**OPERATING SYSTEM**



##### PROJECT SUBMISSION

###### 

###### ***Submitted by:***

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##### RACHIT GOEL 12104742

##### AADIT GARG 12104747

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**ABOUT THE PROJECT:-**

**CPU time** (or **process time**) is the amount of [time](http://en.wikipedia.org/wiki/Time) for which a [central processing unit](http://en.wikipedia.org/wiki/Central_processing_unit) (CPU) was used for processing [instructions](http://en.wikipedia.org/wiki/Instruction_(computer_science)) of a [computer program](http://en.wikipedia.org/wiki/Computer_program) or [operating system](http://en.wikipedia.org/wiki/Operating_system), as opposed to, for example, waiting for [input/output](http://en.wikipedia.org/wiki/Input/output) (I/O) operations or entering low-power (idle) mode. The CPU time is measured in [clock ticks](http://en.wikipedia.org/wiki/Clock_tick#Computing) or seconds. Often, it is useful to measure CPU time as a percentage of the CPU's capacity, which is called the **CPU usage**

## /proc/stat explained

Various pieces of information about kernel activity are available in the  
/proc/stat file.  
All of the numbers reported in this file are aggregates since the system first booted.

For a quick look, simply cat the file:

> cat /proc/stat  
cpu 2255 34 2290 22625563 6290 127 456  
cpu0 1132 34 1441 11311718 3675 127 438  
cpu1 1123 0 849 11313845 2614 0 18  
intr 114930548 113199788 3 0 5 263 0 4 [... lots more numbers ...]  
ctxt 1990473  
btime 1062191376  
processes 2915  
procs\_running 1  
procs\_blocked 0

The very first "cpu" line aggregates the numbers in all of the other "cpuN" lines.

These numbers identify the amount of time the CPU has spent performing different kinds of work. Time units are in USER\_HZ or Jiffies (typically hundredths of a second).

The meanings of the columns are as follows, from left to right:

* user: normal processes executing in user mode
* nice: niced processes executing in user mode
* system: processes executing in kernel mode
* idle: twiddling thumbs
* iowait: waiting for I/O to complete
* irq: servicing interrupts
* softirq: servicing softirqs

The "intr" line gives counts of interrupts serviced since boot time, for each  
of the possible system interrupts. The first column is the total of all interrupts serviced; each subsequent column is the total for that particular interrupt.

The "ctxt" line gives the total number of context switches across all CPUs.  
  
  
  
The "btime" line gives the time at which the system booted, in seconds since  
the Unix epoch.  
  
  
  
The "processes" line gives the number of processes and threads created, which includes (but is not limited to) those created by calls to the fork() and clone() system calls.  
  
  
  
The "procs\_running" line gives the number of processes currently running on CPUs.  
  
  
  
The "procs\_blocked" line gives the number of processes currently blocked, waiting for I/O to complete.

copied from the kernel documentation of the /proc filesystem

long cpu\_all\_time = (new->user - old->user) + (new->nice - old->nice) + (new->system - old->system) + (new->idel - old->idel) + (new->irq - old->irq) + (new->softirq - old->softirq)

long cpu\_used\_time = (new->user - old->user) + (new->nice - old->nice) + (new->system - old->system) + (new->iowait - old->iowait) + (new->irq - old->irq) + (new->softirq - old->softirq)

rate = cpu\_used\_time / cpu\_all\_time \*100

Instalation for GTK  
  
sudo apt-get install libgtk2.0-dev

To compile gcc cpuusage.c -o cpuusage `pkg-config --libs --cflags gtk+-2.0`  
  
to Run ./cpuusage

**OUTPUT:-**

