

Assignment I

Following two practical assignments need to be completed as a submission part of T I.

Each consists of 10 marks.

1. Title: Study and experimentation using perf tool to observe different statistics of a program.

Install perf tool in ubuntu linux.

For Debian-based systems use the following command to install 'perf': `sudo apt-get install linux-tools-common linux-tools-generic linux-tools-`uname -r``.

To get a complete list of PERF commands use “`perf -help`”.

To obtain list of supported events use command “`perf list`”.

Classify the events given by perf tool in software and hardware events.

Division I: Software Events and its explanation

Division II: Hardware Events and its explanation

2. Title: Write a program to multiply two different matrices of size 1024 x 1024.

We need to consider row-wise as well as column-wise accesses as two different cases of the same program.

Compile and execute it.

Give executable of these two perf tool as follows:

The command “`perf stat -e cpu-clock ./matrix_multiply`” gives cpu-clock event

Use “`perf record -e cpu-clock, faults ./matrix_multiply`” to collect profile data

Use “`perf stat -e cache-misses ./matrix_multiply`” to measure cache misses

One may use tiled approach to divide an entire matrix into sub matrices for multiplication purpose.

Refer the another PDF attached herewith.

References:

1. <https://perf.wiki.kernel.org/index.php/Tutorial>

2. [https://en.wikipedia.org/wiki/Perf_\(Linux\)](https://en.wikipedia.org/wiki/Perf_(Linux))