

# toy user manual



<b>Title</b>	toy (Assembler and simulator for the Princeton TOY machine)
<b>Author</b>	Nikolaos Kavvadias 2010, 2011, 2012, 2013, 2014 toy.c written by Christopher W. Fraser.
<b>Contact</b>	<a href="mailto:nikos@nkavvadias.com">nikos@nkavvadias.com</a>
<b>Website</b>	<a href="http://www.nkavvadias.com">http://www.nkavvadias.com</a>
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<b>Rev. history</b>	
<b>v0.0.3</b>	2014-12-02 Added project logo to README.
<b>v0.0.2</b>	2014-10-27 Updated for Github.
<b>v0.0.1</b>	2010-12-06 Initial release.

## 1. Introduction

toy is a collection of software development tools for the Princeton TOY processor. toyasm is a single-pass assembler and toy is the TOY simulator by [Chris Fraser](#).

## 2. File listing

The toy distribution includes the following files:

/toy	Top-level directory
AUTHORS	List of toy authors.
LICENSE	The modified BSD license governs toy.
Makefile	Makefile for toy and toyasm.
README.html	HTML version of README.
README.pdf	PDF version of README.

README.rst	This file.
VERSION	Current version of the project sources.
fibonacci.asm	TOY assembly implementation of Fibonacci's algorithm.
fibonacci.c	Reference implementation of Fibonacci sequence generation in ANSI C.
fibonacci.toy	TOY machine code file of <code>fibonacci.asm</code> for the <code>toy</code> simulator.
main.c	Driver C file for the <code>toyasm</code> assembler.
popcount.asm	TOY assembly implementation of population count.
popcount.c	Reference implementation of population count in ANSI C.
popcount.toy	TOY machine code file of <code>popcount.asm</code> for the <code>toy</code> simulator.
rst2docs.sh	Bash script for generating the HTML and PDF versions of the documentation (README).
toy.c	The <code>toy</code> simulator.
toy.l	Lexer for the TOY assembler.
toy.png	PNG image for the <code>toy</code> project logo.
toy.y	Parser for the TOY assembler.
toy-cheatsheet.txt	<a href="#">TOY reference card</a>

### 3. Usage

1. Run `make` from the Cygwin/MinGW/Linux command line:

```
$ make clean
$ make
```

2. Run a test for `fibonacci`:

```
$ ./toyasm[.exe] fibonacci.asm > fibonacci.toy
$ ./toy[.exe] fibonacci.toy
```

When prompted give a 16-bit hexadecimal constant (e.g. `0008`) from `stdin` (the `toy` simulator features an interactive console). Then the simulator executes and prints `0015` (21 in decimal) as the correct result for the 8-th element of Fibonacci's sequence.

Similarly, you can run a test for `popcount` by entering a hexadecimal number; the TOY simulator console will then return the number of ones in that number.

### 4. Prerequisites

- Standard UNIX-based tools: `make`, `gcc`.

## **5. Contact**

You may contact me at:

Nikolaos Kavvadias <[nikos@nkavvadias.com](mailto:nikos@nkavvadias.com)>

Independent Consultant

<http://www.nkavvadias.com>

Kornarou 12 Rd,

35100 Lamia, Fthiotis

Greece