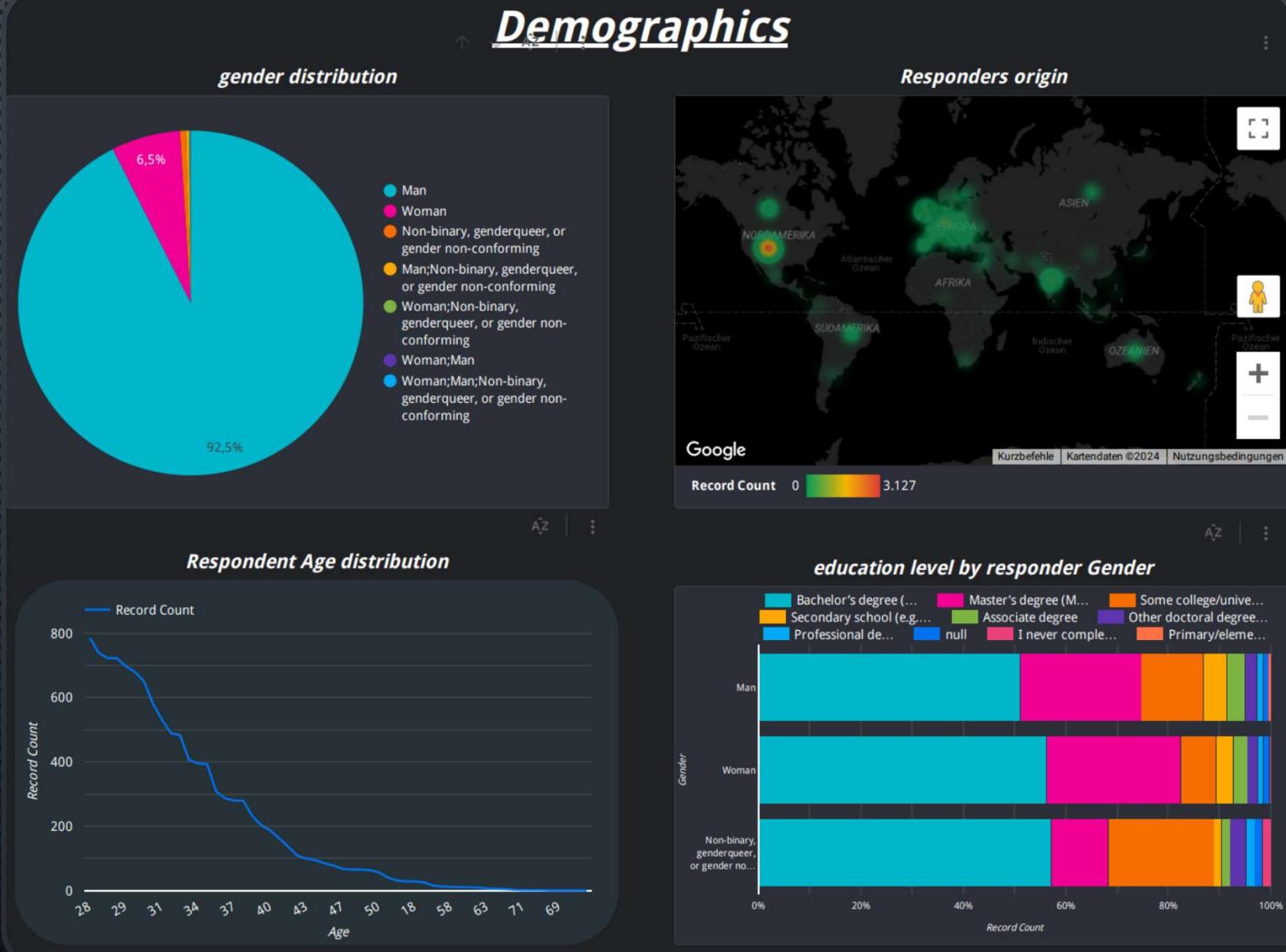
IBM Developer

## Current Technology Usage



# RESPONDERS DEMOGRAPHIC

IBM Developer



# DISCUSSION



## **Shift in Database Preferences:**

- ❖ **PostgreSQL** and **MongoDB** are seeing significant growth in popularity. This shift might be driven by:
  - ❖ **PostgreSQL**'s reliability and robust feature set for complex queries and data integrity.
  - ❖ **MongoDB**'s flexibility with unstructured data, making it a top choice for NoSQL databases in the age of big data.

## **Emerging Role of Search and Caching Technologies:**

- ❖ The rise in demand for **Elasticsearch** and **Redis** suggests a growing need for:
  - ❖ **Real-time search and analytics** capabilities, especially in data-intensive applications.
  - ❖ **In-memory caching** for performance optimization in high-traffic web applications.

## **Declining Interest in Legacy Databases:**

- ❖ Traditional databases like **Microsoft SQL Server** and **Oracle** are still relevant, but their growth has slowed, likely due to:
  - ❖ The rise of **open-source alternatives** like **PostgreSQL** and **MySQL**.
  - ❖ The **high cost** and maintenance overhead associated with proprietary systems.

