

Online Algorithms and Problems



Online Algorithms

❖ Online vs. Offline algorithms

- ◆ Offline algorithms receive all their inputs at one time.
- ◆ Online algorithms receive and process their inputs in partial amounts

❖ e.g. Sorting

- ◆ Quick Sort is an offline sorting algorithm while Insertion Sort is an online sorting algorithm
 - ◆ Why?
 - ◆ Arrival models:
 - ◆ Fully discrete
 - ◆ Bursts
 - ◆ Does this change the (amortized) time complexity?



Online Problems

- ❖ Question: Are there scenarios when you want sorting to be online?
- ❖ Question: Are there scenarios when graph problems are online?
- ❖ Question: Can you cite some online problems in the context of an operating system?