

Gamification and Game Based Learning

Μάθημα: Διδακτική της Πληροφορικής
Παρουσίαση: Στυλιανός Καραγιάννης (Μεταδιδάκτορας)

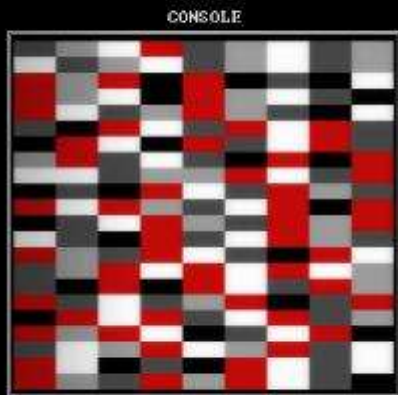


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Tis-100: Assembly



7 8 7

4 5 6

1 2 3

0 ENTER

STOP PAUSE PLAY FAST

ACC	0
BAK	<0>
LAST	N/A
MODE	IDLE

CONSOLE ↓ ?

MOU UP, RIGHT	ACC	0
	BAK	<0>
	LAST	N/A
	MODE	READ

STACK MEMORY NODE

ACC	0
BAK	<0>
LAST	N/A
MODE	IDLE

START:	ACC	28
MOU ACC, RIGHT		
ADD 4		
SAU		
SUB 35		
JCZ RSET	BAK	<-?>
SUP		
JMP START		
RSET:		
MOU 0, ACC		
JMP START		
MODE		WRITE

28 →

MOU -1, ACC	ACC	24
SAU		
START:		
MOU LEFT, ACC		
MOU ACC, RIGHT	BAK	<22>
JEZ INCREMENT		
SUP		
CONTINUE:		
MOU ACC, RIGHT		
SAU		
JMP START		
INCREMENT:		
SUP		
ADD 1		
JMP CONTINUE		
MODE		WRITE

↓ ?

MOU UP, ACC	ACC	0
MOU LEFT, DOWN		
MOU LEFT, DOWN		
MOU ACC, DOWN	BAK	<0>
MOU ACC, DOWN		
MOU ACC, DOWN		
MOU ACC, DOWN		
MOU -1, DOWN		
MODE		READ

ACC	0
BAK	<0>
LAST	N/A
MODE	IDLE

ACC	0
BAK	<0>
LAST	N/A
MODE	IDLE

STACK MEMORY NODE

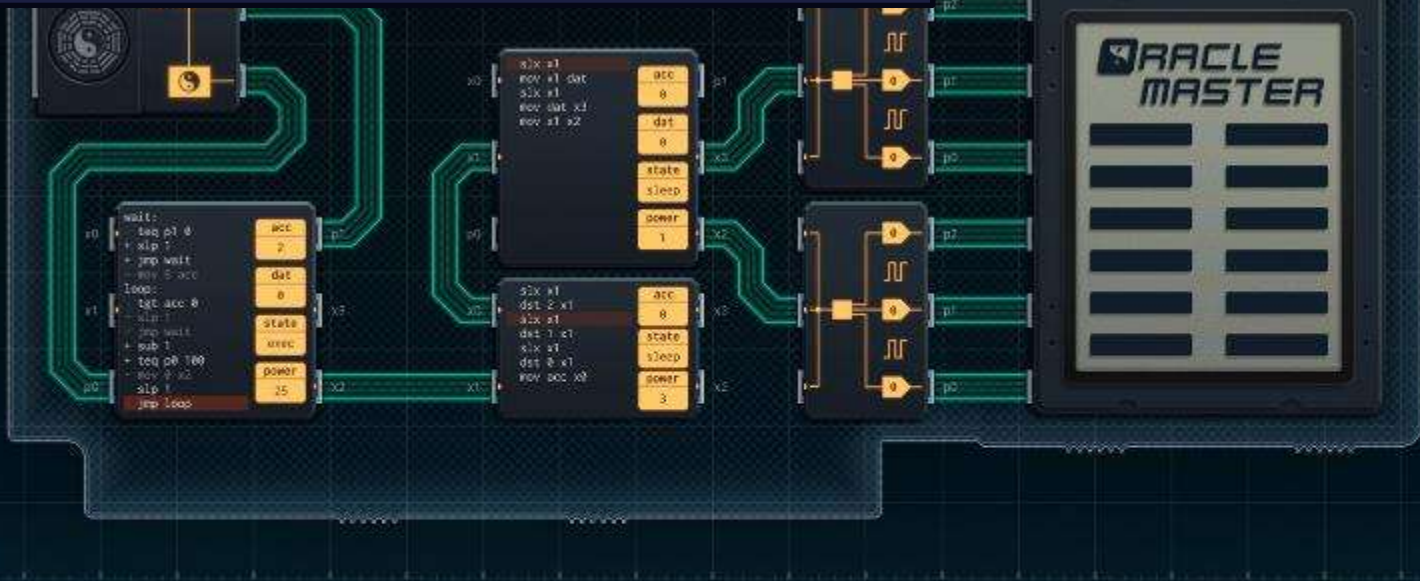
↓ ?

