



# Lenguajes de Programación

Ubicando a Python en el mapa

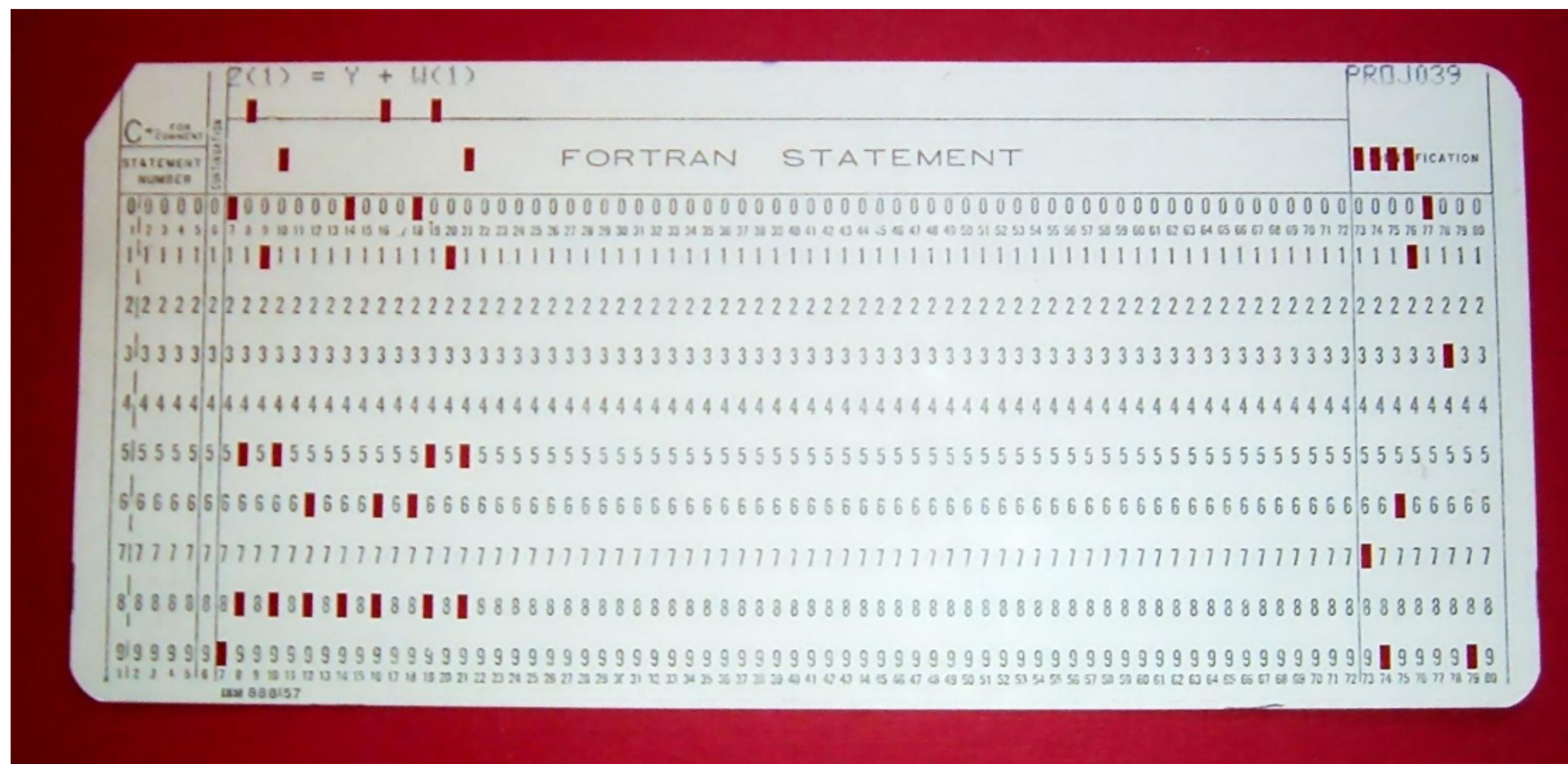


## Clasificación de los Lenguajes de programación





## Código Máquina (lenguaje máquina)



Código Fortran en una tarjeta perforada



# Lenguajes de programación

## Lenguaje Ensamblador

```
;*****  
;Programa E001.asm                                Fecha: 3 Diciembre 2004  
;Este programa suma dos valores inmediatos (7+8) y el resultado  
;lo deposita en la posición 0x10  
;Revisión: 0.0  
;Velocidad de reloj: 4 MHz  
;Perro Guardián: deshabilitado  
;Protección de código: OFF  
;*****  
        LIST      p=16F84 ;Tipo de PIC  
;*****  
RESULTADO    EQU 0x10          ;Define la posición del resultado  
;*****  
        ORG 0           ;Comando que indica al Ensamblador  
                      ;la dirección de la memoria de programa  
                      ;donde situar la siguiente instrucción  
;*****  
INICIO       movlw    0x07      ;Carga primer sumando en W  
              addlw    0x08      ;Suma W con segundo sumando  
              movwf    RESULTADO ;Almacena el resultado  
;  
END         ;Fin del programa fuente
```

**Cabecera**

**Tipo de microcontrolador**

**Definición de constantes**

**Comentarios**

**Programa**

instrucciones en Lenguaje ensamblador para un PIC



# Lenguajes de programación

## Lenguajes de alto Nivel



Es necesario un interprete o compilador



Se pueden clasificar:

## Por Aplicación

1. Aplicaciones científicas
2. Aplicaciones de procesamiento de datos
3. Aplicaciones de tratamiento de textos
4. Aplicaciones en inteligencia artificial
5. Aplicaciones de programación de sistemas

## Por Paradigma

1. **Imperativo**
2. Declarativo
3. Estructurado
4. Procedimental
5. **Orientado a Objetos**
6. Orientado a Mensajes
7. **Funcional**
8. lógico
9. paradigma orientado al sujeto
10. paradigma reflectante
11. basado en reglas
12. basada en prototipos
13. muchos más...

