Programming Language Popularity Trends

Insert Subtitle Here

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ABSTRACT

The rapid evolution of technology has led to dynamic shifts in the popularity of programming languages, influencing developer preferences, industry trends, and economic outcomes. This study examines historical trends in programming language popularity over the past decade, identifies emerging languages, and explores their varying adoption across industries and regions. Leveraging tools like Python, Pandas, Matplotlib, and scikit-learn, the study integrates data-driven insights and predictive modeling to answer key questions, offering valuable perspectives for developers, educators, and industry leaders.

KEYWORDS

Programming Languages, Popularity Trends, Developer Preferences, Data Analysis, Software Development.

1 Introduction

This report focuses on the trends in programming language popularity over the past decade. Programming languages are at the heart of modern software development, influencing everything from the tools developers use to the products that shape our digital world. As technology advances, the demand for certain programming languages fluctuates, with some languages gaining widespread adoption while others decline. Understanding these trends is crucial for developers, educators, and organizations to remain competitive and make informed decisions about language adoption and skill development.

The topic is particularly interesting as it provides insights into the shifting landscape of technology and the factors that drive language popularity, such as industry needs, community support, and the rise of new technologies like artificial intelligence and machine learning. Current research in this area, such as the TIOBE Index (2023) and Stack Overflow Developer Surveys (2023), explores how languages like Python, JavaScript, and Go are dominating the industry, while also identifying emerging languages like Rust and Kotlin. However, there is limited research addressing the global, industry-specific, and regional patterns of programming language popularity, making this study valuable for filling that gap.

2 Data

In this part, you should introduce your datasets.

2.1 Source of dataset

Where did you download it? Is it a credible source? When were the datasets generated? How were the datasets generated by the creator? If you create the datasets, how did you generate it?

Example: xxxx

2.2 Characters of the datasets

What’s the format and size of the datasets? What parameters/columns/rows/character and their units are included in this dataset. Use a table to explain this is recommended. Did you clean the data or convert any unit in the dataset? If so, what’s the formula/rule did you apply? Did you combine any datasets? If so, how do you combine them? Did you create any new category for analysis in the datasets? If so, what and how do you create?

3 Methodology

In this part, you should give an introduction of the methods/model. First, what’s the method/model. What’s the assumption of this method/model. What’s the advantage/disadvantage of this method/model. Why did you choose it. What Python module or function do you apply to apply this method/model. Any optional input/extra work did you adjust to make the results better. If you have multiple methods, feel free to use subsection 3.1, 3.2, 3.3, … to separate them.

3.1 Heading Level 2

3.2 Heading Level 2

…

Example format: The updated template, user manuals, samples, and required fonts, all are available at the URL <https://www.acm.org/publications/proceedings-template>. It contains said information for all three versions of MS Word (Windows and 2 versions of Mac). There are also separate links to the user guide, which can be referred to by the user. This URL also contains some useful video links, which describe how to add the template, structure the paper, and generate the layout, in different clips. **Display Formula with Number**

 (1)

**Continuation part of Paragraph Text** The user must style this paragraph in **ParaContinue** style, which follows immediately after the **DisplayFormula** (numbered equation). The **DisplayFormula** style is applied only in case of a numbered equation. A numbered equation always has a number to its right. Insert paragraph text here. **Display Formula without Number**



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Figure 1: Figure Caption and Image above the caption [In draft mode, Image will not appear on the screen]

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4 Results

In this part, you need to select a reasonable way to deliver the result of your topic. For example, equation or numerical results, or visualization of your result. You also need to provide a clear explanation of all results and how to understand the results. If there exist any unexpected results, please explain why or possible cause of this special result. You can use subsection 4.1, 4.2, … to separate your results.

4.1 Heading Level 2

Example format: In the below paragraph, it is explained how alt-txt value is placed in **MS Word 2010**. To add alternative text to a picture in Word 2010, follow these steps:

1. In a Word 2010 document, insert a picture.
2. Right click on the inserted picture and select the **Format Picture** option.
3. Select the **Alt Txt** option from the left-side panel options.
4. In the "Title:" and "Description:" text boxes, type the text you want to represent the picture, and then click "Close".

Below are steps to place alt-txt value in **MS Word 2013/2016**. To add alternative text to a picture in Word 2013/2016, follow these steps:

1. In a Word 2013/2016 document, insert a picture.
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3. In the settings at the right side of the window, click on the "Layout & Properties" icon (3rd option).
4. Expand **Alt Txt** option.
5. In the "Title:" and "Description:" text boxes, type the text you want to represent the picture, and then click "Close".

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5 Discussion

Every method/project has its shortage or weakness. Please discuss the unsatisfied results in your project. And discuss the feasible suggestions of future work to revise/improve your result.

6 Conclusion

In this part, you should summarize your project. What important results did you find for your topic and what’s the effect of this result on the real-world?

ACKNOWLEDGMENTS

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REFERENCES

Use the following ACM Reference format for your citation

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