Choice of Programming Languages and Trend of Frontend & Backend Technology:

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**Based on different Programming Paradigms**

**Object-oriented programming Language**

*Java, C++, C#, Python, Javascript(pseudo OOP)*

**Procedural Programming Languages**

*BASIC, C, PASCAL, FORTRAN, Go*

**Functional Programming Languages**

*Haskell, SML, Scala, F#, ML, Scheme, R, JavaScript, Elixir*

**Scripting Programming Languages**

* **Server Side Scripting Languages**: *Javascript, PHP, Python, and Go.*
* **Client-Side Scripting Languages**: *Javascript, Web Assembly****.***
* **System Administration**: *BASH, PERL, Python****.***
* **Linux Interface**: *BASH*

**Logic Programming**Languages

*PROLOG, ASAP(Answer Set Programming), Datalog, and Coq.*

Markup Languages

*HTML, XHTML, RTF, TeX, LaTeX, Markdown, YAML, XML*

*“Learn one Object-Oriented Programming Language and one Scripting Programming Language****.”***

YOU SHOULD LEARN

1. **Typescript**— Most used, versatile, easy, large developer community and *WORA (Write Once Run Anywhere), scripting, frontend, backend, ML*(*be aware of its dependency hell*).
2. **Python** — easiest to learn, wide application (backend, ML, data science, visualization, scripting, hacking), adoption continues to grow.
3. **Kotlin/Swift** — versatile, simplification of existing native app development.
4. **C#** — Platform agnostic, simple, general-purpose language, can be used to develop any type of application, game development, VR, AR.
5. **Go** — solves scalability issues, simple elegant code, easy to learn, the language of the cloud, DevOps, backend, servers.

YOU SHOULD CONSIDER

1. **Java** — big data, in high demand worldwide, enterprise king, core language of industry standard tools like Apache kafka, spark, hive, etc.
2. **C++** — bridge b/w LLP and HLP, memory unsafe, game engine development, OS level, embedded, fintech, trading.
3. **R** — statistics, ML, Data Visualisation, slow and data-intensive.
4. **Dart** — One codebase for Android, iOS, Web App, Desktop/Laptop Programs, Linux Programs, embedded. Flutter.
5. **Rust** — memory management, Linux kernel, highest pay.

YOU SHOULD NOT CONSIDER

1. **Ruby** — better tools are available now.(*Sidenote: Github, Gitlab are written in Ruby on Rails framework, and still first choice of many startups for easy MVP and fast deployment*)
2. **PHP** — lacks good debugging tools (compared to other languages), relatively low pay, still extensively popular, tough competition from python. *[Earlier versions of PHP paid less attention to security features, presently, it’s as robust as any other language]*
3. Super-new and very niche specific languages which do not have a healthy community.[For more on that, please refer to the end of article]

[Edit: 17/01/2022: Java is promoted to ‘*You should consider*’ section after consideration with industry devs. ]

FOR INDIAN CONTEXT

1. **Java** — Most *in-demand* language according to Indian Job Market, *Safe bet.*
2. **Javascript** or **Python** — Master anyone and you are good to go. *Period*.
3. **C++** — Use it for Data Structure and Algorithms and Competitive Programming (*at Codeforces, Codechef, Topcoder, SPOJ, etc and participate in Hashcode, Kickstarter, codejam, Hacker Cup, ACM ICPC, etc)*

*Recommendation*: **Java** and **Javascript**

FOR CHINESE CONTEXT

1. **Java** [29.28%]
2. **C++** [16.08%]
3. **Javascript** [15.09%]
4. **C#** [10.95%]
5. **Python** [8.21%]
6. **Go** [6.94%]
7. **PHP** [5.19%]
8. **Matlab** [1.48%]
9. **Lua** [1.28%]
10. **Swift** [0.83%]

[*Source*](https://github.com/EricWebsmith/china_job_survey/)*, [xx%] indicates the percentage of developers using that language per 100 dev.*

All the programming languages are built for some specific purpose, over time, they deviate towards general-purpose languages (can be used to code almost everything, e.g Javascript, Java, and to some extent Python).