

Homework 2

Submit this assignment at the start of class.

Name:

PID:

Email address:

Part 1 - Scheduling with EDD and EDF

Consider the task set in which each task is specified as (C, D) : $\{(1, 2), (4, 10), (3, 4), (2, 5)\}$. Apply the schedulability test for EDD (covered in class and on p. 58). Write each equation as a separate line. (6 points)

Is the above task set schedulable by EDD?

(2 points)

Yes / No

For the task set above, draw the schedule we would get by using EDD.

(8 points)

Be sure to include release times and absolute deadlines.

What is the start time for job (4, 10)?

(1 point)

What is the start time for job (2, 5)?

(1 point)

What is the finishing time for job (2, 5)?

(1 point)

Consider the task set, represented in the form (φ, C, D) , $\{(0, 3, 7), (1, 1, 4), (0, 2, 8), (3, 1, 3)\}$. Draw the schedule we would get by using EDF. (8 points)
Be sure to include release times and absolute deadlines.

What is the start time for job $(0, 2, 8)$? (1 point)

What is the start time for job $(3, 1, 3)$? (1 point)

What is the finishing time for job $(0, 3, 7)$? (1 point)

Is the schedulability test given below sufficient or necessary for EDD?

(It is not exact.) $\forall i = 1..n, \sum_{k=1}^i C_k \leq D_i + 1$ (2 points)

Sufficient / Necessary

Prove that the option you did not select above is incorrect by providing an example (a task set) and a sentence or more explaining why that option is incorrect based on your example. (6 points)

Part 2 - Optimality

The following questions test your understanding of optimality and what we can conclude based on the fact that EDD is optimal.

A task set is schedulable by Algorithm A. What can we say about the task set's schedulability by EDD? (3 points)

- A. This task set is schedulable by EDD.
- B. This task set is not schedulable by EDD.
- C. More information is needed to determine schedulability under EDD.

A task set is not schedulable by Algorithm A. What can we say about the task set's schedulability by EDD? (3 points)

- A. This task set is schedulable by EDD.
- B. This task set is not schedulable by EDD.
- C. More information is needed to determine schedulability under EDD.

A task set is not schedulable by EDD. What can we say about the task set's schedulability by a different algorithm, called Algorithm A? (3 points)

- A. This task set is schedulable by Algorithm A.
- B. This task set is not schedulable by Algorithm A.
- C. More information is needed to determine schedulability under Algorithm A.

A task set is schedulable by EDD. What can we say about the task set's schedulability by a different algorithm, called Algorithm A? (3 points)

- A. This task set is schedulable by Algorithm A.
- B. This task set is not schedulable by Algorithm A.
- C. More information is needed to determine schedulability under Algorithm A.

Part 3 - Reading Questions

What is the utilization (called processor utilization factor in the book) of the task set $\{(4, 1)\}$ where the task is represented as (T, C) ? (2 points)

What is the utilization of the task set $\{(8, 1), (2, 1)\}$ where the task is represented as (T, C) ? (2 points)

Feedback

How much time did you spend completing this assignment (ignoring interruptions)?

How much time did you spend doing the assigned reading (ignoring interruptions)?

Any other feedback?