MOU UP, DOWN	ACC	0
	BAK	<0>
	LAST	N/A
	MODE	READ

ACC	0
BAK	<0>
LAST	N/A
MODE	IDLE

CONSOLE ↓

SHENZHEN I/O: Circuits – Logic - Assembly



VERIFICATION INFORMATION



RESET

STOP

ADVANCE

SIMULATE

- NOTE ¥0
- BRIDGE ¥0
- MC6000 ¥3
- MC4000X ¥3
- MC6000 ¥5
- DX300 ¥1
- 10CP-14 ¥2

Write code in a compact and powerful assembly language where every instruction can be conditionally executed.

Comet 64: Programming

// User Manual

01. ~~Then We Doubled It**~~02. ~~Why so Negative?*~~03. ~~Weigh it Up**~~04. ~~Plus Ones Welcome*~~05. ~~What Sorcery is This?*~~06. ~~Compare the Pair**~~07. ~~The Doppelgänger**~~08. ~~Sum'bitch**~~09. ~~Reverse Integering**~~10. ~~Differentiator**~~11. ~~Root Input**~~

```

1 fal:
2 reg = int;
3 int = input;
4 check reg = int;
5 jump if false: fa
6 output = reg;

```

9

10

11

12

13

14

15

16

17

18

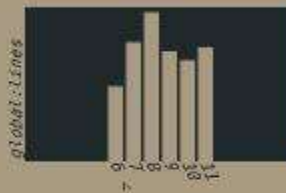
19

20

21

22

HISTOGRAMS & LEADERBOARDS



friends:lines

what sorceress this	6
prestna	6
kesteldendir	6
JckLM3	7
AskmeAbout84	10
merkerr93	11
darksideofthemoon	11

friends:cycles

AskmeAbout84	54
darksideofthemoon	54
JckLM3	62
lana	72
what sorceress this	74
kesteldendir	90
prestna	104

return;

X

null

Turing Complete: Turing Machines/ Assembly

The screenshot displays the Component Factory software interface. On the left, there is a control panel with buttons for 'Read A', 'Read B', 'Write A', 'Write value', 'MEMORY', and 'OUTPUTS'. The central workspace shows a circuit schematic with orange and blue lines representing connections between components. A legend at the bottom identifies the components: Read A (red circle), Read B (red circle), Write A (yellow square), Write value (yellow square), Output (green circle), and another Output (green circle). On the right, a 'Component preview' window for 'LegReg' is open, showing a list of components and their properties.

