

Intro to scripting in turtle

Syntax

Syntax of turtle is quite easy. Every line should consist of:

```
Keyword, SEPARATOR, options, ..., SEPARATOR
```

or

```
Variable Name, SEPARATOR, Variable Type,  
SEPARATOR, Variable Value, SEPARATOR
```

Every keyword must be separated with **SEPARATOR** (defined in `stdturtle.h`).

Data types

Turtle has 3 data types and no way of adding more.

- `num` - A basic number. Stores a value of a long long int.
- `str` - A basic string. Stores a string. Can be changed and `turtle(.c)` will manage the memory
- `tof` - A basic boolean. Stores 0 or 1. There is actually no need in using it. It won't improve speed or anything. It's just there.

Declaring variables

To declare a variable, you have to know its type and name.

Syntax: `Variable_name:data_type:value:`

Examples:

```
msg:str:Hello, World!:
```

```
# Will declare a string msg with value "Hello, World!".
```

```
x:num::
```

Will declare a number x with the value of 0.

This syntax allows 3 variables of the same name with different types.

Turtel has a builtin variable with type str:

- `__newline:`
is literally a newline (`\n`)

Builtin functions

- `print`
 - syntax: `print:type:var:`
 - info: Prints variable `'var'` with type `'type'`.
- `read`
 - syntax: `read:type:var:`
 - info: Reads user input to variable `'var'` with type `'type'`.
- `if`
 - syntax: `if:num_1:operator:num_2:gototag1:gototag2:`
 - info: If (`num_1 operator num_2`) is true goto `gototag1`, else goto `gototag2`. Operator can be:
 - `'eq'` for equal
 - `'lt'` for a less than b
 - `'gt'` for a greater than b
 - `'ne'` for not equal
- `srun`
 - syntax: `srun:var:`
 - info: Runs `'var'` content with `/bin/sh`. `'var'` must be a str.
- `exit`
 - syntax: `exit:`
 - info: exits.
- `goto`
 - syntax: `goto:gototag_name:`
 - info: Jumps to `'gototag_name'`.
- `gototag`
 - syntax: `gototag:gototag_name:`
 - info: Place to jump from `goto:gototag_name:`

- add, sub, mul, div, mod
 - syntax: `command:num1:num2:`
 - info: Runs arithmetic operations on 'num1' op. 'num2' and stores the result in num1.
- nowequ
 - syntax: `nowequ:type1:var1:type2:var2:`
 - info: Converts 'var2' with type 'type2' to 'type1' and stores the result in 'var1'.

Full-line comments should start with a '#' symbol. Everything after the last SEPARATOR in the line is not interpreted, so it can also be used as a way to comment code.