实验四环境配置

Linux

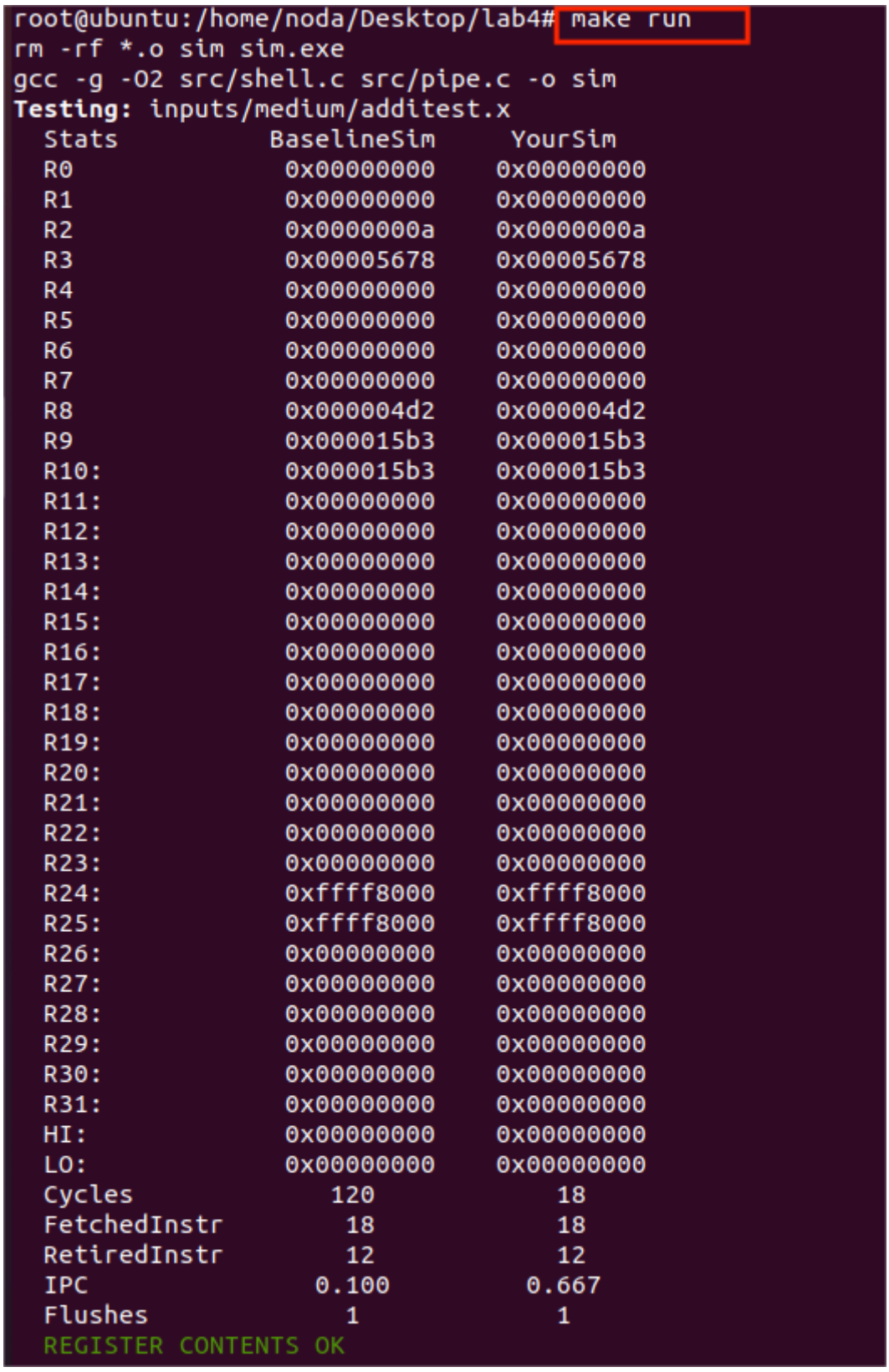
1. 自行创建虚拟机（VMware Workstation、Virtual Box、WSL），下面以Ubuntu为例。
2. 自行添加或更换软件源
3. 安装python：`sudo apt install python` 或 `sudo apt install python3`
4. 安装pip：`sudo apt install pip`
5. 安装gcc及make环境：`sudo apt install build-essential`
6. 安装colorama模块：`pip install colorama`
7. 若使用python3，将run文件首行改为`#!/usr/bin/python3`
8. 为sim和basesim添加权限：(需要先make 生成sim文件)

