

# CS 244: System Programming

## Preemptive Process Scheduler

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# Outline

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# Introduction

In this project we tried to make *Preemptive Process Scheduler* using Python as our language and Gnuplot to draw graphs. We also made a *Round-Robin Scheduler* for comparison with *Preemptive Process Scheduler*.

We plotted two types of graphs:

- ▶ Misses vs Number of processors
- ▶ Misses vs Number of tasks.

## Softwares Requirements

We need Python 2.7, Gnuplot, Gnuplot.py, numpy preinstalled before running the code. Gnuplot is used to make 2-D and 3-D graphs whereas Gnuplot.py interfaces Gnuplot with python. Numpy gives additional mathematical capabilities to Python.

## Inputs

Inputs are given in a *generate.txt* file. The format of input is as follows:

- ▶ 1<sup>st</sup> line contains the number of test cases.
- ▶ 2<sup>nd</sup> line contains number of processors.
- ▶ 3<sup>rd</sup> line contains number of tasks.
- ▶ 4<sup>th</sup> line contains processing time.
- ▶ So on and so forth ...

## Round Robin Scheduler

Round-robin (RR) is process scheduling algorithm. As the term is generally used, time slices are assigned to each process in equal portions and in circular order, handling all processes without priority (also known as cyclic executive).

## Preemptive Process Scheduler

It is another algorithm to allocate tasks to processors. In this procedure we use heap data structure to simulate priority queue. Allocation is done on deadlines. Misses are calculated and two graphs are plotted. 1<sup>st</sup> graph contains *Misses vs Number of processors* and 2<sup>nd</sup> graph contains *Misses vs Number of processors* with both algorithms.

# Thank You

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