Project. Let's Catch the Lion!

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Introduction

- **Dōbutsu shōgi** (Japanese: どうぶつ しょうぎ "animal chess") is a small shogi variant for young children. It was invented by female professional shogi player Madoka Kitao, partially to attract girls to the game.

- There are some apps and flash games.
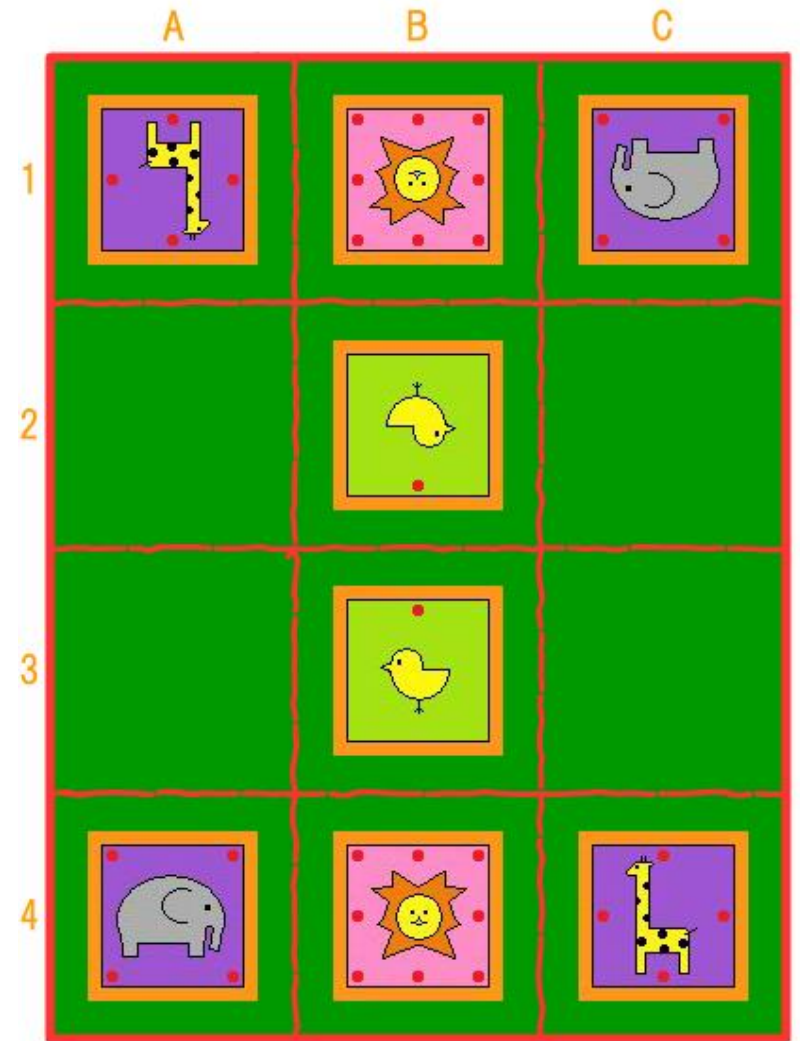
Rules