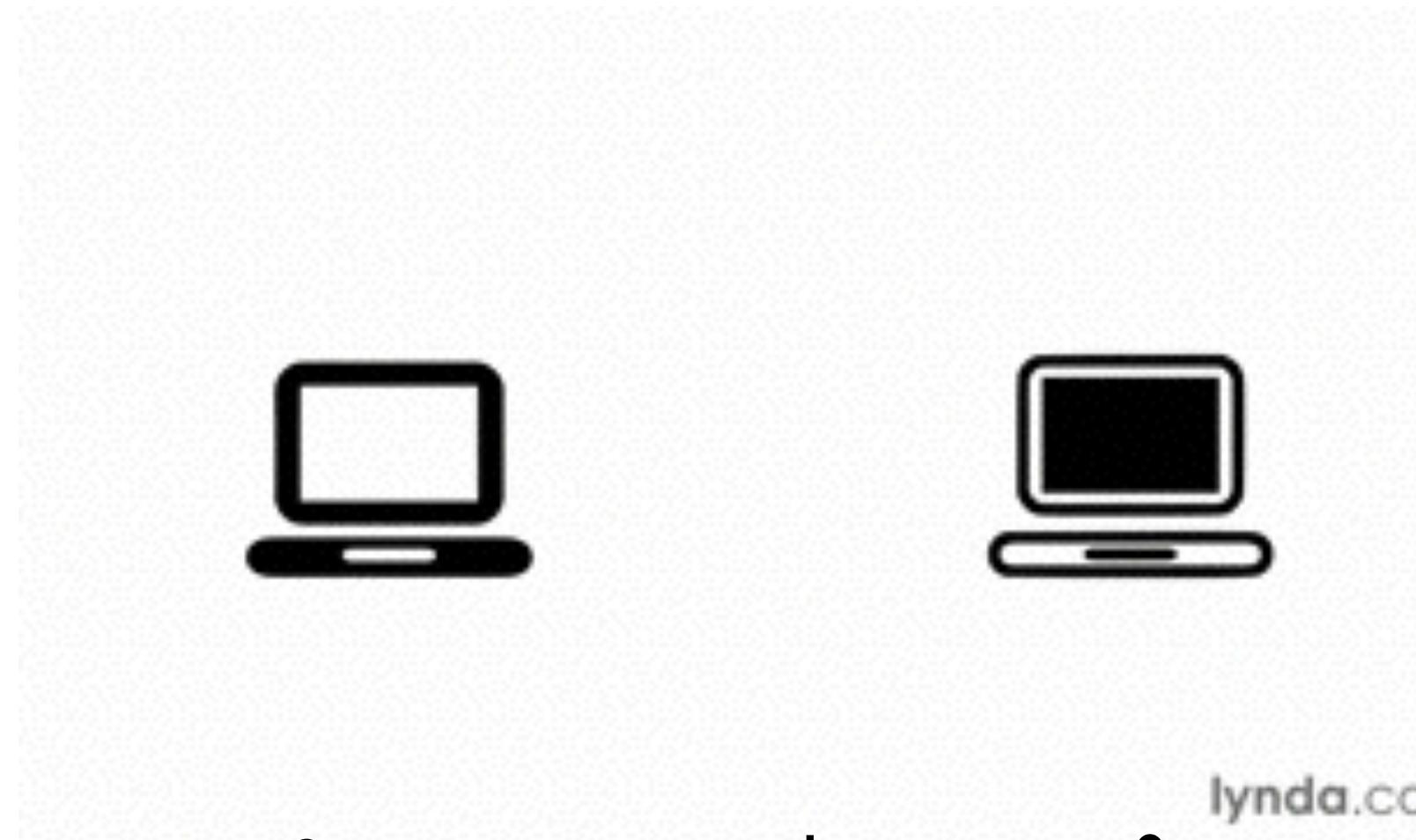


# Lenguajes de programación

## ¿Compilador o Intérprete?

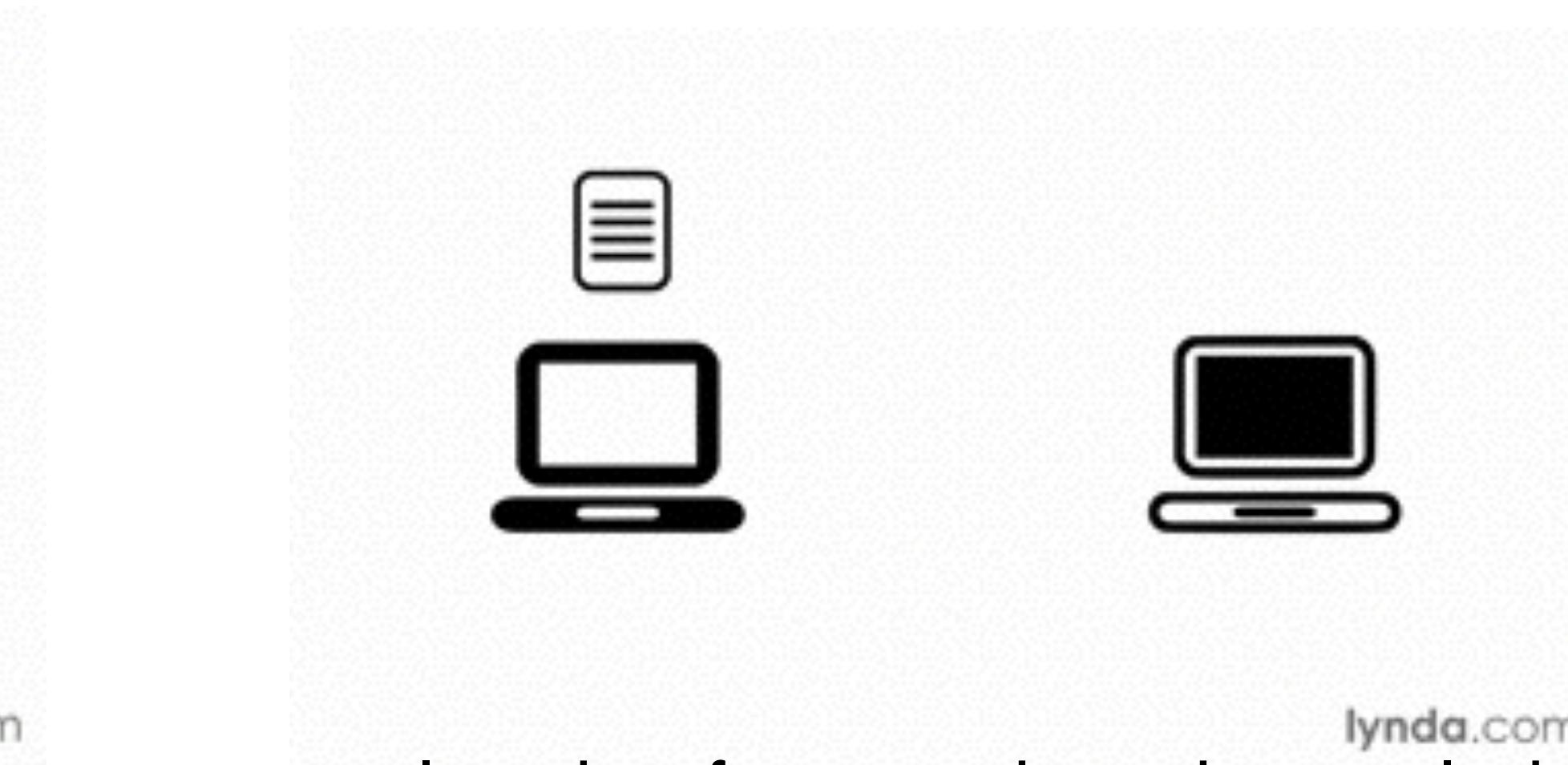


Lenguajes compilados



Se genera un archivo específico para cada sistema en el que se ejecuta

Lenguajes Interpretados



un solo archivo fuente puede producir resultados iguales incluso en sistemas sumamente diferentes



## Sistema de Tipos (tipado)

Tipos de datos más comunes:

Char	"A"
Int	7
Float	7.1001
String	"fixter"
Boolean	True





## Sistema de Tipos (tipado)

### Tipos Estáticos

vs

### Tipos Dinámicos

se determina el tipo de todas las expresiones antes de la ejecución del programa (al compilar)

```
7  /**
8   *
9   * @author <i>Irina</i>
10  */
11 public class Student extends Teacher {
12     // fields
13     private int id;
14     private String name;
15     private int age;
16     private int unusedField; //unused field
17
18     public Student(int id, int age, String name) {
19         this.id = id;
20         this.name = name;
21         this.age = age;
22     }
23     @Deprecated
24     public int getAge() {
25         return age;
26     }

```

determinan la validez de los tipos involucrados en las operaciones durante la ejecución del programa.

```
class PostListView(ListView):
    # queryset=Post.published.all()
    model=Post
    context_object_name='posts'
    paginate_by=6
    template_name='blog/post/list.html'

    def post_list(request,tag_slug=None):
        object_list=Post.published.all()
        tag=None
        if tag_slug:
            tag=get_object_or_404(Tag,slug=tag_slug)
            object_list=object_list.filter(tags__in=[tag])
            paginator=Paginator(object_list,6)
            page=request.GET.get('page')
            try:
                posts=paginator.page(page)
            except PageNotAnInteger:
                posts=paginator.page(1)
            except EmptyPage:
                posts=paginator.page(paginator.num_pages)
            template="blog/post/list.html"
            context={
                'page':page,
                'posts':posts,
                'tag':tag
            }
            return render(request,template,context)
```



# Lenguajes de programación

## Tipado Débil

Los lenguajes débilmente tipados permiten que un valor de un tipo pueda ser tratado como de otro tipo.



## Tipado Fuerte

Los lenguajes fuertemente tipados evitan que pase lo anterior.

