Lecture 36

CSE 331

Nov 29, 2017

Quiz 2 on Monday

note ☆ stop following 90 views Actions

Quiz 2 on December 4

A gentle reminder that quiz 2 will be in class on **Monday, December 4** from **1-1:10pm**. (This is the Monday in last week of class.)

The first two questions will be T/F without justification (so like two from Q1 on sample final- @842) and the third question will be T/F with justification (so like one from Q2 on sample final- @842 but with the modification below).

Based on the suggestion in @806, the T/F with justification question will be of the following format:

- You will be given a correct statement and will be asked to justify it (2 points)
- Then you will be given a variant of the correct statement and will be asked to say whether this statement if True or False and you will need to prove justification for your claim.
  - Correct T/F will be worth 1 points and the justification will be worth 3 points.
  - Incorrect T/F will get 0 out of 4 irrespective of the justification.

You can bring in **two** 8.5" X 11" review sheets (you can use all four sides).

#pin

Official Feedback forms

note

stop following 96 views

Actions

Incentive for filling in the course evaluations

You must have received an email (or should be receiving an email shortly) about filling the course evaluation forms. I believe this is the link:

https://www.smartevals.com/login.aspx?s=buffalo

Here is my offer to incentivize you guys filling in the course evaluation form:

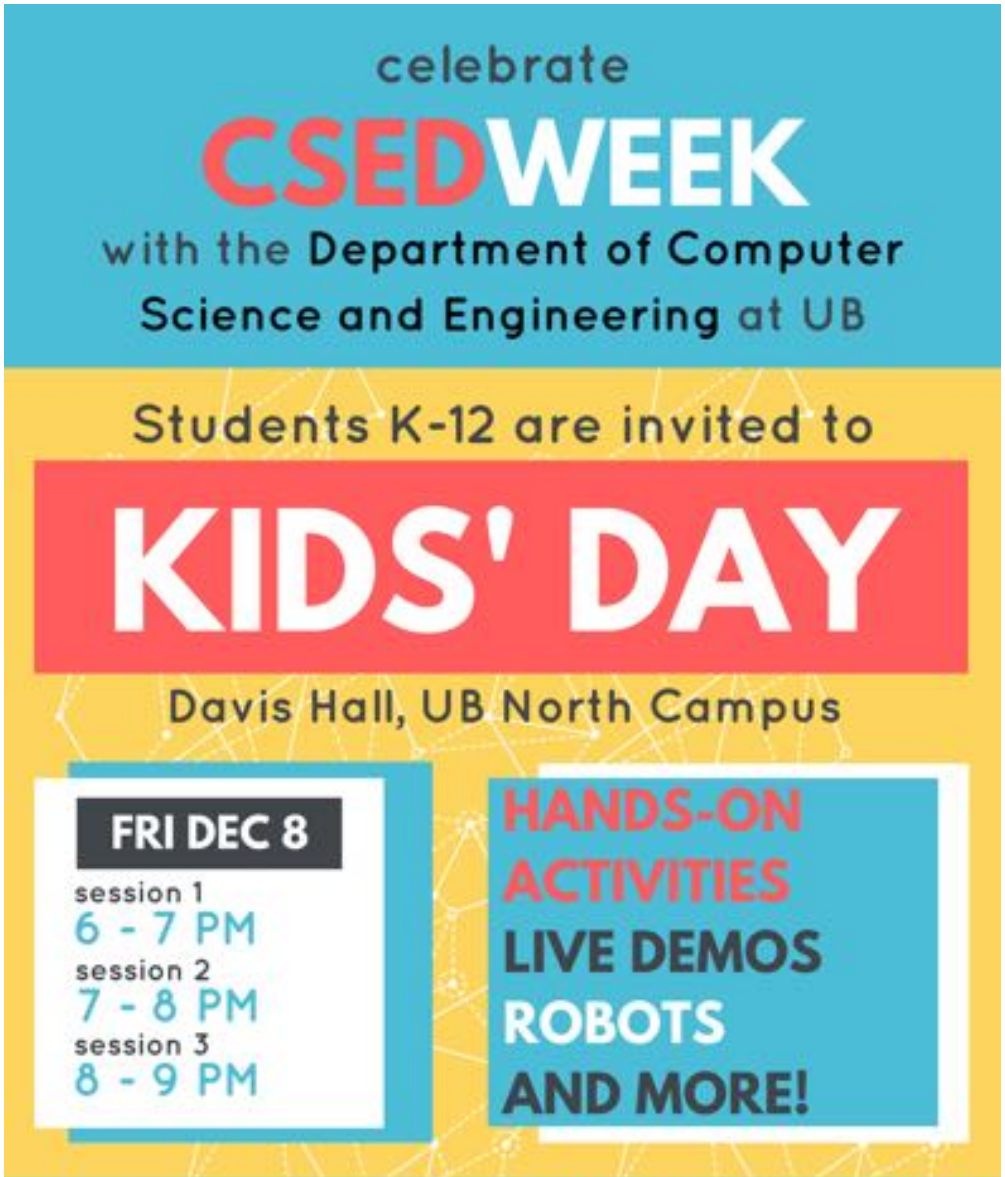
- If **at least 85%** of you fill in the course evaluation form, then I will release one T/F (without justification) question on the final exam (which corresponds to Q1(a): see @842 for the format).
- If **at least 95%** of you fill in the course evaluation form, then I will release one T/F (without justification) question and one T/F (with justification) question (corresponding to Q1(a) and Q2(a) respectively: see @842 for the format).