- ## Turns
  - Players take alternating turns.
  - On each turn the current player must either move a single piece or place a piece from their hand.
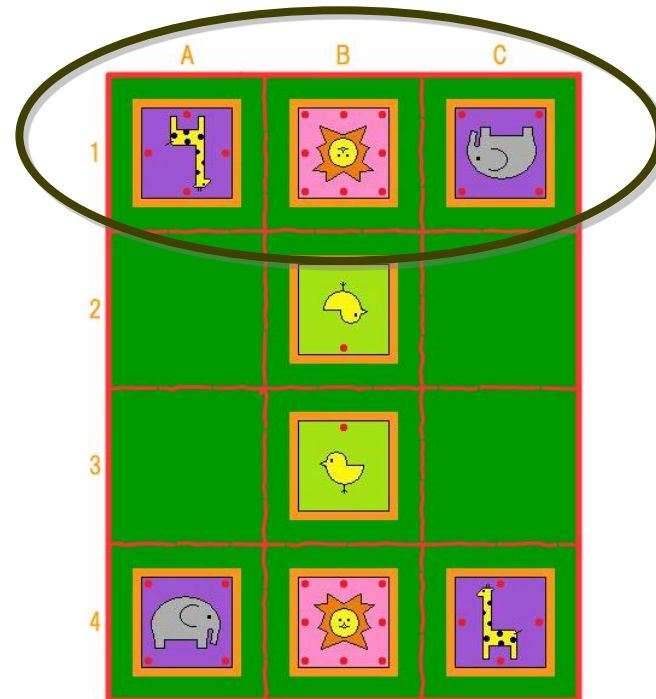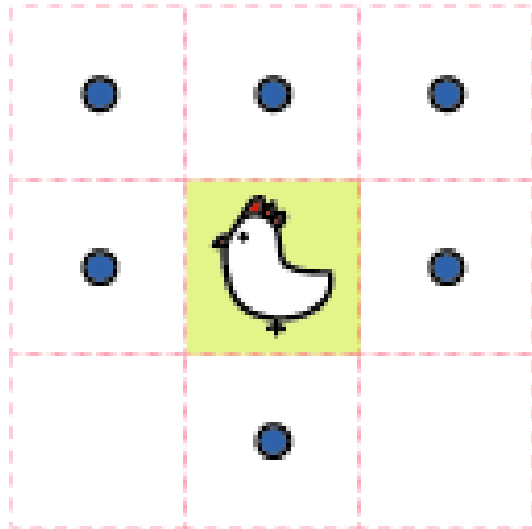- ## Moving
  - Each piece can move one square in direction indicated by the dots on it.

Rules

- ## Promotion
  - The chick will promote into a powerful hen if it moves into the opponent's end zone.
  - A chick placed directly into the end zone from the hand will not promote.
  - When captured, hens will revert back to chicks.

Opponent's end zone.

Rules

- ## Capturing
  - The players can capture their opponent's pieces by moving their own pieces on top of them.
  - When a player captures a piece, it is placed into the player's **hand**, from which it can be placed back on the empty square on subsequent turns.
- ## No Suicide
  - It is not allowed to move or leave the lion where the opponent can capture it on the next turn.

Rules

- **Winning the Game**
  - 1. (Checkmate & Stalemate) If your opponent is unable to do anything.
  - 2. Move your lion to the opponent's end zone where the opponent is unable to catch your lion on the next turn.

Coordinates

- ## Coordinates
  - The coordinates are indicated by the horizontal indicators (A, B, and C) and the vertical indicators (1, 2, 3, and 4).
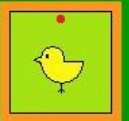
A	B	C	
A1	B1	C1	1
A2	B2	C2	2
A3	B3	C3	3
A4	B4	C4	4

Representation
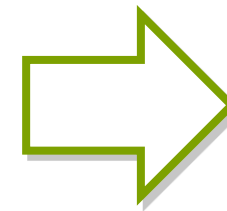
- Every pieces are represented by a single character. The opponent's pieces are shown as lower case characters, while that of yours are upper case characters. Other empty places are shown as **'o'**.

L G E C H

gle
oco
oCo
ELG

Input

- The first four lines of the input represents the board and the pieces on it. Your side is always bottom.

- The fifth line contains pieces on your hand. The pieces are represented as the upper case characters.