`sudo chmod +x sim`　　`sudo chmod +x basesim`

9. 调试实验程序

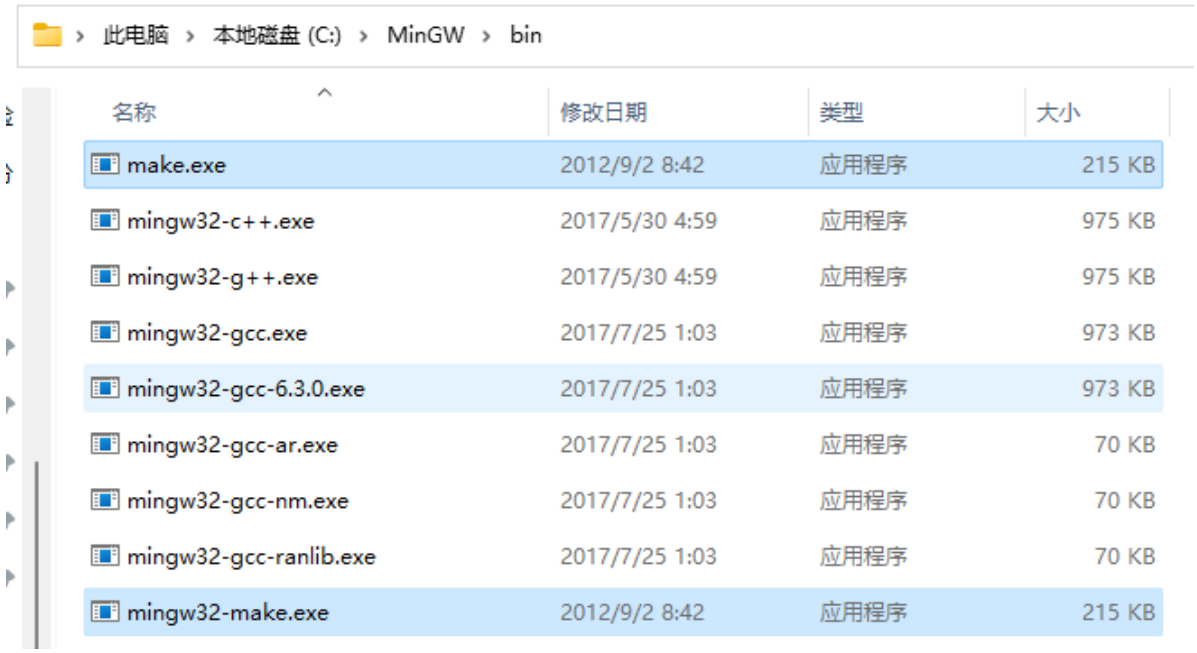
```
root@ubuntu:/home/noda/Desktop/lab4# ./sim ./inputs/inst/sb.x
MIPS Simulator

Read 7 words from program into memory.

MIPS-SIM> ?

----------------MIPS ISIM Help-----------------------
go                      -  run program to completion
run n                   -  execute program for n instructions
rdump(rd)               -  dump architectural registers
mdump low high          -  dump memory from low to high
input reg_no reg_value  -  set GPR reg_no to reg_value
?                       -  display this help menu
quit                    -  exit the program

MIPS-SIM> input 1 123456

1 123456
MIPS-SIM> mdump 0 4


Memory content [0x00000000..0x00000004] :
-------------------------------------
  0x00000000 (0) : 0x00000000
  0x00000004 (4) : 0x00000000

MIPS-SIM> rdump

PC: 0x00400000
R0: 0x00000000
R1: 0x0001e240
```

