CoffeeScript: Pencilcode.net

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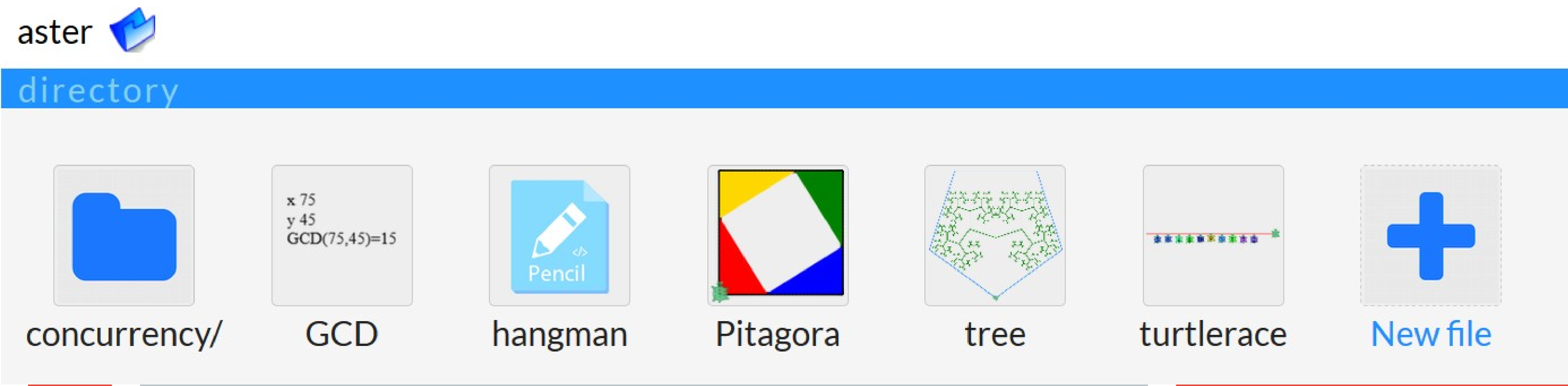
Pencilcode: Coffeescript language (aka Javascript)

Editor with both textual and block-based editing

Turtle graphics, music, speech (and also the Processing.js lib!)

Input, print, picture display

Your personal web site (e.g. http://aster.pencilcode.net) showing/running your programs



CoffeeScript = Readable Javascript

CoffeeScript translates to Javascript

Adds some features from Perl/Python/Ruby:

- indentation instead than curlies {} and semicolons ;	Python
- list comprehension	Python
- pattern matching (multiple assignment)	Python
- argument packing/unpacking	Python
- postfix syntax available for if/for/switch	Perl
- interval comparison	Python
- literate programming using Markdown	

Iced Coffeescript adds async interactions with ‘await/defer’

Easy interaction with JS libs (Jquery, Processing ...)

Function definition with ‘->’

Iterative version

```
GCD = (x, y) ->
  # multiple assignment + postfix conditional
  [x, y] = [y, x%y] until y is 0
  # the last value computed is returned
  x
```

Recursive version

```
GCD = (x, y) ->
  # inline if + recursion
  if y!=0 then GCD(y, x%y) else x
```

All function calls have at least 1 argument (use ‘do’ when 0-args)

Lists, arrays and dictionaries (and generators)

```
song = ["do", "re", "mi", "fa", "so"]

singers = {Jagger: "Rock", Elvis: "Roll"}

Bitlist = [
  1, 0, 1
  0, 0, 1
  1, 1, 0
]
```

Generators using the Pythonic yield syntax

```
# dictionary/object in YAML syntax

Kids =
  brother:
    name: "Max"
    age:  11
  sister:
    name: "Ida"
    age:  9
```

Asynchronous code with await/defer

‘await’ wraps a group of ‘defer’ and waits for <u>all finishing their job</u>

Example:
search for 'keywords' then callback 'cb' with an array of the results

SERIAL SEARCH

```
serialSearch = (keywords, cb) ->
  out = []
  for k,i in keywords
    await search k, defer out[i]
  cb out
```

PARALLEL SEARCH

```
parallelSearch = (keywords, cb) ->
  out = []
  await
    for k,i in keywords
      search k, defer out[i]
  cb out
```

Programming style

Programming style:
- procedural
- functional
- object oriented
- concurrent
    - await/defer
    - sync between animation plans

Demo

DEMO