

CSE 2320 Lab Assignment 0

Goals:

Problem solving experience.

Finding some smart friends.

Requirements:

Develop C program(s) to take your next move for the two-person game described below. Input will be two “reasonable” positive integers, n and k . The output will be one of $k+1$ options:

A value chosen from the range $1 \dots k$, but not exceeding n .

Doesn't matter . . . opponent has a guaranteed win.

Getting Started:

1. In this simple game, there is a pile of n stones. After agreeing on who-goes-first, each player in alternating turns must:

Take at least one stone, but no more than k stones, from the pile.

The loser is the player left with an empty pile and no option for taking stones.

(Game-theoretic disclaimer: To have “perfect information”, the number of stones in the pile is known . . .)

2. Pursuing the following three implementations is encouraged:
 - a. Brute-force, top-down, recursive predicate that indicates whether there is a win in a particular state.
 - b. Fast version of a. that caches (or “memoizes”) known results.
 - c. After spending some time in this “exploratory programming” scenario, you realize that there is a trivial (but perfect) “evaluation function” for this game.