- The sixth line contains pieces on the opponent's hand. The pieces are represented as the lower case characters.
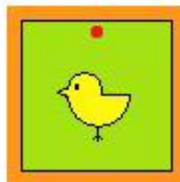
ComLevel 1

あそびかた

対局開始

待った！
(一回使用可能)

[input]
ogl
ooo
oEL
ooo
EC
gc

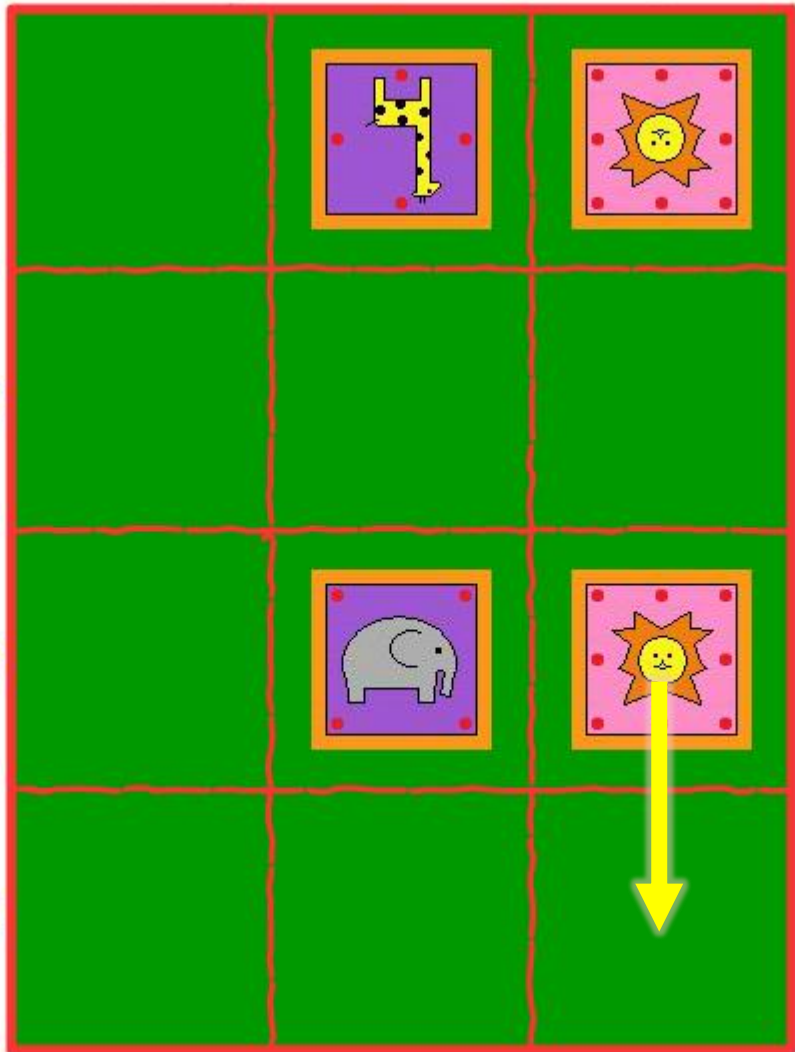# Output

- Assuming that the turn is now yours, output the movement or placement of your piece following the rules.
- Movement
  - \<piece\> \<previous position\> \<next position\>
  - L C3 C4
- Placement
  - \<piece\> P \<position\>
  - C P A2
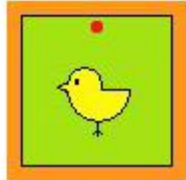- Give up
  - give_up

ComLevel 1

A　B　C

1
2
3
4

あそびかた

対局開始

待った！
(一回使用可能)

