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Rust cheatlist

Cargo

- cargo new project_name: Initializes a new Rust project named *project_name* in the current directory.
- cargo build: Build program without optimizations. Output is stored in ./target/debug.
- cargo build —release: Build program with runtime optimizations. Output is stored in ./target/release.

Data types

- Scalar types:
 - ∘ Integer: Internally represented in 2-components notation when signed $(-(2^n) \rightarrow 2^n 1)$

Length	Signed	Unsigned	
8-bit	i8	u8	
16-bit	i16	u16	
32-bit	i32	u32	
64-bit	i64	u64	
128-bit	i128	u128	
arch	isize	usize	

• Floating point: f32, f64

Boolean: boolCharacter: charCompound types

- Tuple: Fixed size (defined at declaration), elements may differ in type
 - ∘ let tup: (i32, f64, u8) = (500, 6.4, 1);
 - \circ Values can be retrieved by either pattern matching: let (x, y, z) = tup; x, yand z are now accessible as variables or by using a period let x = xtup.0; * Array: Fixed size, elements should be of the same type * let a = [1, 2, 3]; * let a: [f64; 3] = [1.0, 2.0, 3.0]; * let a = [0; 5];: Creates an array of size 5 with all elements initialized to 0 * let first = a[0];: Accessing elements of array * for element in a.iter() { ... }: Iterates over elements in array * Rust panics on index out of bounds situations ===== Variables ===== * let foo = bar;: Creates immutable variable foo and assigns it value bar. * let mut foo = bar;: Creates mutable varibale foo and assigns it value bar. * let foo: type = false;: Creates immutable variable foo with expicit type definition. ===== Functions ===== * fn function_name() { ... } * fn function_name(x: i32, y: char) { ... }: Parameterized function * fn function name(x: i32) \rightarrow i32 { ... }: Function with return value. Returned value is last evaluated expression of the function body. ===== Terminology ===== * Associated function: functione implemented on a type rather than on a particular instance of the type. Similar as a static method in

Java. * Destructing: splitting a tuple in individual parts by pattern matching * Expression: instrictions that evaluate to a resulting value. No semicolon at end of line! * Macro: * Prelude: * Statement: instructions that do not return a value * Trait: ===== Syntax ===== * &var: Passes var as a reference. Allows a function to access a variable without the need to copy it to the function's stack. * &mut var: Passes var as a mutable reference. Allows a function to access and alter the variable's value.

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