Component preview window details:

- Component: LegReg
- Visible in menu:
- Last edit: Just now
- Gate: 65
- Delay: 12
- Used in architectures: LEG
- Name: _____

Component preview

Read A — ● — Output
 Read B — ● — Output
 Write A — ■ —
 Write value — ■ —

1817

9817

16817

32817

64817

10

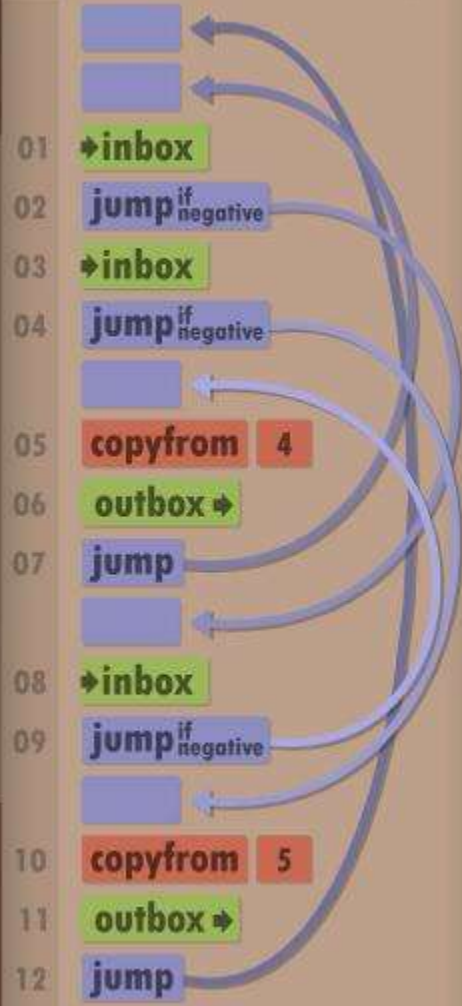
CUSTOM

Human Resource Machine: Visual Programming

Emotional decisions
are for the weak.

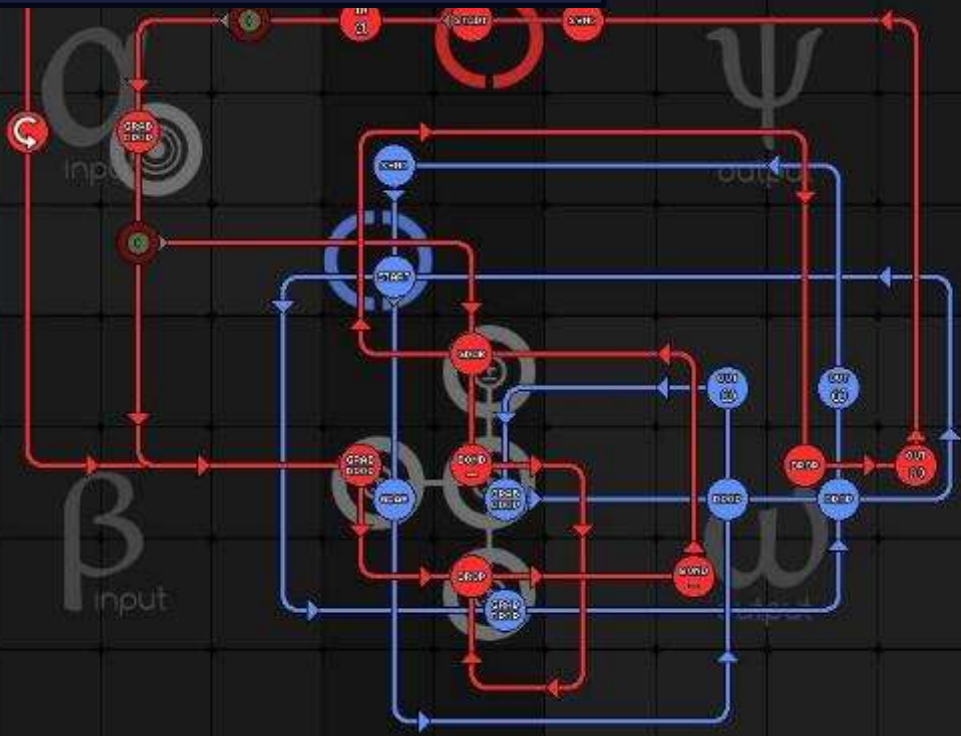


```
→inbox  
outbox →  
copyfrom  
copyto  
add  
sub  
jump  
jump if zero  
jump if negative  
...  
?
```



A control panel with buttons for: undo, redo, play, loop, and a slider.