9. 运行检查脚本



Windows

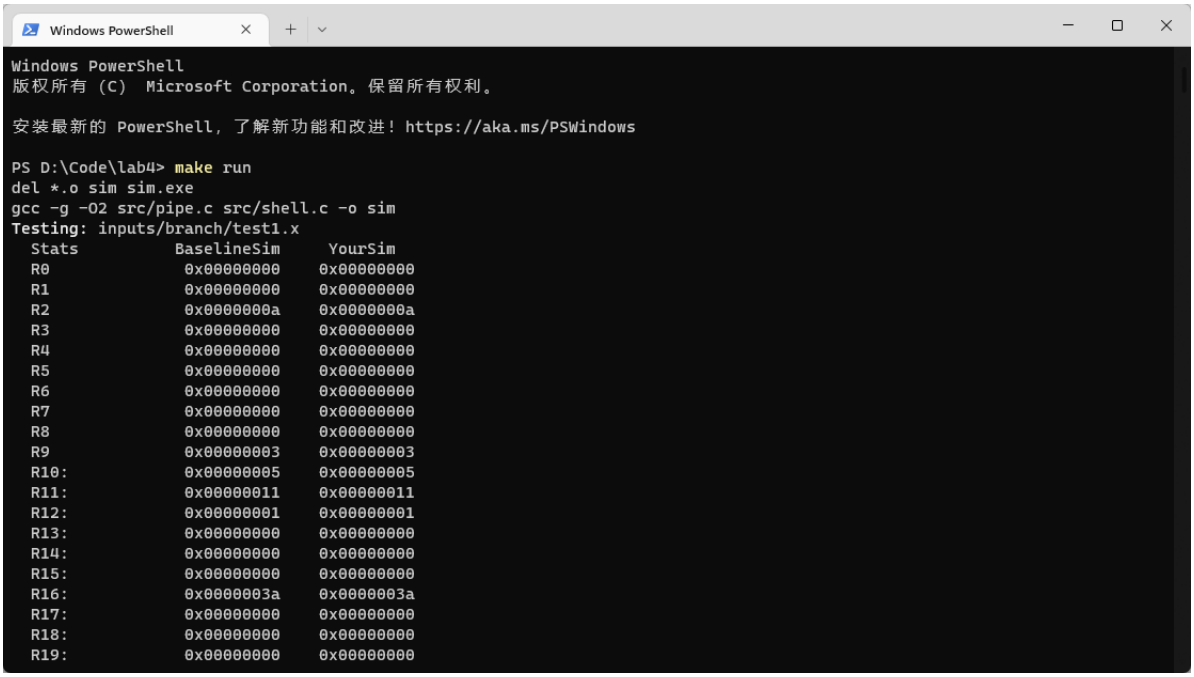
1. 自行安装python2.7以上版本：https://www.python.org/
2. 安装gcc及make工具，下面以MinGW为例：https://www.mingw-w64.org/
3. 将python和MinGW路径都添加到环境变量。
4. 为mingw32-make.exe创建副本，并重命名为make.exe



5. 调试实验程序

```
PS D:\Code\lab4> ./sim ./inputs/inst/sw.x
MIPS Simulator

Read 7 words from program into memory.

MIPS-SIM> ?

----------------MIPS ISIM Help-----------------------
go                    -  run program to completion
run n                 -  execute program for n instructions
rdump(rd)             -  dump architectural registers
mdump low high        -  dump memory from low to high
input reg_no reg_value -  set GPR reg_no to reg_value
?                     -  display this help menu
quit                  -  exit the program

MIPS-SIM>
```

6. 运行检查脚本


Windows PowerShell
Windows PowerShell
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安装最新的 PowerShell，了解新功能和改进！ https://aka.ms/PSWindows
PS D:\Code\lab4> make run
del *.o sim sim.exe
gcc -g -O2 src/pipe.c src/shell.c -o sim
Testing: inputs/branch/test1.x
Stats BaselineSim YourSim
R0 0x00000000 0x00000000
R1 0x00000000 0x00000000
R2 0x0000000a 0x0000000a
R3 0x00000000 0x00000000
R4 0x00000000 0x00000000
R5 0x00000000 0x00000000
R6 0x00000000 0x00000000
R7 0x00000000 0x00000000
R8 0x00000000 0x00000000
R9 0x00000003 0x00000003
R10: 0x00000005 0x00000005
R11: 0x00000011 0x00000011
R12: 0x00000001 0x00000001
R13: 0x00000000 0x00000000
R14: 0x00000000 0x00000000
R15: 0x00000000 0x00000000
R16: 0x0000003a 0x0000003a
R17: 0x00000000 0x00000000
R18: 0x00000000 0x00000000
R19: 0x00000000 0x00000000