

# Rust

Madhavan Mukund, S P Suresh

Programming Language Concepts

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# Introduction to Rust

- Everything: <https://www.rust-lang.org/>
- Installation: <https://www.rust-lang.org/tools/install>
- Documentation: <https://www.rust-lang.org/learn>

# Creating programs

- Hello world, cargo

Not 0-0

Collection of functions (like C)

main()

println!() - "macro"

- Associate types with variables

Python

Dynamic

Type is with  
values

Assignment  
determines  
type

Java

Static declarations

`x = 7`

`x = "hello"`

- Static vs Dynamic  
Strong vs Weak

ob + "hello"

7.5 + 2

- Rust - static but implicit

let variable = value

Update a variable?

let x = 55;   
 x = 66;   
 immutable   
 X



let mut x = 55

i8, i16, i32, ...

u8, ...

f32, f64

Signed integers

Unsigned integers

Floats

Booleans - bool

Char - char

- Constants

```
const pi:f32 = 3.1415;
```



- Strong vs Weak

$$7.5 + 2$$

■

let  $x = 3$  ;

hidden ↑

let  $x = 5.0$  ;

Allowed?

What does it mean

let  $x = 3$  ;

{ let  $x = 5.0$  ;  
}



let mut x = 5.8;

x = x \* 7; ~~x~~

5.8

↳ "cast" as float

(float) 7

7 as 32f

- Signature

fn name (args) → return-type

Last expression in a function is implicit

return value

expression; ⇒ statement

■ if cond { } else { }



must be of type bool

while cond { }

loop { }  
↑  
break

for ---

## Passing parameters

↳ Copy (by value)

↳ Reference (By passing location)

↳ Aliasing