

Criterion B - Design – What happens -relationship between objects and methods.

Design of the Solution

Three basic objects :

- board
- pot
- sprite

board has the following properties

holds 6 pot objects for the player

holds 6 for the computer

holds the sprite

scores for player and computer

two appearances:

one for the playing state with current scores of player and computer

one for the end of game state to show the winner

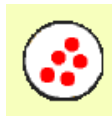
pot has the following properties

position on board

number of seeds in the pot

appearance of number of seeds in that position

for example the pot below holds 5 seeds



sprite has the following properties

current position on board

This changes as the game progresses and the sprite moves from pot to pot as a human hand would do in the board game when distributing the seeds.

pot actions



player: selected “moveStarted” empties pot when clicked



computer: selected by algorithm “computerGo” empties pot

These methods are the same for **player** and **computer** pots – see below for details

“drop” – seeds added to pot

“score” – check if the move results in a score

“start” - become visible with costume 4 seeds in correct place on board.

“gameOver”- hide

sprite actions

“last” - swap between **player** and **computer** (or vice versa)

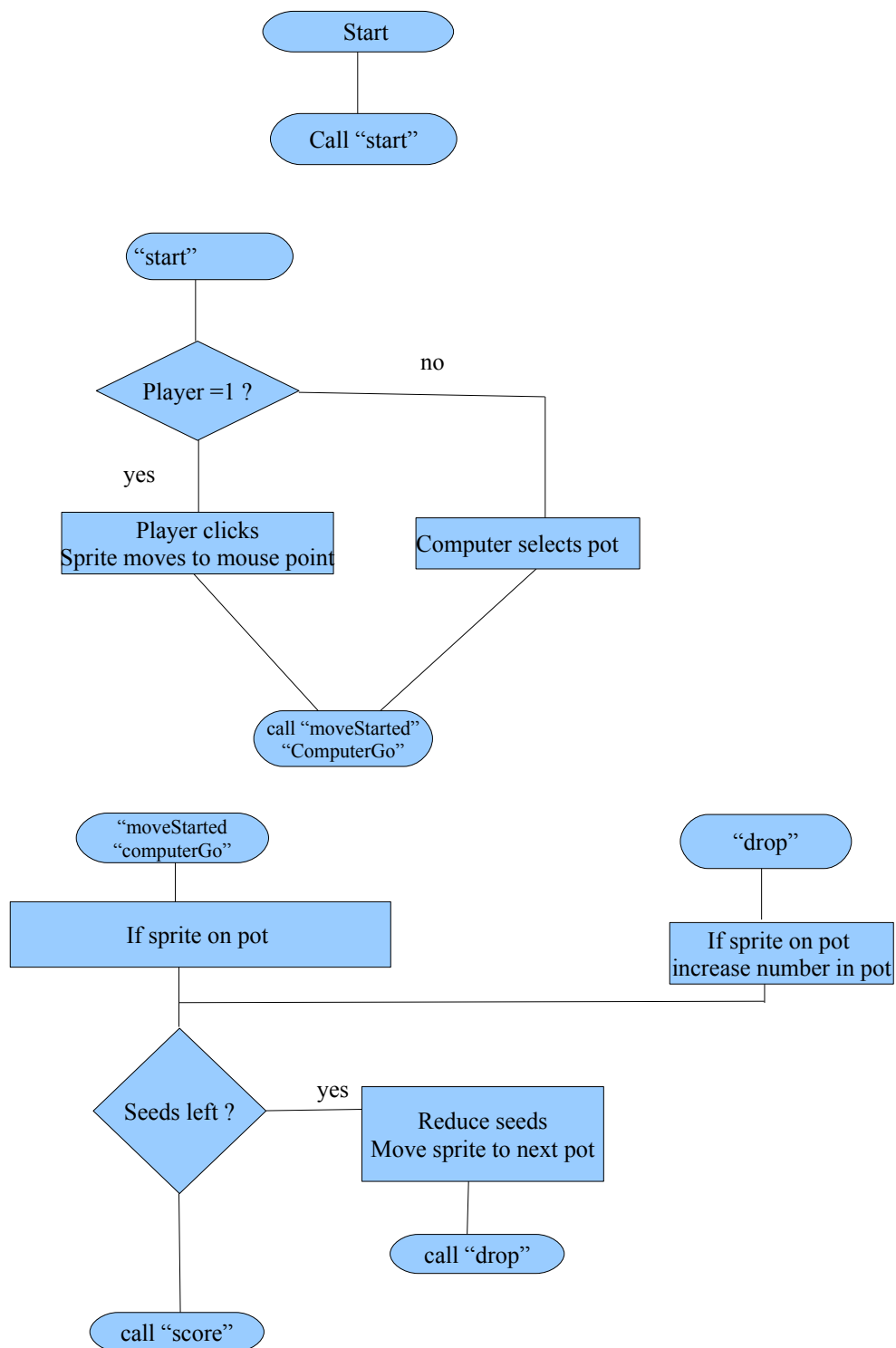
“move” – go to next pot anti-clockwise

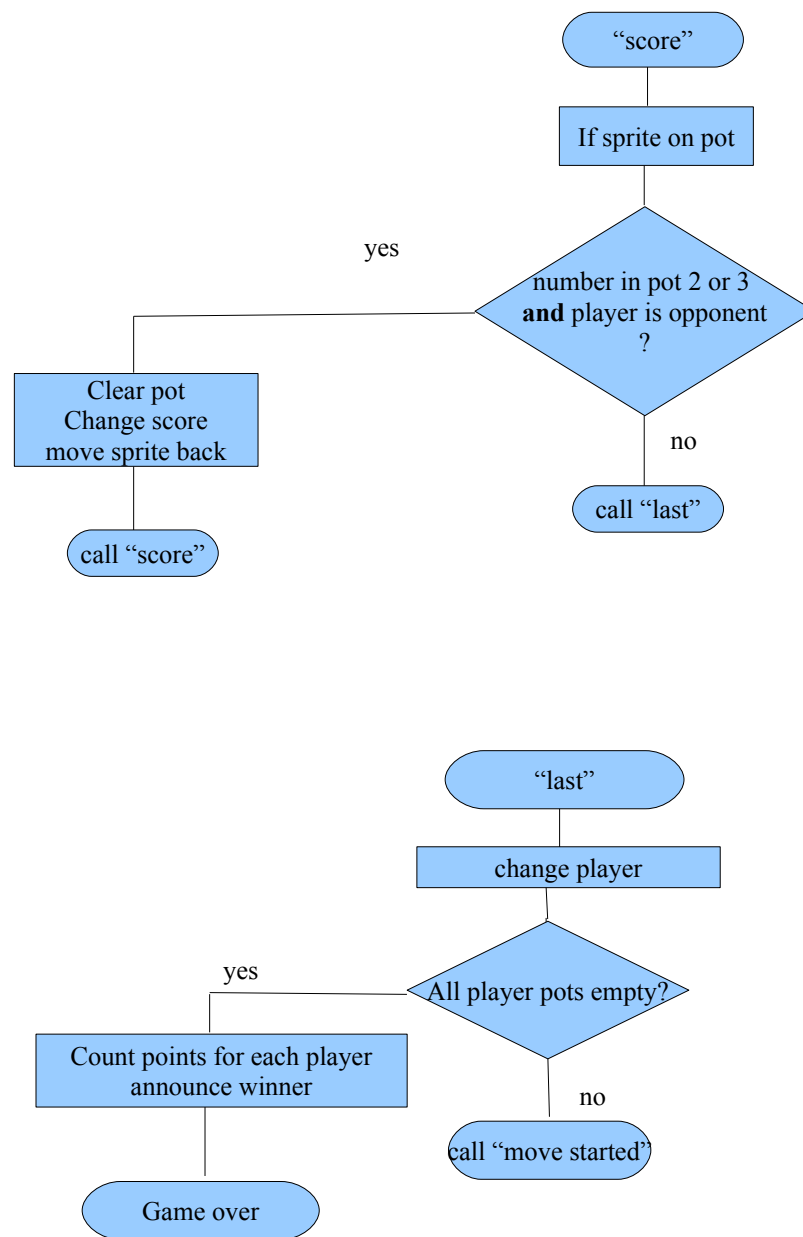
“move back” – go to next pot clockwise

“moveStarted” - if **computer** turn then calculates best move

board actions

“gameOver” – changes costume colour and displays text with name of winner.





These tests need to be carried out by playing the game several times and adopting an appropriate strategy.

Action to test	Method of testing - result
Player chosen is random for the first time.	Play multiple times and check that player or computer occurs evenly
Player changes after each move	Try waiting and not going to see if computer goes twice in succession. Try to go when not player turn.
Clicking on pot activates seed distribution	Yes – every time
Check that pots change appearance correctly when seed content changes.	Note changes for diverse number of seeds. Check with array holding number of seeds in each pot.
Check number of seeds in the pot is correct after each move	Count manually as the seeds are distributed.
Check that the pots are “taken” correctly.	Observe every time computer takes pots. Arrange player to take seeds from one pot only, two and three successive and in particular watch situation where the turn goes into the opposite row.
Check that the scores are correctly applied after pots are taken	Count and compare. Add a script to display the number of seeds in each pot when space bar pressed.
Check that the number of seeds on the board is correct.	Add the two scores and the total number in pots and check this is 48
Does the computer algorithm for best choice work?	This can be seen from multiple plays and also comparing pot chosen with the other possibilities.
The game ends when either player or computer has no seeds left	Check the number visually and also in the array of seeds in pots at the end of each game.
Correct winner allocated and displayed	See for each game.