## Duck-typing:

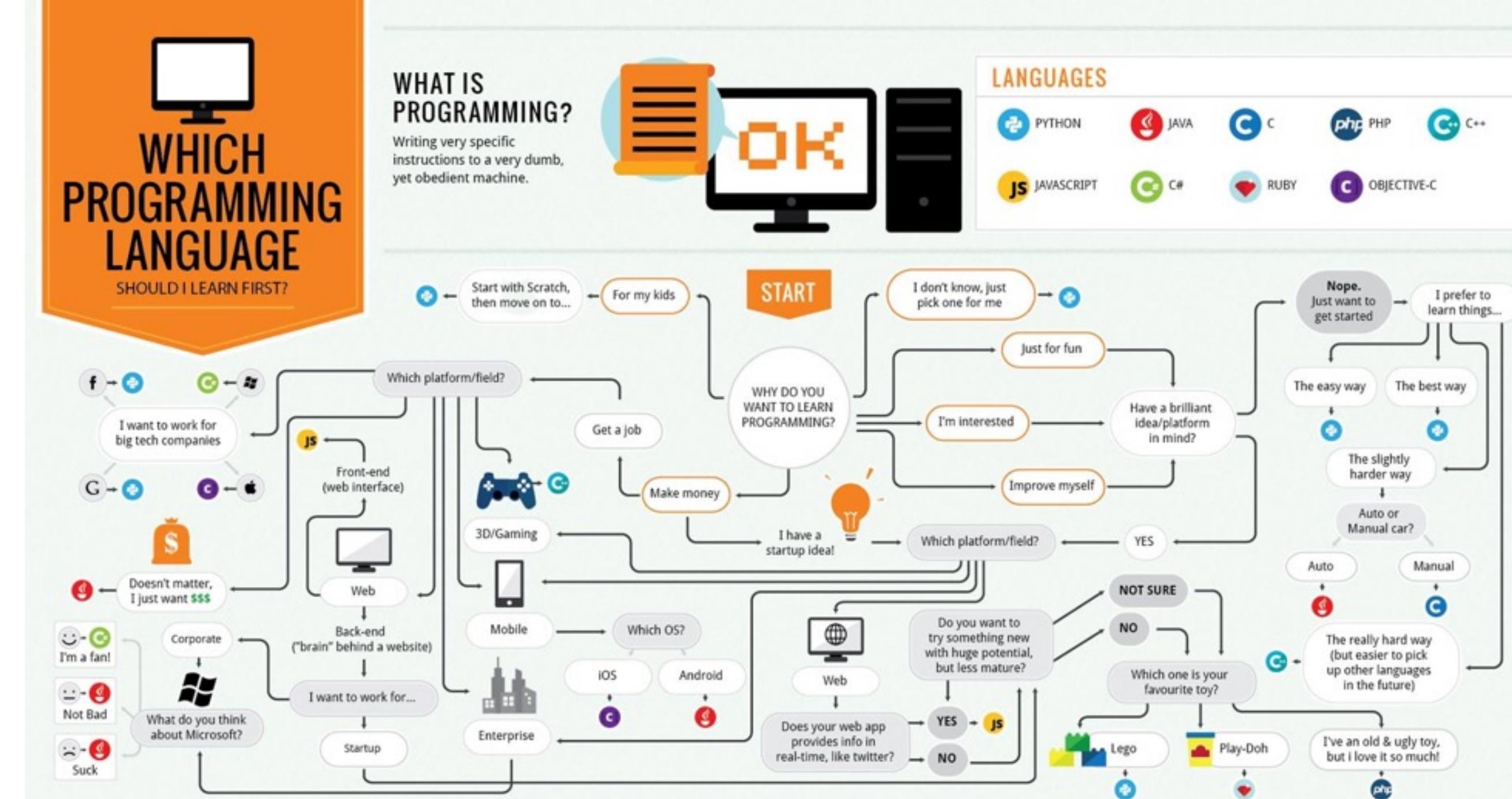
"Cuando veo un ave que camina como un pato, nadá como un pato y suena como un pato, a esa ave yo la llamo un pato."



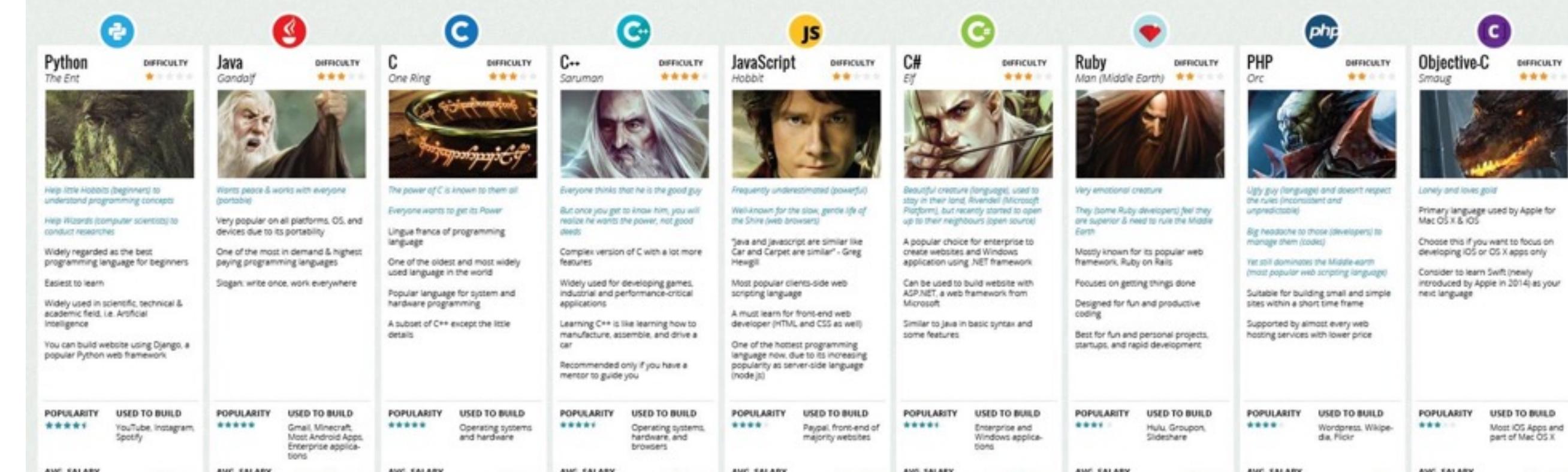
## Y entonces, ¿Donde está Python?



- Lenguaje de programación Interpretado
- multiparadigma
- Usa tipado dinámico
- Multiplataforma
- Código Abierto



## THE LORD OF THE RINGS ANALOGY TO PROGRAMMING LANGUAGES



ACTUALLY...  
IT DOESN'T REALLY MATTER HOW  
YOU START.

You need to know at least few languages to understand the underlying concepts. Just get your feet wet!