[output]
L C3 C4

ComLevel 1

A　B　C

1　2　3　4
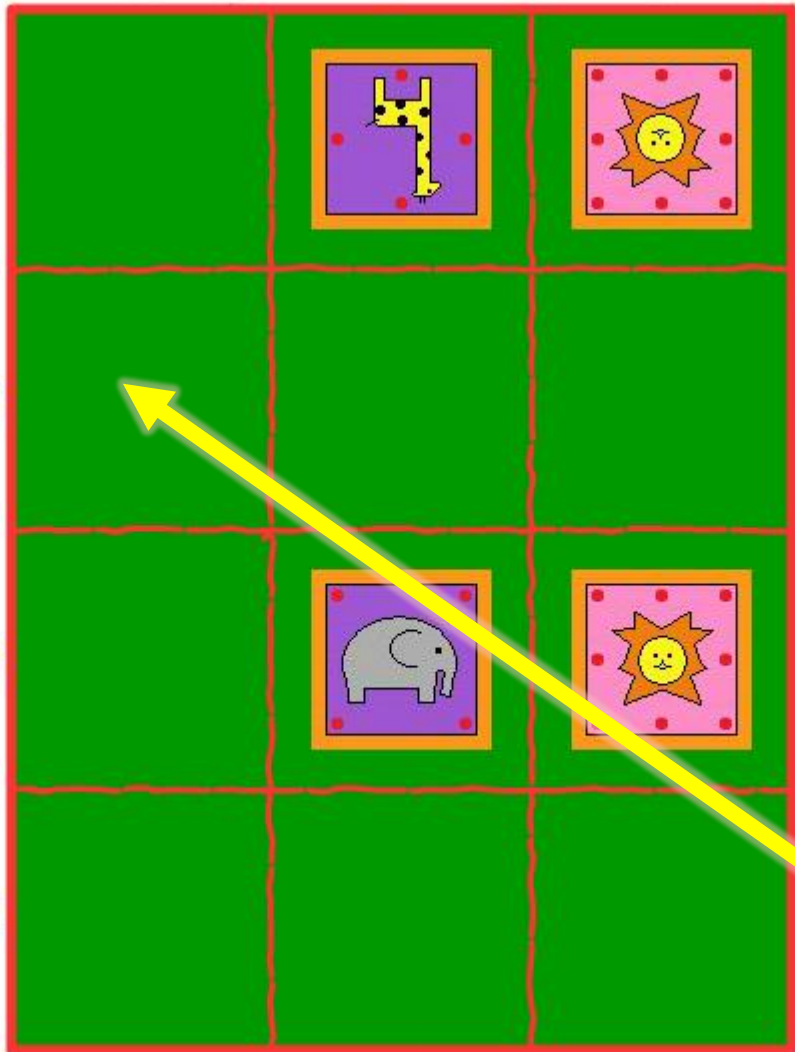
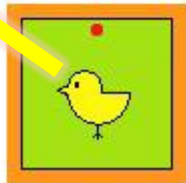あそびかた

対局開始

待った！
（一回使用可能）

[output]
C P A2

Requirements

- The output must follow the rules.

- If there's no available movements or placements, then output the **give_up**.

- Your program should win the randomly selecting program at least 7 times out of 10 games.

- The output must be given in one second from our practice server.

Evaluation

- ## Total 1000 points
- ## Stability (300)
  - Starting with 300 points, -30 points are given for each violation on the rules during the test.
- ## Readability (200)
  - Comments (50)
  - Indentations and Spacing (50)
  - Naming (50)
  - Clean Data and Code Structures (50)

- ## Modularity (200)
  - Starting with zero point, 10 points are given for each **meaningful** function.
- ## Intelligence (100)
  - Winning Rate (100)
- ## Completeness (150)
  - Functionality (100)
  - Efficiency (50)
- ## Report (50)

Report

- Contents
  - Explanations of some core data structures.
  - Precise descriptions of your idea implemented in the program.
  - Test methods used to verify the stability.

Project Submission

- Create a directory named project in your home directory.

- Put your source files and a makefile in it.

- Send the report of any format to hnkwak@bi.snu.ac.kr.

- Mail title: prg_[student number]_project

  - prg_2014-12345_project

- Due to : **6/17(Wed) 23:59 pm**

Reference

- Flash game url
  - http://horisetsu.web.fc2.com/doubutsuflash.html
- Wiki
  - http://en.wikipedia.org/wiki/D%C5%8Dbutsu_sh%C5%8Dgi