Of course if $< 85\%$ of you fill in the course eval form, then no question gets released. I will post weekly updates on the response rate.

(Also to clarify: the % is only for students who are still registered in the course and have not resigned, which is an even 200.)

FA 2017	2179_10751_Y	CSE	331LR		Intro to Algorithms	LEC	200	48	152	24 %	11/24/17	12/10/17

We need demos for Nov 30!



Scheduling to min idle cycles

n jobs, i^{th} job takes w_i cycles

You have W cycles on the cloud

What is the maximum number of jobs you can schedule?

When to use Dynamic Programming

O(nW) runtime

Richard Bellman

There are polynomially many sub-problems

$OPT(j,B)$ $0 \le j \le n$, $0 \le B \le W$

Optimal solution can be computed from solutions to sub-problems

$OPT(j, B) = \ldots$

There is an ordering among sub-problem that allows for iterative solution

$OPT(j,B)$ only depends on $OPT(j-1, 0), \ldots, OPT(j-1,B)$

Is O(nW) polynomial time?

NO.
Pseudo-polynomial

n jobs, i^{th} job takes w_i cycles

You have W cycles on the cloud

log W bits needed

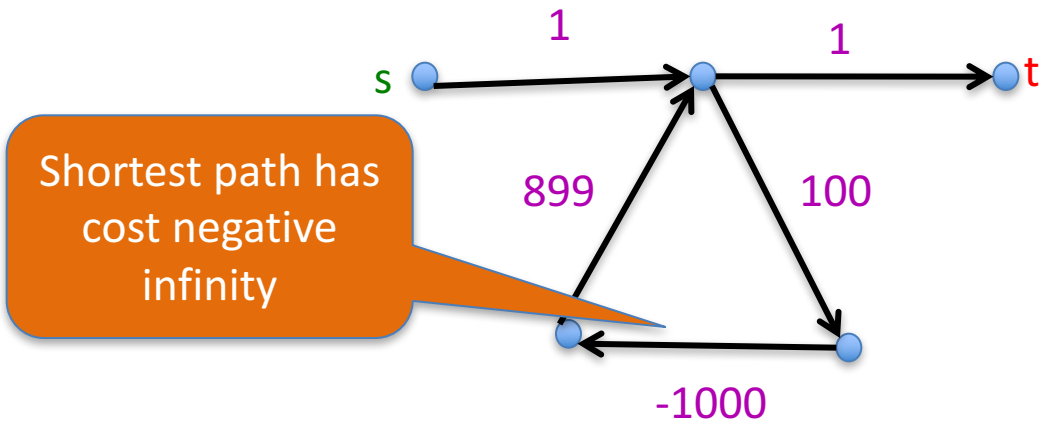
What is the maximum number of jobs you can schedule?

Shortest Path Problem

Input: (Directed) Graph G=(V,E) and for every edge e has a cost c_e (can be <0)

t in V

Output: Shortest path from every s to t



Assume that G has no negative cycle

Today’s agenda

Dynamic Program for shortest path

May the Bellman force be with you