TO GET STARTED, CHECK OUT THE FULL LIST OF BEST TUTORIALS AND TOOLS FOR EACH PROGRAMMING LANGUAGE AT:

CARLCHEO.COM/STARTCODING

SPECIAL THANKS TO

Sources: Salary data from Indeed.com | <http://stackoverflow.com/questions/2450562/what-the-difference-between-javascript-and-java> | <http://spectrum.ieee.org/static/interactive-the-top-programming-languages>  
<http://ocw.mit.edu/help/help-catalog/TUTORIALS/python-is-now-the-most-popular-introductory-teaching-language-at-top-us-universities/> | <http://www.worldbank.org/article/263535/big-data-the-most-in-demand-and-valuable-programming-language>

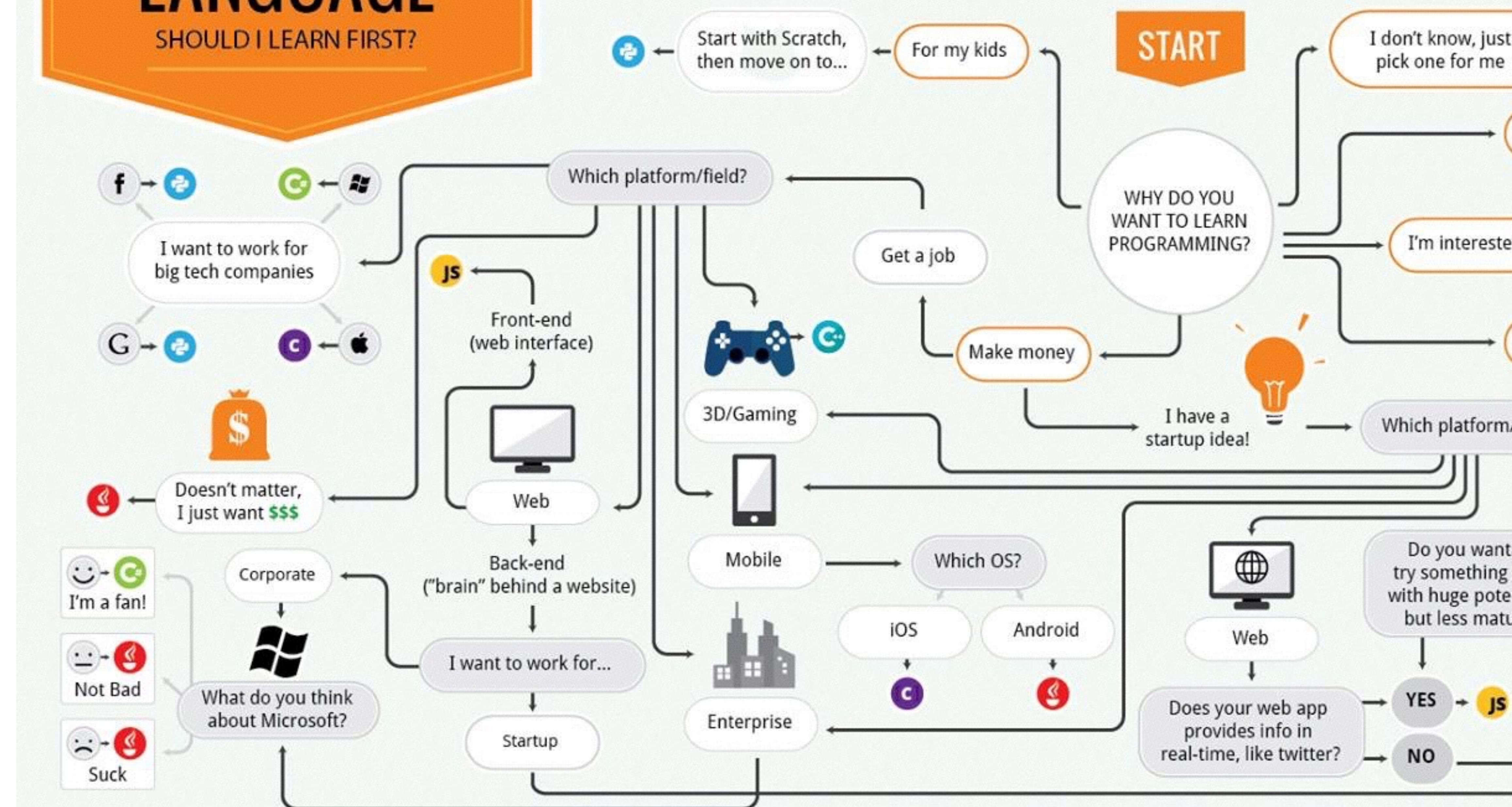
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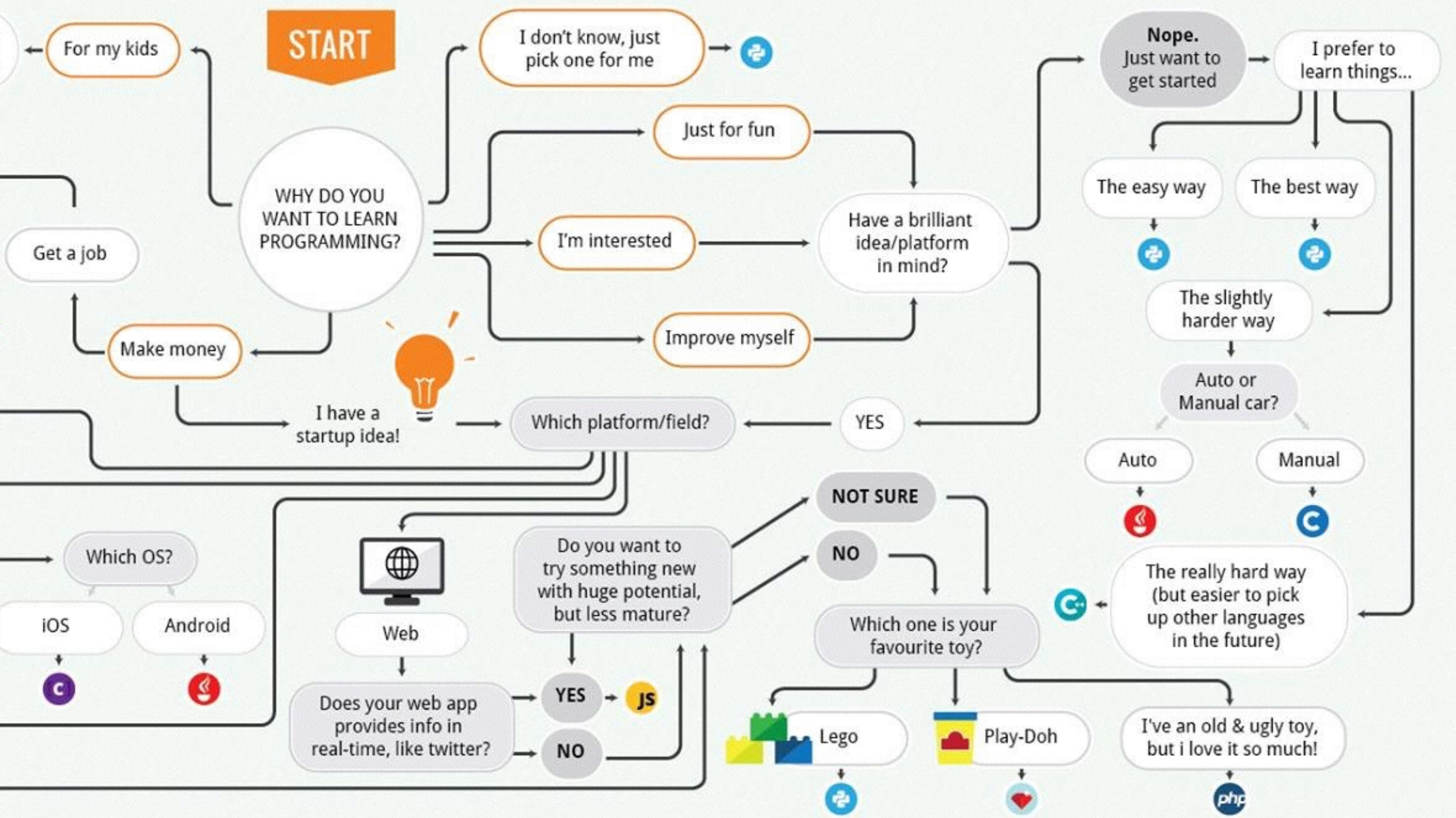
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# LANGUAGE

