**Assignment Report**

Group D

1. Plotting
   1. Top 10
   2. 10 features (txt)
   3. Plot pyplot, manual plotting softwares
2. Normalization
3. Analyse :
   1. Top 10 instr (dependency arguments) --
   2. Analyzing the plotting --
4. Doc Organisation

**A. Appendix**

**A.1 Running Instructions**

**A.1.1 Installing/Building Gem5**

Follow this :

<http://learning.gem5.org/book/part1/building.html>

**A.1.2 Testing the default gem5 build**

Run this by opening terminal in gem5 folder:

$ build/X86/gem5.opt configs/example/se.py --cmd=tests/test-progs/hello/bin/x86/linux/hello --cpu-type=TimingSimpleCPU --l1d\_size=64kB --l1i\_size=16kB --caches

**A.1.3 How to Modify**

Download the following files from Drive:

Options\_modified.py, se\_modified.py, run.py, qsort5

1. Copy Options\_modified.py to ./gem5/configs/common/
2. Copy se\_modified.py to ./gem5/configs/example/
3. Copy qsort5 to ./gem5/tests/
4. Copy run.py to ./gem5/

**A.1.4 First test run on Modified Code**

1. Open terminal in ./gem5
2. For a test run do this:

$ python3 run.py

**A.1.5 Running the main Simulation**

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**Use Multi-core execution and save time.**

**Time is precious.**

**Don’t waste it on a single core. ~Aad Sahoo**

First delete the gem5/Stats folder ( to clear outputs from previous runs )

1. Open run.py
2. run.py : Comment out lines 27-28

# if i > 10:

# break

1. Compile python script making file :

$ python run.py --numiqentries X --sqentries Y --lqentries Z --verbose 2 -n=8

Fill X , Y, Z from values against ur name in the sheet…

-n=8 refers to the number of parallel processes you want to run (set according to ur laptop configs)

Use python3 if there’s an error

e.g. Aadarsh will run this :

$ python run.py --numiqentries 64 --sqentries 64 --lqentries 16 --verbose 2 -n=8

If lqentries is “all”, then just use this :

$ python run.py --numiqentries X --sqentries Y --verbose 2 -n=8

Fill X, Y from spreadsheet

e.g. Yogesh will run :

$ python run.py --numiqentries 16 --sqentries 16 --verbose 2 -n=8

**A.1.6 Checking the progress of A.1.5**

1. Check the number of files in gem5/Stats/Assign1
2. Final count of files is given in the spreadsheet

Note : Save the gem5/Stats folder to

**A.1.7 Running the top10 script**

1. Go to folder where the run output txts are saved (by default it is gem5/Stats, but you may have saved them somwhere else)

2. Copy final\_select\_top10.py (from GDrive) to this folder

3. Open terminal from the folder

4. Run " python3 final\_select\_top10.py > AMATYA\_top10.txt ". (Write your own name)

[ If there is an error, delete all 0 byte size files from ./Assign1 (sort in increasing order by size) if they are less than 5 in number.. If there are more than 5 files of size 0 byte in ./Assgn1 then ping me ]

5. Upload the file to GoogleDrive HPCA/Assign1/Stats/Top10

GoogleDrive Link : <https://drive.google.com/drive/folders/1X6O1G5VXTkx4-tzC-ZVYu6snxq8SCTvw?usp=sharing>

**A.1.8 Setting the standard**

Run the following command from gem5 folder:

$ build/X86/gem5.opt -d "Stats/Assign1/." --stats-file=out\_64kB\_64kB\_512kB\_8\_4\_LocalBP\_16\_64\_192\_64.txt configs/example/se\_modified.py -c ./tests/qsort5 --l1d\_size=64kB --l1i\_size=64kB --l2\_size=512kB --l1d\_assoc=8 --l1i\_assoc=8 --l2\_assoc=4 --bp-type=LocalBP --lqentries=16 --sqentries=64 --robentries=192 --numiqentries=64 --caches

to compare the run times to see what are the variations we are experiencing due to use of multiple devices

upload the ouput txt file in GDrive HPCA/Assgn1/Stats/Standard Run/

Append your name to the file name

Observations:

Increasing l2 cache benefits only if there is spatial locality but won’t affect our case as we have random elements