Homework Project 4

Given 11/23/2011, Due 12/13/2011

The aim of this project is to model an instance of the k-server problem for three servers with input given from the screen. Initially the servers are located at the top left corner (yellow), top right (red) and middle of the bottom line (blue). The user specifies a sequence of request points by left mouseclicks in the window, terminated by a right mouseclick. You compute the optimal strategy (shown in thick yellow/red/blue lines) and the closest server strategy (shown in thin yellow/red/blue lines), and print to the screen the total length of both strategies.

You can find the optimal strategy by a dynamic-programming type argument: the state after the i-th request can be described by the request numbers in which the yellow, red, and blue servers were moved last; one of these must be i, the others are numbers smaller than i. Each of these must be reached fronm a possible state after the $i-1$-th request by moving one server ; so we can add up those distances, and find the smallest one.