SHOULD I LEARN FIRST?

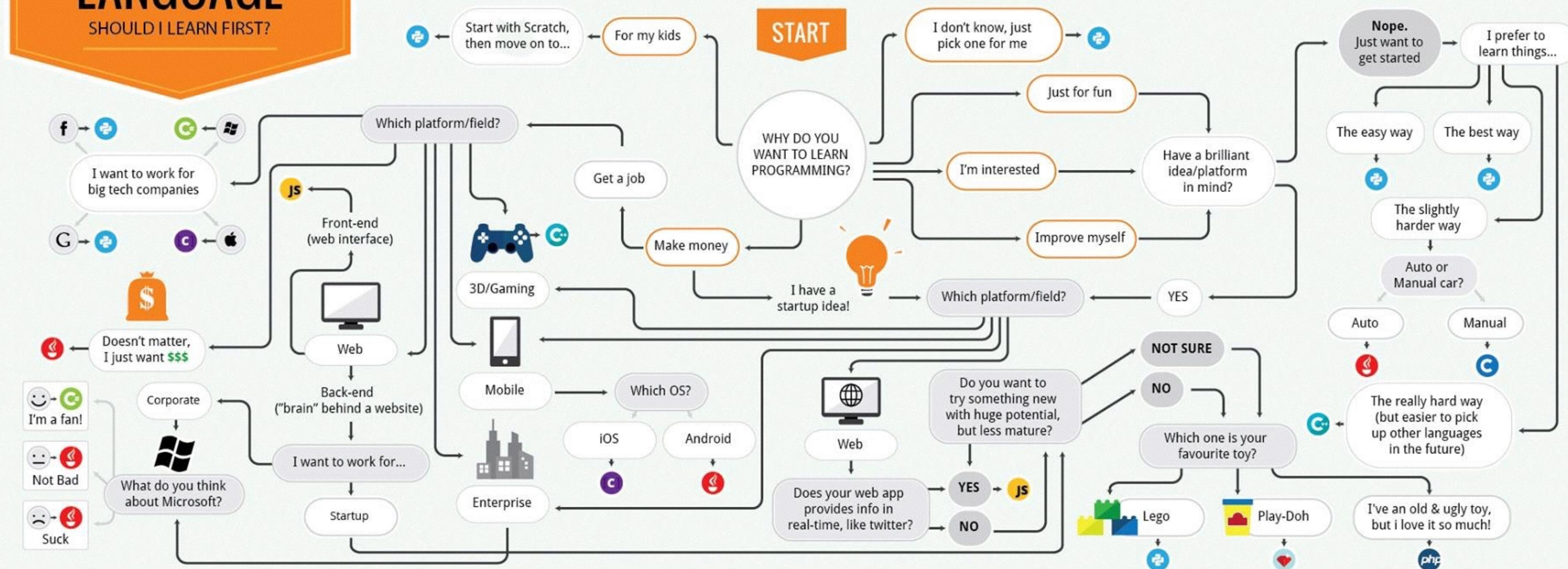




THE RINGS ANALOGY TO PROGRAMMING LANGUAGES

# PROGRAMMING LANGUAGE

## SHOULD I LEARN FIRST?



# THE LORD OF THE RINGS ANALOGY TO PROGRAMMING LANGUA



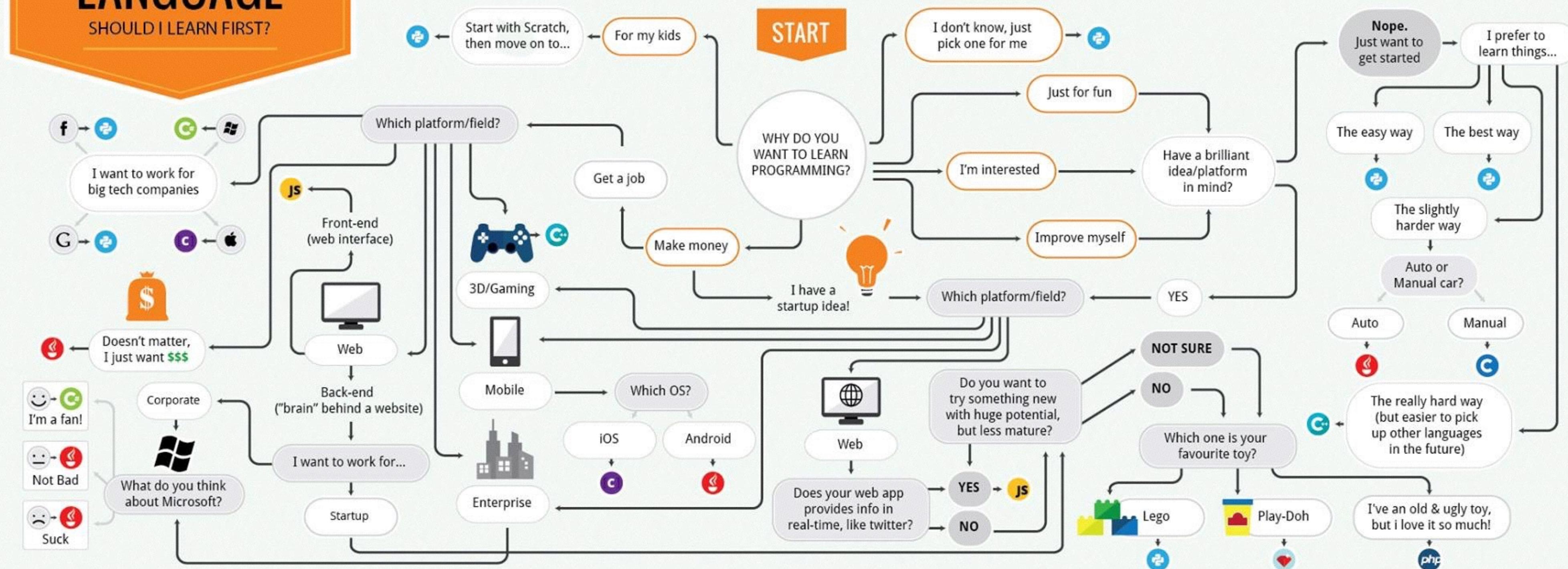
<b>C++</b>	<b>JavaScript</b> <i>Hobbit</i>	<b>C#</b> <i>Elf</i>	<b>Ruby</b> <i>Man (Middle Earth)</i>	<b>PHP</b> <i>Orc</i>	<b>Objective-C</b> <i>Smaug</i>
DIFFICULTY ★★★★★	DIFFICULTY ★★★★★	DIFFICULTY ★★★★★	DIFFICULTY ★★★★★	DIFFICULTY ★★★★★	DIFFICULTY ★★★★★
					
<i>Everyone thinks that he is the good guy but once you get to know him, you will realize he wants the power, not good.</i>	<i>Frequently underestimated (powerful)</i> <i>Well-known for the slow, gentle life of the Shire (web browsers)</i>  <i>"Java and Javascript are similar like Car and Carpet are similar" - Greg Hewgill</i>  <i>Most popular clients-side web scripting language</i>  <i>A must learn for front-end web developer (HTML and CSS as well)</i>  <i>One of the hottest programming language now, due to its increasing popularity as server-side language (node.js)</i>	<i>Beautiful creature (language), used to stay in their land, Rivendell (Microsoft Platform), but recently started to open up to their neighbours (open source)</i>  <i>A popular choice for enterprise to create websites and Windows application using .NET framework</i>  <i>Can be used to build website with ASP.NET, a web framework