



An Overview

CPU scheduling is the basis of multiprogrammed operating systems. By switching the CPU among processes, the operating system can make the computer more productive.

This chapter, we introduce basic CPU-scheduling concepts and present several CPU-scheduling algorithms. We also consider the problem of selecting an algorithm for a particular system.

Ch. 6: Process Scheduling

Chapter Objectives.

- To introduce CPU scheduling, which is the basis for multiprogrammed operating systems.
- To describe various CPU-scheduling algorithms.
- To discuss evaluation criteria for selecting a CPU-scheduling algorithm for a particular system.
- To examine the scheduling algorithms of several operating systems.

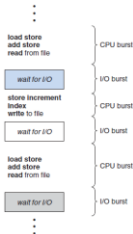
Ch. 6: Process Scheduling

Agenda.

- Basic Concept
- Scheduling Criteria
- Scheduling Algorithms

Basic Concept

- Mengapa penjadwalan proses dibutuhkan?
 - *single-processing system tidak efisien*;
 - memaksimalkan penggunaan CPU (*CPU utilization*);
 - efisiensi waktu eksekusi proses.
- Strategi penjadwalan yang digunakan:
 - *nonpreemptive scheduling*; dan
 - *preemptive scheduling*.



Scheduling Criteria

- Kriteria penjadwalan berhubungan dengan algoritma penjadwalan.
- Setiap algoritma penjadwalan CPU memiliki properti yang berbeda-beda.
- Pemilihan algoritma yang digunakan didasarkan pada properti yang dimiliki oleh beragam algoritma penjadwalan CPU.
- Dibutuhkan suatu kriteria yang digunakan untuk pemilihan algoritma penjadwalan CPU.

Scheduling Criteria

- Kriteria penjadwalan yang dimaksud adalah sebagai berikut:
 - CPU utilization.
 - Throughput.
 - Turnaround time.
 - Waiting time.
 - Response time.

Scheduling Algorithms

First-Come, First-Serve (FCFS) Scheduling.

Process	Burst Time
P_1	24
P_2	3
P_3	3

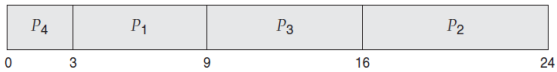


- Hitung rata-rata waktu tunggu setiap proses?

Scheduling Algorithms

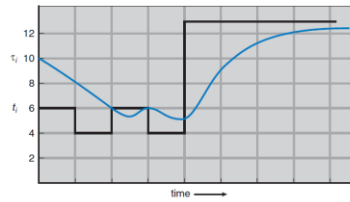
Shortest-Job-First (SJF) Scheduling.

Process	Burst Time
P_1	6
P_2	8
P_3	7
P_4	3



- *Hitung rata-rata waktu tunggu setiap proses?*

Scheduling Algorithms



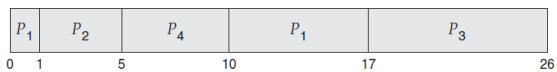
CPU burst (t)	6	4	6	4	13	13	...		
"guess" (t)	10	8	6	6	5	9	11	12	...

Prediction of the Length of the Next CPU Burst.

Scheduling Algorithms

Shortest-Remaining-Job-First (SRJF) Scheduling.

Process	Arrival Time	Burst Time
P_1	0	8
P_2	1	4
P_3	2	9
P_4	3	5

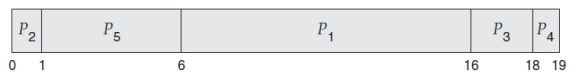


- *Hitung rata-rata waktu tunggu setiap proses?*

Scheduling Algorithms

Priority Scheduling.

Process	Burst Time	Priority
P_1	10	3
P_2	1	1
P_3	2	4
P_4	1	5
P_5	5	2

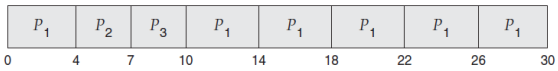


- *Hitung rata-rata waktu tunggu setiap proses?*

Scheduling Algorithms

Round-Robin Scheduling.

Process	Burst Time
P_1	24
P_2	3
P_3	3



- *Hitung rata-rata waktu tunggu setiap proses?*

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Operating System:

Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, *Operating System Concepts Essentials*, 2012, 2^o Edition, John Wiley & Sons, Inc.

CHAPTER 6 PART 2: PROCESS SCHEDULING

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