CMSC 330: Organization of Programming Languages

Working with Rust

CMSC330 Fall 2018

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Installing Rust

- Instructions, and stable installers, here:
  https://www.rust-lang.org/en-US/install.html

- On a Mac or Linux (VM), open a terminal and run

  ```
  curl https://sh.rustup.rs -sSf | sh
  ```

- On Windows, download+run rustup-init.exe

  https://static.rust-lang.org/rustup/dist/i686-pc-windows-gnu/rustup-init.exe

Rust compiler, build system

- Rust programs can be compiled using rustc
  - Source files end in suffix .rs
  - Compilation, by default, produces an executable
    - No –c option

- Preferred: Use the cargo package manager
  - Will invoke rustc as needed to build files
  - Will download and build dependencies
  - Based on a .toml file and .lock file
    - You won't have to mess with these for this class
  - Like ocamlbuild

Using rustc

- Compiling and running a program

main.rs:

```
fn main() {
    println!("Hello, world!”)
}
```

```
% rustc main.rs
% ./main
Hello, world!
%
```

Using cargo

- Make a project, build it, run it

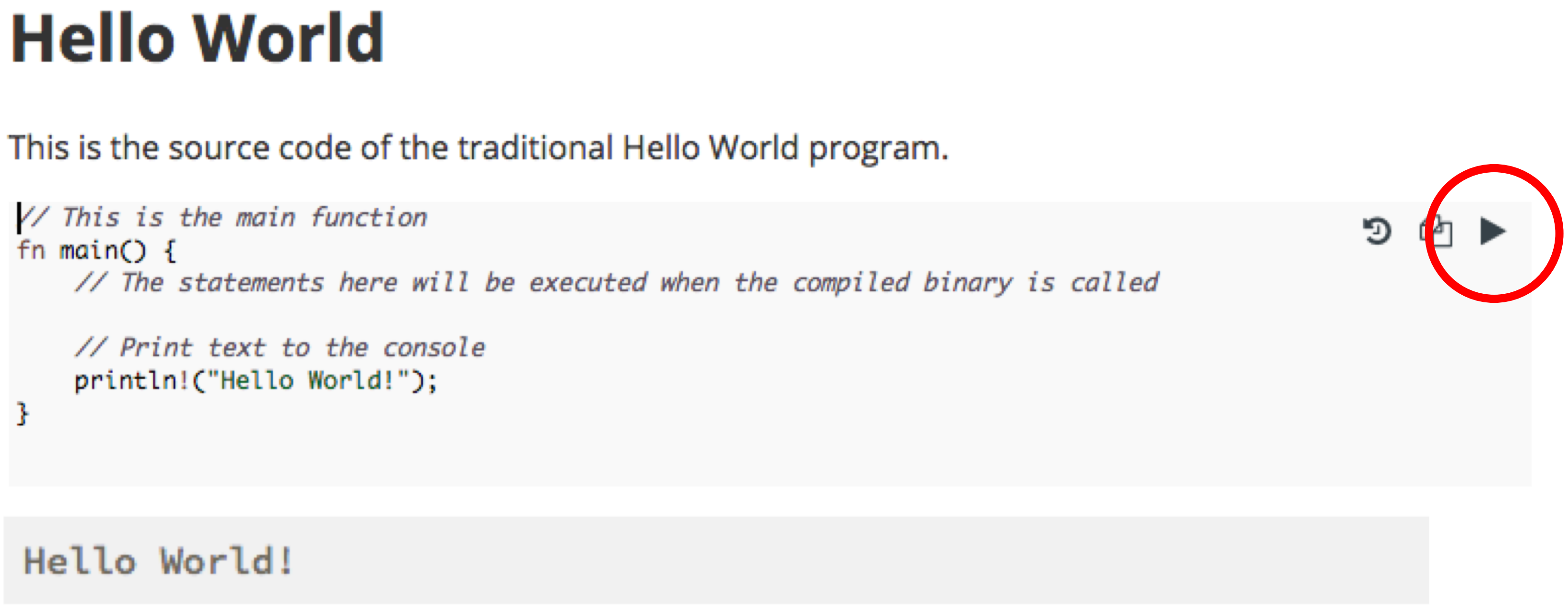
```
% cargo new hello_cargo --bin
% cd hello_cargo
% ls
Cargo.toml   src/
% ls src
main.rs
% cargo build
 Compiling hello_cargo v0.1.0 (file:///…)
 Finished dev [unoptimized + debuginfo] …
% ./target/debug/hello_cargo
Hello, world!
```

```
fn main() {
    println!("Hello, world!”)
}
```

More at https://doc.rust-lang.org/book/second-edition/ch01-02-hello-world.html

Rust, interactively

- Rust has no top-level *a la* OCaml or Ruby
- There is an in-browser execution environment
  - See, for example, https://rustbyexample.com/hello.html



Hello World

This is the source code of the traditional Hello World program.

```
// This is the main function
fn main() {
    // The statements here will be executed when the compiled binary is called

    // Print text to the console
    println!("Hello World!");
}
```

```
Hello World!
```