from Microsoft</i>  <i>Similar to java in basic syntax and some features</i>	<i>Very emotional creature</i>  <i>They (some Ruby developers) feel they are superior &amp; need to rule the Middle Earth</i>  <i>Mostly known for its popular web framework, Ruby on Rails</i>  <i>Focuses on getting things done</i>  <i>Designed for fun and productive coding</i>  <i>Best for fun and personal projects, startups, and rapid development</i>	<i>Ugly guy (language) and doesn't respect the rules (inconsistent and unpredictable)</i>  <i>Big headache to those (developers) to manage them (codes)</i>  <i>Yet still dominates the Middle-earth (most popular web scripting language)</i>  <i>Suitable for building small and simple sites within a short time frame</i>  <i>Supported by almost every web hosting services with lower price</i>	<i>Lonely and loves gold</i>  <i>Primary language used by Apple for Mac OS X &amp; iOS</i>  <i>Choose this if you want to focus on developing iOS or OS X apps only</i>  <i>Consider to learn Swift (newly introduced by Apple in 2014) as your next language</i>
ULARITY ★★★★★	USED TO BUILD Operating systems, hardware, and browsers	POPULARITY ★★★★★	USED TO BUILD Paypal, front-end of majority websites	ULARITY ★★★★★	USED TO BUILD Wordpress, Wikipedia, Flickr
. SALARY \$4,000	AVG. SALARY \$99,000	POPULARITY ★★★★★	USED TO BUILD Enterprise and Windows applications	AVG. SALARY \$107,000	POPULARITY ★★★★★
 	 	  	 		 