SpaceChem: Principles of Automation



Story & Info

Exit Reactor

Undo

Redo

Layer Controls

- Active
- Visible
- Locked

Mouse over an atom to view it in more detail.

Current Progress

Cycles: 0

Symbols: 116

Reactors: 2

Analyze security systems using "probe".
 Use "portback" to break active security.
 Scan for adjacent nodes using "scan".
 Clear logs in the /log folder using "rm [FILENAME or *]".
 Download files with the command "scp [FILENAME]".

Add Note Close
 appinntrack (11/20/17, 19:21:13)

alice	hacker
freeman	warrior
gorno	robert
steele	bobba
hain	hacker
hacker	monty
tspero	stupid
hobby	arrog
torauer	carter
banoff	bravac
grub	msdnfnt
plawan	hacker
schlud	lone
adgria	xxxxx
pearce	vanke
sordan	collera
adria	staurp

PASSWORD FOUND

DISPLAY
 User Name: 595ab / 763ab
 IP: 218.23.192.113

Connected to Viper-Battlestation

@ 218.23.192.113

You are the Administrator of this system

- Login
- Probe System
- View Filesystem
- View Logs
- Scan Network

```

TERMINAL
Note: the wildcard "*" indicates "All"

7.168.22.257/log/> portback
Portback initialized -- Running...
7.168.22.257/log/> rm *
Deleting @66_connection_from_211.46.46.112.

Excellent work...

#Disconnect from this computer#
You can do so using the "dc"
or "disconnect" command.

...Done
Deleting @119_211.46.46.112 Eugene Admin...
7.168.22.257/log/> connect 7.168.22.257
--Portback Complete--
Disconnected
Scanning for 7.168.22.257
Connection Established:
Connected to Warden Solutions@7.168.22.257...Done
Deleting @119_211.46.46.112 Disconnected...Done
Deleting @119_connection: from_211.46.46.112...Done
Deleting @119_FileRead: by_211.46.46.112_-_fileconfig.txt...Done
7.168.22.257/B:
Disconnected

Congratulations, You have
completed the guided section
of this tutorial.

#To finish it, you must locate#
#the process ID of this tutorial#
#program and kill it.#

(the "help" command will
give you a complete command
list of any task.

...

7.168
UID : PID : NAME
root : 123 : Tutorial Program
> kill 123
Process 123[Tutorial Program] ended
> connect 211.46.46.112
Disconnected
Scanning for 211.46.46.112
Connection Established ::
connected to host 9c@211.46.46.112
211.46.46.112@: ls
ls
cd
cd /bin
cd /bin
211.46.46.112@: cd /bin
211.46.46.112/bin/> securityTracer
211.46.46.112/bin/> ps
UID : PID : NAME
root : 146 : Notes
root : 177 : Security Tracer
211.46.46.112/bin/> kill 177
Process 177[Security Tracer] ended
211.46.46.112/bin/> rm SecurityTracer.exe
Deleting SecurityTracer.exe...Done
211.46.46.112/bin/> connect 218.23.192.113
Disconnected
Scanning for 218.23.192.113
Connection Established ::
connected to Viper-Battlestation@218.23.192.113
218.23.192.113@: Portback
Portback initialized -- Running...
218.23.192.113@: connect 218.23.192.113
--Portback Complete--
Disconnected
Scanning for 218.23.192.113
Connection Established ::
connected to Viper-Battlestation@218.23.192.113

218.23.192.113@:
  
```

Hacknet: Linux Commands and Penetration Testing

Disconnect

batmap_v3.7

HOST FINGERPRINT

Loading module

Host Fingerprint (version 1.3)

This module executes at
end of specific open portFingerprint starts by do
series of commands andif the installed technology
Example: `fingerprint ext`
subdomain `extranet.new`

Run 'help <command>' t

forgues@localhost

DNS & VHOST MAPPING

Example: `sfuzzer newsstreamlive.ca -t 30` ; execute a 30 second dictionary attack on the domain name newsstreamlive.ca

osintscan uses public search engine databases to discover existing subdomains. Using various query strategies, it will find all indexed pages and reconstruct the target's subdomain configuration. osintscan processes 100 search engine results every 5 seconds. You can define the depth of the research as a parameter.

