This is the documentation for

# MIPS SIMULATOR

# How to use it:

- Make sure you have the latest version of python3 installed (3.6.3).
- Install ttkthemes by typing `pip install ttkthemes` in your terminal.
- Download icarus-verilog for windows or for linux than setup it and copy the installation folder into the simulator's folder. This is because the simulator is dependent on icarus's compiling capabilities. You can use it to generate the hex files without simulating if you skip this step.
- Run the program by going into the simulator's folder in your terminal than type `python mips-sim.py` .
- You can change how many clock cycles to play.
- Make sure that your computer-language is set to "English" before trying to copy or paste anything using the keyboard's shortcuts, other languages aren't supported.
- The input must be an assembly instruction, It must be written using the registers' names and decimal numbers.
  **Both assembly instruction and registers' names are provided below.**
- You can put comments in the assembly code by using "#", anything typed after the hash won't be compiled.
- The hex-instructions of the entered assembly-instructions are saved in 'out.hex' file in the simulator's folder.
- The program wasn't programmed to take wrong inputs, it will terminate if the input isn't correct.

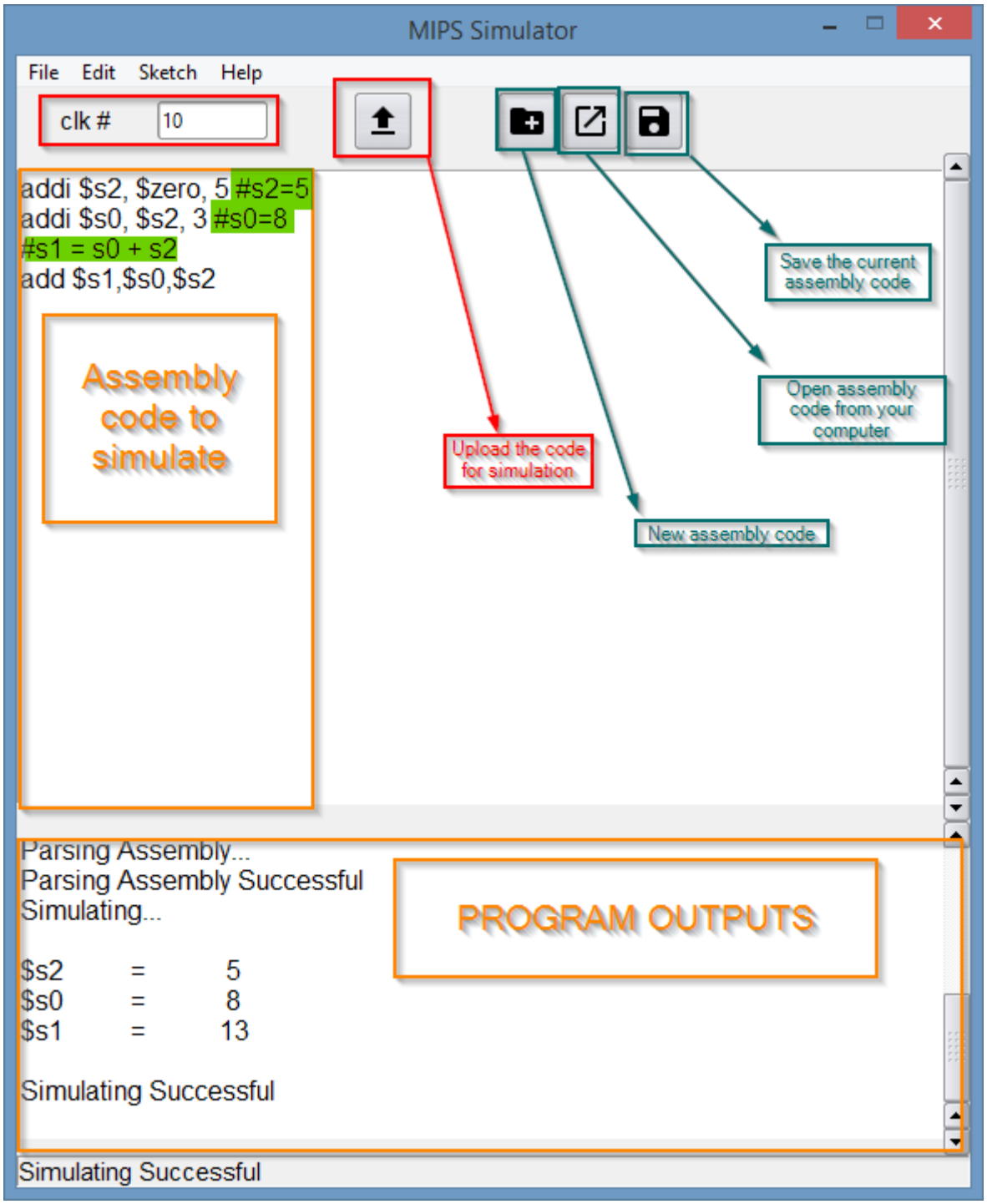
# Registers:

| Register Name | Register number in the mips register file |
|---|---|
| $zero | 0 |
| $at | 1 |
| $v0 | 2 |
| $v1 | 3 |
| $a0 | 4 |
| $a1 | 5 |
| $a2 | 6 |
| $a3 | 7 |
| $t0 | 8 |
| $t1 | 9 |
| $t2 | 10 |
| $t3 | 11 |
| $t4 | 12 |
| $t5 | 13 |
| $t6 | 14 |
| $t7 | 15 |
| $s0 | 16 |
| $s1 | 17 |
| $s2 | 18 |
| $s3 | 19 |
| $s4 | 20 |
| $s5 | 21 |
| $s6 | 22 |
| $s7 | 23 |
| $t8 | 24 |
| $t9 | 25 |
| $k0 | 26 |
| $k1 | 27 |
| $gp | 28 |
| $sp | 29 |
| $fp | 30 |
| $ra | 31 |

# Instructions:

| | |
|---|---|
| R | add |
| | sub |
| | or |
| | and |
| | nor |
| | sll |
| | srl |
| | slt |
| I | addi |
| | beq |
| | sw |
| | lw |
| | ori |

# Screenshot:


MIPS Simulator
File
Edit
Sketch
Help
clk #
10
addi $s2, $zero, 5 #s2=5
addi $s0, $s2, 3 #s0=8
#s1 = s0 + s2
add $s1,$s0,$s2
Assembly code to simulate
Upload the code for simulation
Save the current assembly code
Open assembly code from your computer
New assembly code
Parsing Assembly...
Parsing Assembly Successful
Simulating...
$s2 = 5
$s0 = 8
$s1 = 13
Simulating Successful
PROGRAM OUTPUTS
Simulating Successful