

Project 2: READ-ME File Example

The project requirements are described in p2-memsim.pdf. Use memory traces that are stored in two files: bzip.trace.zip and sixpack.trace.zip. You are to implement a page replacement algorithm presented in this paper.

Files necessary to compile the program:

- memsim.c : main interface of the simulator, it takes user input in two forms
- fifo.c: file that implements first-in first-out replacement policy
- lru.c: file that implements least recently used policy
- vms.c: file that implements segmented-fifo policy
- dataStructures.c: file that initializes the data structures necessary to run the program such as the page table

In addition to that the folder must also include policies.h, and dataStructures.h. The first one declares the policies previously mentioned to be used by the simulator, and the second one makes the dataStructures accessible to all the policies. Also, make sure to include any trace file to be tested in the same directory as well.

To compile the program:

1. You can use command "make" and it will compile all the files for you which creates memsim executable.
2. alternatively, you can also try "gcc -o memsim memsim.c fifo.c lru.c vms.c dataStructures.c", to compile the program.

To run the program:

The program can be run with two types of input format

1. For fifo and lru use the following format:

```
./memsim tracefile nFrames policy quiet/debug
```

2. For segmented fifo use the following format:

```
./memsim tracefile nframes policy percentage quiet/debug
```

_____Running Examples_____

```
./memsim bzip.trace 64 fifo quiet
```

total memory frames: 64

events in trace: 1000000

total disk reads: 1467

total disk writes: 514

./memsim bzip.trace 64 vms 0 quiet

Memory Frames: 64

Trace Count: 1000000

Read Count: 1467

Write Count: 514

./memsim bzip.trace 64 vms 25 quiet

Memory Frames: 64

Trace Count: 1000000

Read Count: 1367

Write Count: 471

./memsim bzip.trace 64 vms 50 quiet

Memory Frames: 64

Trace Count: 1000000

Read Count: 1290

Write Count: 427

./memsim bzip.trace 64 vms 75 quiet

Memory Frames: 64

Trace Count: 1000000

Read Count: 1267

Write Count: 416

./memsim bzip.trace 64 vms 100 quiet

Memory Frames: 64

Trace Count: 1000000

Read Count: 1264

Write Count: 420

```
./memsim bzip.trace 64 lru quiet
```

total memory frames: 64

events in trace: 1000000

total disk reads: 1264

total disk writes: 420

where:

-policy: fifo, lru or vms

-percentage: 1-100

-tracefile: name of the tracefile

-nFrames: number of frames to use

- quiet/debug: quiet will just print the stats while debug will print every event that happens

This program was tested and compiled with no warnings under the student cluster