Example: `osintscan newsstreamlive.ca -s google.com -d 500` ; search any trace of a newsstreamlive.ca subdomain in Google's database with the scan limit set to the 500 first results.

Run 'help <command>' to display a detailed explanation of each of these commands and their parameters.

forgues@localhost
sfuzzer fforgues.com -t 30
Processing...

Domain	Status
vpn.fforgues.com	[found]

██████████ fforgues.com [00:00:26]

Code

Output

Goal

```

s += to_str (a[i])
if (i < a.size () - 1) {
    s += " "
}
}
print (s)
}
}
}
a[i] += 2
if ((i+1) % max (p, 1) == 0) {
    def f (a, p) {
    }
    for (var i = 0; i < a.size (); ++i) {

        var v = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
        f (v, 3)
        print_vector (v)

        f (v, get_int ())
        print_vector (v)

```

```

1 2 6 4 5 12 7 8 18 10
1 4 6 8 5 24 7 16 18 20
2
4 0
4 0 1
4 0 2 3
4 0 2 3 9
8 0 4 6 18 8
8 0 4 12 18 16 7
8 0 4 24 18 16 7 2

```

Input

Move Code Lines: Programming

```

f (u.get_int ())
print_vector (u)
u.push_back (get_int ())

```



Speed



Collect the buttons 15/36

KnotBot: Programming Visual, "Junior"



TIS-100

<https://www.youtube.com/watch?v=ZkUHGvy2pNU>



SHENZHEN I/O

<https://www.youtube.com/watch?v=uUZb66Mz6u4>

Comet64

<https://www.youtube.com/watch?v=N9lckngCXeA>

<https://www.youtube.com/watch?v=kuKl8xLgqho>



Turing Complete

<https://www.youtube.com/watch?v=-YY73ejihZo>

<https://www.youtube.com/watch?v=JSd3sgcXm0I>



Human Resource Machine

https://www.youtube.com/watch?v=428R_oEjGGI

<https://www.youtube.com/watch?v=IG1W0ny0btM>



SpaceChem

<https://www.youtube.com/watch?v=H5yMg7WYQ5E>

<https://www.youtube.com/watch?v=RjYOYtd298o>



Hacknet

<https://www.youtube.com/watch?v=CcoH1X-nqLk>

<https://www.youtube.com/watch?v=zrDRMXRxxmxY>

<https://www.youtube.com/watch?v=bwQMmiPl5Ow>

Nite Team 4

https://www.youtube.com/watch?v=bUa7AJv1V_g

<https://www.youtube.com/watch?v=LLtUyVLya2c&t=4s>

Move Code Lines: Programming

<https://www.youtube.com/watch?v=Mf333G42dnE>

KnotBot

<https://www.youtube.com/watch?v=8MNRdtAG4aQ>

<https://www.youtube.com/watch?v=o3JVoeIxSyA>

Robotics/ Simulation

<https://webots.cloud/simulation>

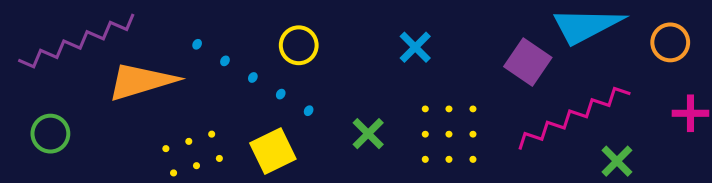
<https://centerstage.vrobotsim.online/homepage.html>

<https://robotbenchmark.net/>

<https://gazebosim.org/home>

<https://www.codewars.com/>

<https://codecombat.com/>



Thank you!

**[NMSLAB]: Networks,
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