# OVERALL FINDINGS & IMPLICATIONS

## **•Demographics & Compensation:**

- ❖ Median Age of respondents is 29 years, with a significant portion of the workforce aged between 25 and 35 years.
- ❖ Median annual salary is \$52,704, with 50% of respondents earning between \$24,060 and \$85,574.
- ❖ A positive correlation between age and salary (0.40), indicating that experience tends to lead to higher compensation.
- ❖ Minimal salary gap between male and female respondents, but the dataset is heavily skewed towards men.

## **•Programming Language Trends:**

- ❖ Current top languages: HTML/CSS, Bash/Shell/PowerShell, and JavaScript.
- ❖ Most desired languages for next year: JavaScript, Python, and TypeScript.
- ❖ Go is gaining momentum as an emerging language, signaling a demand for more performance-oriented backend solutions.

## **Platform Usage:**

- ❖ Docker, Linux, and AWS dominate current usage, reflecting the trend towards containerization and cloud-native development.
- ❖ Kubernetes is expected to see increased usage as companies prioritize scalability and orchestration of cloud services.
- ❖ Interest in Google Cloud Platform and Arduino highlights growing demand in multi-cloud environments and IoT development.

## **Database Trends:**

- ❖ Current top databases: MySQL, Microsoft SQL Server, and MongoDB.
- ❖ PostgreSQL and MongoDB are the most desired databases for next year, with increased interest in Elasticsearch and Redis for search and caching needs.
- ❖ There is a shift towards open-source and NoSQL databases, driven by the need for scalability and flexibility in data management.

# CONCLUSION



## Tech Workforce & Compensation:

- ❖ The data reflects a maturing tech workforce, with experience driving higher salaries,
- ❖ Gender diversity remains an issue in the tech industry, but salary discrepancies between genders are minimal in this dataset.

