Lecture 19

CSE 331

Oct 10, 2018

Mid-term-I Monday

In class

8:00am-8:50am sharp

Eight two-part True/False Qs

Feedback requested!

CSE 331 Fall 18 Oct feedback

The goal of this form is to collect feedback on various aspects of CSE 331. Please do tell us what is going wrong (so that we can try and fix it) as well as what is going right (so that we can continue doing those things). Filling in this form is completely optional and anonymous.

Overall your feeling about CSE 331

- ◯ Very Happy
- ◯ Challenged but happy
- ◯ Challenged and meh
- ◯ Challenged and unhappy

Questions?

Analyzing the algorithm

R: set of requests

Set S to be the empty set

While R is not empty

Choose i in R with the earliest finish time

Add i to S

Remove all requests that conflict with i from R

Return S* = S

S* has no conflicts

S* is an optimal solution

Some notation

$S^* = \{i_1, \ldots, i_k\}$ $O = \{j_1, \ldots, j_m\}$

$k \leqq m$

$k = m$

Greedy stays ahead

$S^* = \{i_1, \ldots, i_k\}$ $O = \{j_1, \ldots, j_m\}$

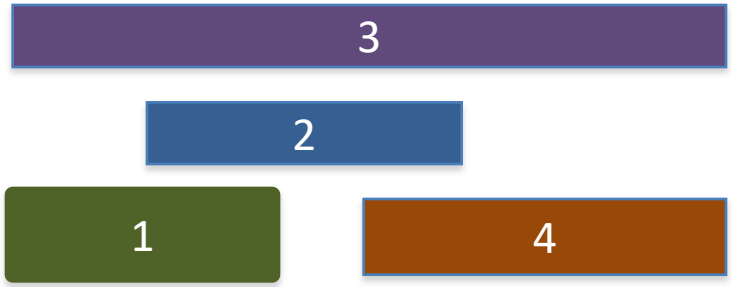
$$1 \leqq l \leqq k$$

$$f(i_l) \leqq f(j_l)$$

Questions?

Algorithm implementation

Go through the intervals in order of their finish time



Check if s[i] < f(1)

In general, if jth interval is the last one chosen

Pick smallest i>j such that s[i] ≥ f(j)

O(n log n) run time

The final algo

O(n log n) time sort intervals such that $f(i) \leq f(i+1)$

O(n) time build array s[1..n] s.t. s[i] = start time for i

Add 1 to A and set f = f(1)

For i = 2 .. n

    If $s[i] \geq f$

        Add i to A

        Set f = f(i)

