English | [{€OSN-e‡](translations/README-cn.md)
<div align="center">
<!-- Remember: Keep a span between the HTML tag and the markdown tag. -->
  <!-- ALL-CONTRIBUTORS-BADGE:START - Do not remove or modify this section -->
[![All Contributors](https://img.shields.io/badge/all_contributors-31-orange.svg?style=flat-square)](#contributors)
<!-- ALL-CONTRIBUTORS-BADGE:END -->
  <h1>The Cairo Programming Language Book</h1>
  <h3> Alexandria </h3>
  <img src="assets/alexandria.jpg" height="400" width="400">
</div>
Description
This repository contains the source of "The Cairo Programming Language" book, a comprehensive documentation of the Cairo 1 programming language. This documentation is your go-to resource for mastering Cairo, created and maintained by the Starknet community. You can read the book [online](https://book.cairo-lang.org/).
<div align="center">
  <h3> Created by builders, for builders Ø=ÜÜ</h3>
</div>
Contribute
Setup
1. Rust related packages:
   - Install toolchain providing `cargo` using [rustup](https://rustup.rs/).
   - Install [mdBook](https://rust-lang.github.io/mdBook/guide/installation.html) and the required extensions:
   ```

   cargo install mdbook mdbook-i18n-helpers mdbook-last-changed
   ```

2. Host machine packages:
   - Install [gettext](https://www.gnu.org/software/gettext/) for translations, usually available with regular package manager: `sudo apt install gettext`.
   - Install [mdbook-quiz-cairo](https://github.com/cairo-book/mdbook-quiz-cairo?tab=readme-ov-file) following the instructions [here](https://github.com/cairo-book/mdbook-quiz-cairo?tab=readme-ov-file#installation) to be able to add interactive quizzes.
3. Clone this repository.
4. Install mdbook-cairo to process references and labels, and custom tags.
   ```

   cargo install --path mdbook-cairo
   ```

Guidelines
Read the [CONTRIBUTING.md](./CONTRIBUTING.md) file for more details on the style guide and guidelines for contributions to the book.
Work locally (english, main language)
All the Markdown files **MUST** be edited in english. To work locally in english:
- Start a local server with `mdbook serve` and visit [localhost:3000](http://

localhost:3000) to view the book.
  You can use the `--open` flag to open the browser automatically: `mdbook serve --open`.
- Make changes to the book and refresh the browser to see the changes.
- Open a PR with your changes.
Work locally (translations)
This book is targeting international audience, and aims at being gradually translated in several languages.
All files in the `src` directory MUST be written in english. This ensures that all the translation files can be
auto-generated and updated by translators.
To work with translations, these are the steps to update the translated content:
- Run a local server for the language you want to edit: `./translations.sh es` for instance. If no language is provided, the script will only extract translations from english.
- Open the translation file you are interested in `po/es.po` for instance. You can also use editors like [poedit](https://poedit.net/) to help you on this task.
- When you are done, you should only have changes into the `po/xx.po` file. Commit them and open a PR.
  The PR must start with `i18n` to let the maintainers know that the PR is only changing translation.
The translation work is inspired from [Comprehensive Rust repository](https://github.com/google/comprehensive-rust/blob/main/TRANSLATIONS.md).
Initiate a new translation for your language
If you wish to initiate a new translation for your language without running a local server, consider the following tips:
- Execute the command `./translations.sh new xx` (replace `xx` with your language code). This method can generate the `xx.po` file of your language for you.
- To update your `xx.po` file, execute the command `./translations.sh xx` (replace `xx` with your language code), as mentioned in the previous chapter.
- If the `xx.po` file already exists (which means you are not initiating a new translation), you should not run this command.
Verifying your Cairo Programs
The `cairo-listings` CLI tool is designed to wrap all Cairo and Starknet plugins for quickly verifying Cairo programs. You can verify that listings are correct with the `verify` argument, and generate the corresponding output with the `output` argument.
Install this tool with:
Setup
Firstly, you need to have `scarb` resolved in your path. See [here][installation] for more details.
To run the `cairo-listings` helper tool and verify Cairo programs, ensure that you are at the root of the repository (same directory of this `README.md` file), and run:
```sh
cargo run --bin cairo-listings verify
```

Alternatively, you can also install the tool with:
```sh

```
cargo install --path cairo-listings
```

and then run:
```sh
cairo-listings verify
```

[installation]: ./src/ch01-01-installation.md
Usage
The tool scans for all `*.cairo` files in the specified directory and performs the following actions:
For a Starknet contract:
- `scarb build`
- If it has tests: `scarb test`
Cairo program:
- If it has a `main` function: `scarb cairo-run --available-gas=200000000`
- Else, `scarb build`
- If it has tests: `scarb test`
- `scarb fmt -c`
To specify which tests to run, you can add a comment at the top of your file with the following format:
```cairo
// TAG: <tag1>
// TAGS: <tag1>, <tag2>
```

Here is a list of available tags:
- `does_not_compile`: don't run `scarb build`
- `does_not_run`: don't run `scarb cairo-run --available-gas=200000000`
- `ignore_fmt`: don't run `scarb fmt`
- `tests_fail`: don't run `scarb test`
The mdbook-cairo is a mdbook preprocessor that only removes the `// TAG` lines in code blocks.
Contributors
<!-- ALL-CONTRIBUTORS-LIST:START - Do not remove or modify this section -->
<!-- prettier-ignore-start -->
<!-- markdownlint-disable -->
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<!-- markdownlint-restore -->
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<!-- ALL-CONTRIBUTORS-LIST:END -->
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