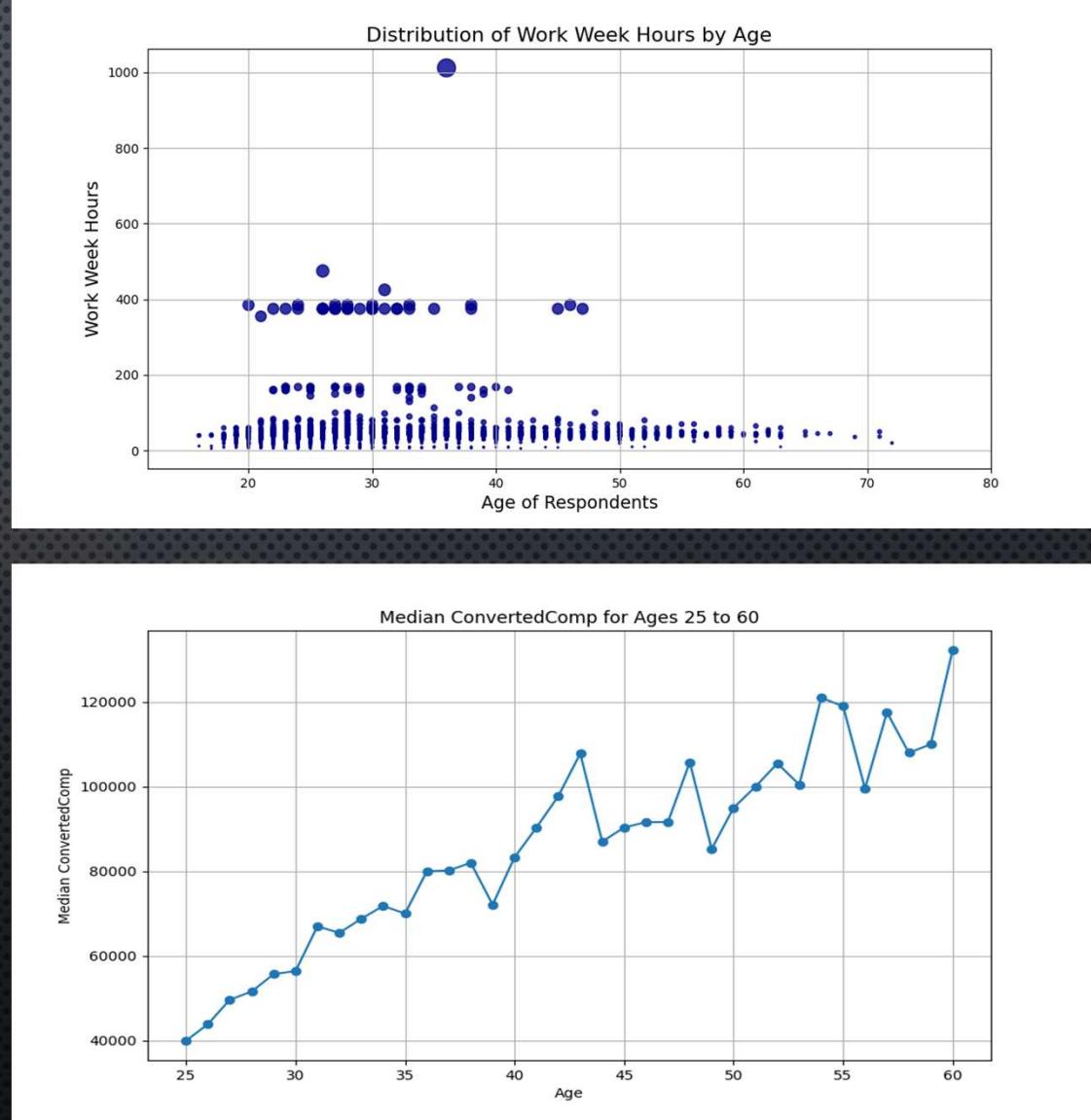
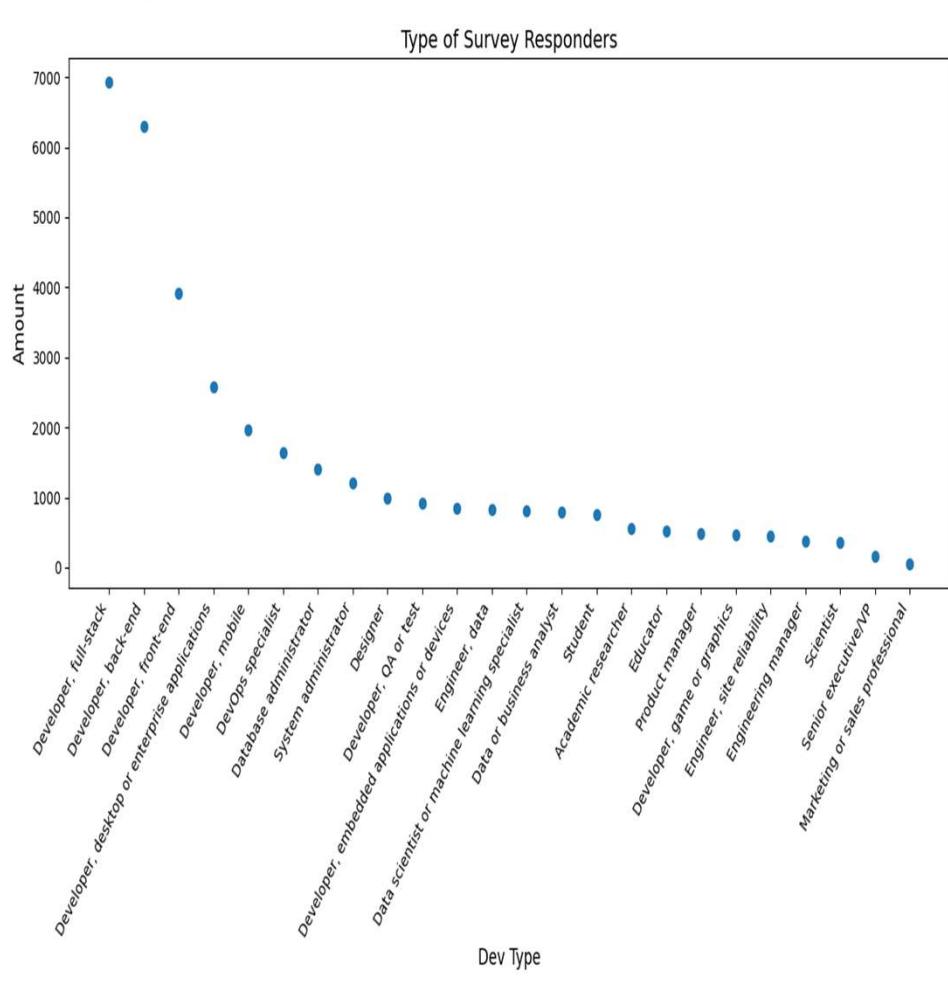
## Programming Languages and Database Trends:

- ❖ JavaScript, Python, and TypeScript will continue to be the backbone of modern development, with JavaScript solidifying its place as the most in-demand language
- ❖ Go is an emerging language to watch, particularly in backend systems where performance and scalability are priorities.
- ❖ The rise of NoSQL databases highlights a shift towards handling large, unstructured datasets, particularly in industries focused on big data and IoT.

## Final Thoughts:

- ❖ The analysis underscores the growing complexity of the tech landscape, where developers must be adaptable, with a balanced skill set spanning modern programming languages, cloud infrastructure, and database management.
- ❖ Organizations should focus on fostering diverse, highly skilled teams capable of leveraging these technologies to stay ahead in a rapidly evolving industry.

# APPENDIX



# MARKET POSTINGS ON SALARIES BY PROGRAMMING LANGUAGE

Average Salaries by Programming Language (Descending)