Return A* = A

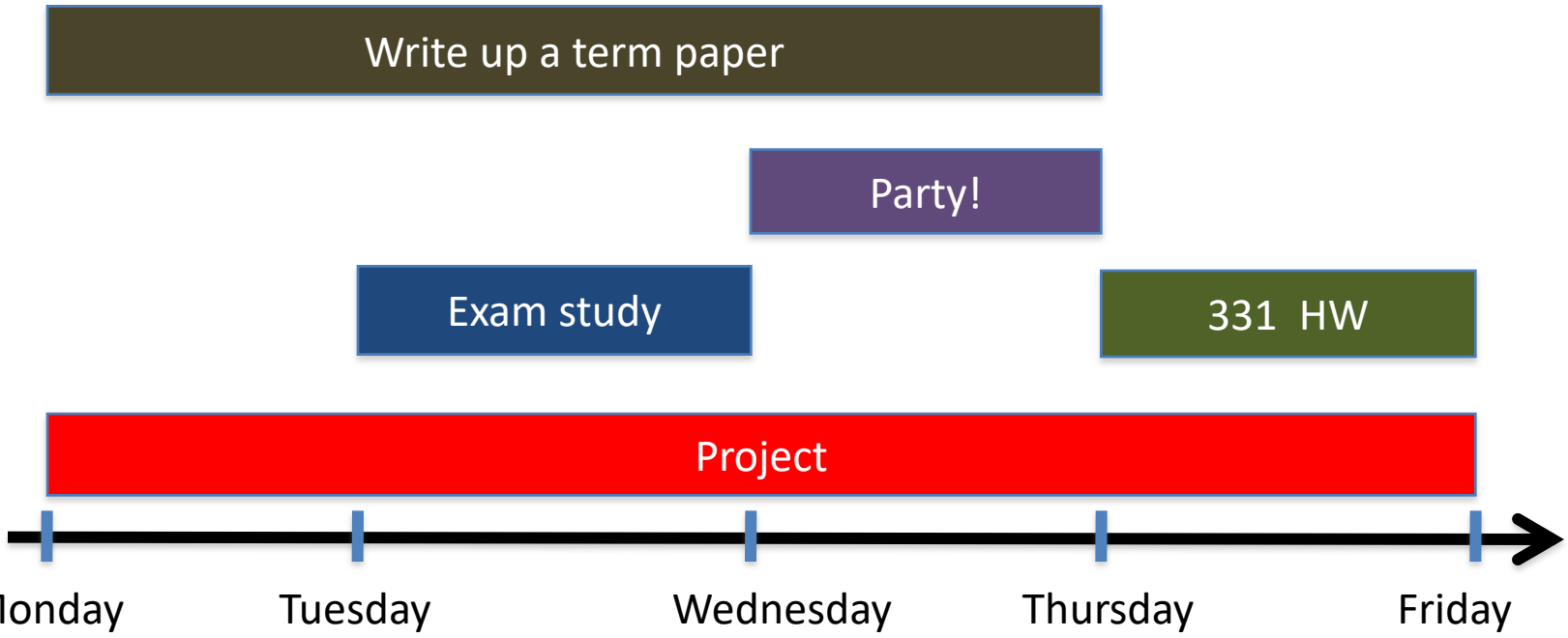
Reading Assignment

Sec 4.1 of [KT]

Questions?

The “real” end of Semester blues

There are deadlines and durations of tasks



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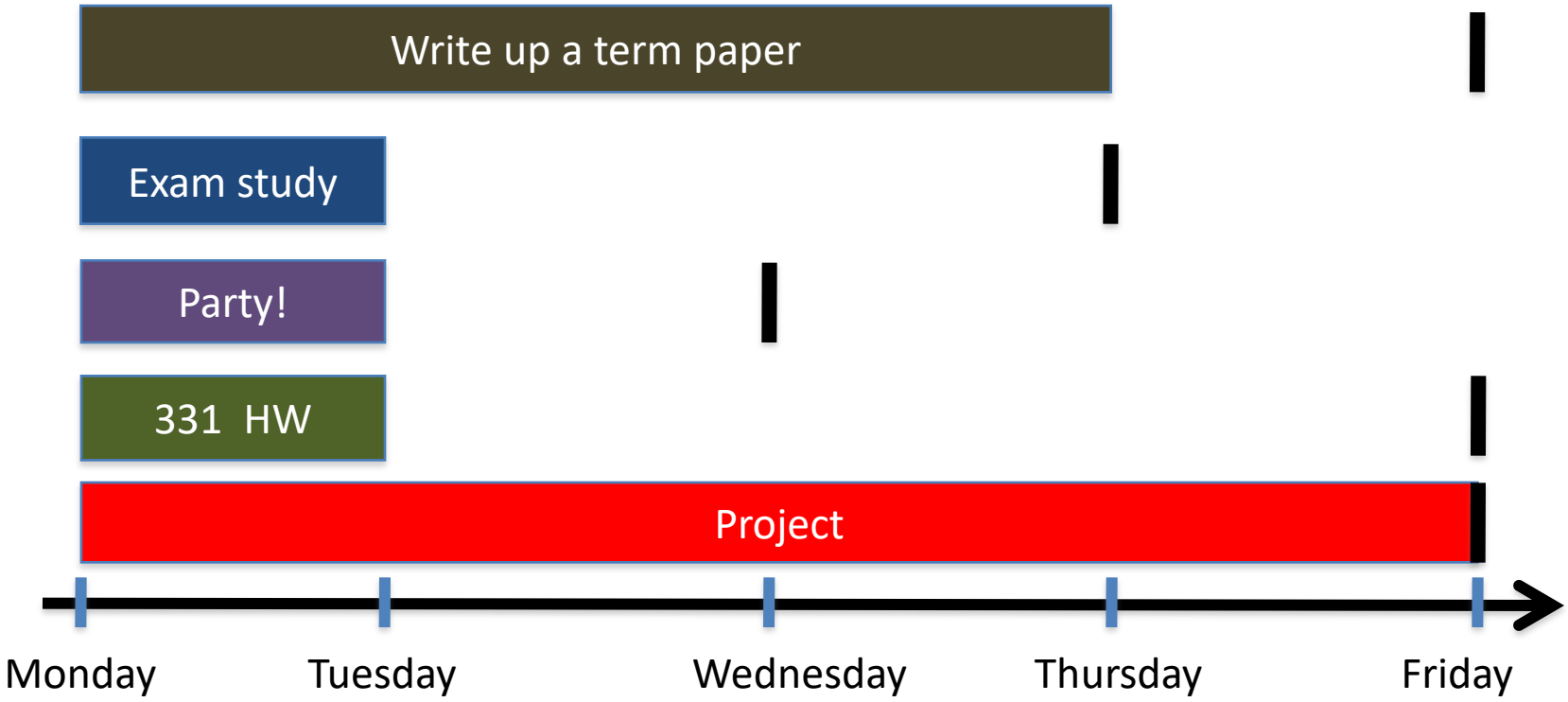


The algorithmic task

YOU decide when to start each task

Write up a term paper

Exam study

Party!

