

Assignment 2

Oct 15, 2025

Due Oct 23

1. [10] Give a Dynamic Programming recursive formula for "Maximum Bitonic Subsequence".

I.E. find the cardinality of the largest not-necessarily-contiguous subsequence of a given input sequence $A = [a_1, a_2, \dots, a_n]$ of integers.

[a sequence is bitonic if its values rise and then fall. 8 1 4 5 3 9 2 7 6 9 2
-the red numbers are a bitonic subsequence
Either the rising or the falling can be empty.]

Ensure the recursive formula does not have cyclic dependencies by identifying an evaluation order

2. [1 mark] Let the letters and frequencies be as given below by A and F, respectively. What are the contents of the Priority Queue when only three trees remain?

A =	a	b	c	d	e	f	g	h	i	j
F =	50	12	11	2	100	5	5	60	30	20

Give the three trees, with key values on each node of each tree (i.e. priority-queue key values).

