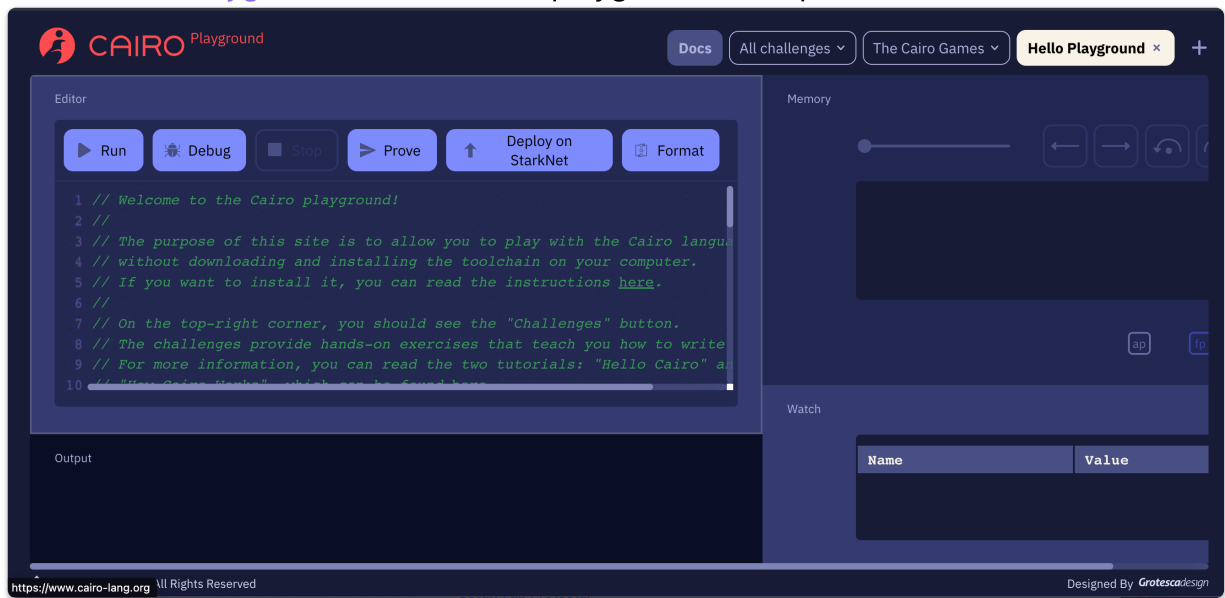


Homework 4

Remember if you are using protostar you cannot use `serialise_word` to output values, you need to use hints instead.

1. In the [Cairo Playground](#) use the Hello playground example



- a) Run the program and see the output in the console
 - b) Debug the program, look at the memory and the watch window, do you understand how the `output_ptr` is being used ?
2. Install Protostar, instructions are below, today we are only going to use programs, so you do not need to write or deploy contracts.
 3. Complete exercises in `cairo/exercises/programs` directory in this [repo](#), follow the instructions in the README file in the `cairo` directory. If you have problems running the exercises, you can instead copy the code into the Cairo playground and run them there.
-

Setting up Protostar

See [documentation](#) and this useful medium [article](#)

LINUX / MAC

1.

```
curl -L https://raw.githubusercontent.com/software-mansion/protostar/master/install.sh | bash
```

2. Restart the terminal.

3. Run `protostar -v` to check Protostar and [cairo-lang](#) version.

It adds to your PATH in `.bashrc`, you may need to move that line to `.bash_profile` If it doesn't find protostar.

You may also need to update your version of git

WINDOWS

Windows is not supported.

To create a new project use

```
protostar init
```

This will give a directory structure similar to this

```
drwxr-xr-x  7 laurecekirk  staff  224 16 Jul 05:39 ./
drwxr-xr-x  3 laurecekirk  staff   96 16 Jul 05:39 ../
drwxr-xr-x  9 laurecekirk  staff  288 16 Jul 05:39 .git/
drwxr-xr-x  2 laurecekirk  staff   64 16 Jul 05:39 lib/
-rw-r--r--  1 laurecekirk  staff  148 16 Jul 05:39 protostar.toml
drwxr-xr-x  3 laurecekirk  staff   96 15 Jul 10:03 src/
drwxr-xr-x  3 laurecekirk  staff   96 15 Jul 10:03 tests/
```

Configuration

This is specified in the `.toml` file

```
["protostar.config"]
protostar_version = "0.4.2"

["protostar.project"]
libs_path = "./lib"           # a path to the dependency directory
```

```
# This section is explained in the "Project compilation" guide.
["protostar.contracts"]
main = [
    "./src/main.cairo",
]
```

Compiling your programs / contracts

once you have specified the contracts in the `protostar.toml` file, run

```
protostar build
```

to compile them.

Deploying your programs / contracts

You need to specify the path to the compilation results.

```
$ protostar deploy ./build/main.json --network alpha-goerli
```

Testing your programs / contracts

Protostar will find the test file using its name, checking if it begins with `test_` prefix, and has `@external` functions, which names begin with `test_`.

A test looks like

```
@external
func test_sum{syscall_ptr : felt*, range_check_ptr}():
    let (r) = sum_func(4,3)
    assert r = 7
    return ()
end
```

You can run the tests, specifying the test directory

```
protostar test ./tests
```