331 HW

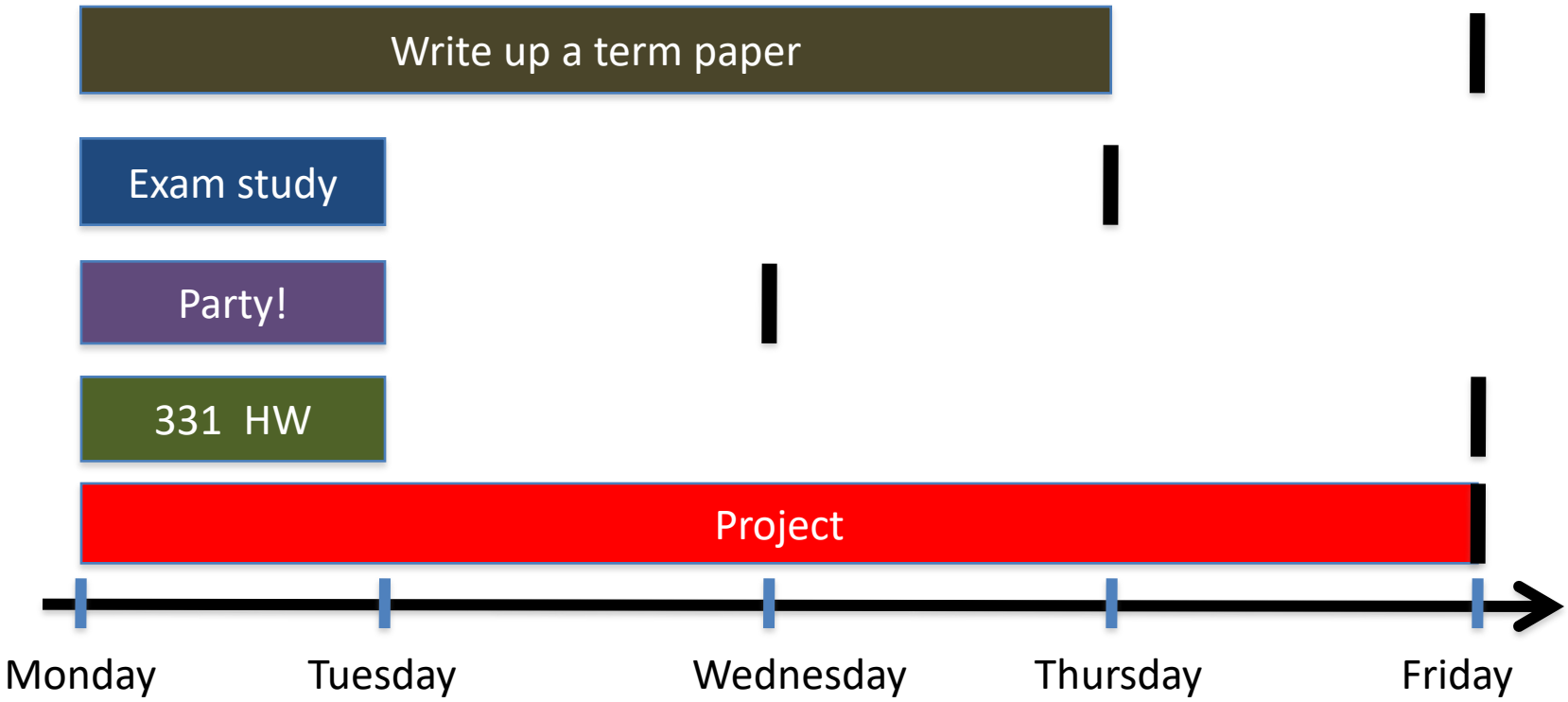
Project

You have to do ALL the tasks

Monday Tuesday Wednesday Thursday Friday

Scheduling to minimize lateness

All the tasks have to be scheduled
GOAL: minimize maximum lateness



One possible schedule

All the tasks have to be scheduled
GOAL: minimize maximum lateness