TO GET STARTED, CHECK OUT THE FULL LIST OF BEST TUTORIALS AND TOOLS FOR EACH PROGRAMMING LANGUAGE AT:

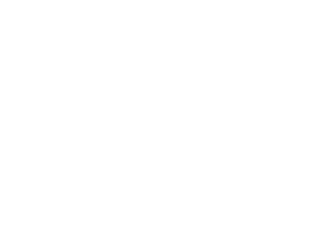
[CARLOCHEO.COM/STARTCODING](http://CARLOCHEO.COM/STARTCODING)

# PROGRAMMING LANGUAGE

## SHOULD I LEARN FIRST?



## THE LORD OF THE RINGS ANALOGY TO PROGRAMMING LANGUA

 Python	DIFFICULTY ★★★★★	 Java	DIFFICULTY ★★★★★	 C	DIFFICULTY ★★★★★	 C++	DIFFICULTY ★★★★★	 JavaScript	DIFFICULTY ★★★★★	 C#	DIFFICULTY ★★★★★	 Ruby	DIFFICULTY ★★★★★	 PHP	DIFFICULTY ★★★★★	Objective-C	DIFFICULTY ★★★★★
The Ent		Gandalf		One Ring		Saruman		Hobbit		Elf		Man (Middle Earth)		Orc		Smaug	
<i>Help little Hobbits (beginners) to understand programming concepts</i>	<i>Wants peace &amp; works with everyone (portable)</i>	<i>The power of C is known to them all</i>	<i>Everyone thinks that he is the good guy</i>	<i>Frequently underestimated (powerful)</i>	<i>Beautiful creature (language), used to stay in their land, Rivendell (Microsoft Platform), but recently started to open up to their neighbours (open source)</i>	<i>Very emotional creature</i>	<i>Ugly guy (language) and doesn't respect the rules (inconsistent and unpredictable)</i>	<i>Primary language used by Apple for Mac OS X &amp; iOS</i>	<i>Lonely and loves gold</i>								
<i>Help Wizards (computer scientists) to conduct researches</i>	<i>Very popular on all platforms, OS, and devices due to its portability</i>	<i>Everyone wants to get its Power</i>	<i>But once you get to know him, you will realize he wants the power, not good deeds</i>	<i>Well-known for the slow, gentle life of the Shire (web browsers)</i>	<i>A popular choice for enterprise to create websites and Windows application using .NET framework</i>	<i>Mostly known for its popular web framework, Ruby on Rails</i>	<i>Big headache to those (developers) to manage them (codes)</i>	<i>Choose this if you want to focus on developing iOS or OS X apps only</i>	<i>Consider to learn Swift (newly introduced by Apple in 2014) as your next language</i>								
<i>Widely regarded as the best programming language for beginners</i>	<i>One of the most in demand &amp; highest paying programming languages</i>	<i>Lingua franca of programming language</i>	<i>Complex version of C with a lot more features</i>	<i>"Java and Javascript are similar like Car and Carpet are similar" - Greg Hewgill</i>	<i>Can be used to build website with ASP.NET, a web framework from Microsoft</i>	<i>Focuses on getting things done</i>	<i>Designed for fun and productive coding</i>	<i>Yet still dominates the Middle-earth (most popular web scripting language)</i>	<i>Choose this if you want to focus on developing iOS or OS X apps only</i>								
<i>Easiest to learn</i>	<i>Slogan: write once, work everywhere</i>	<i>One of the oldest and most widely used language in the world</i>	<i>Widely used for developing games, industrial and performance-critical applications</i>	<i>A must learn for front-end web developer (HTML and CSS as well)</i>	<i>Similar to java in basic syntax and some features</i>	<i>Best for fun and personal projects, startups, and rapid development</i>	<i>Suitable for building small and simple sites within a short time frame</i>	<i>Consider to learn Swift (newly introduced by Apple in 2014) as your next language</i>	<i>Choose this if you want to focus on developing iOS or OS X apps only</i>								
<i>Widely used in scientific, technical &amp; academic field, i.e. Artificial Intelligence</i>	<i>Popular language for system and hardware programming</i>	<i>A subset of C++ except the little details</i>	<i>Learning C++ is like learning how to manufacture, assemble, and drive a car</i>	<i>One of the hottest programming language now, due to its increasing popularity as server-side language (node.js)</i>	<i>Recommended only if you have a mentor to guide you</i>	<i>Supported by almost every web hosting services with lower price</i>											
<i>You can build website using Django, a popular Python web framework</i>																	
POPULARITY	USED TO BUILD	POPULARITY	USED TO BUILD	POPULARITY	USED TO BUILD	POPULARITY	USED TO BUILD	POPULARITY	USED TO BUILD	POPULARITY	USED TO BUILD	POPULARITY	USED TO BUILD	POPULARITY	USED TO BUILD	POPULARITY	USED TO BUILD
★★★★★	YouTube, Instagram,	★★★★★	Gmail, Minecraft,	★★★★★	Operating systems,	★★★★★	Operating systems,	★★★★★	Paypal, front-end of	★★★★★	Enterprise and	★★★★★	Hulu, Groupon,	★★★★★	Wordpress, Wikipe-	★★★★★	Most iOS Apps and



# Lenguajes de programación

## Dato Random

El primer programador conocido, era Programadora



**Ada Lovelace**

(1815-1852)





Lenguajes de programación

# ¡Vamo a Codea!





¡Gracias!