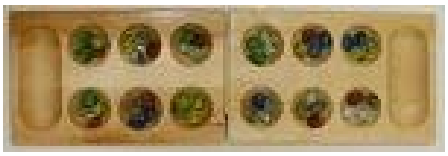
Criterion A Planning
1. Defining the problem

Mancala, originating in Africa is one of the oldest known games in the world. There are many variations. The aim of this project is to create a computerised version of the game.
The board on which the game is played is made from wood and has two rows, each with 6 pots which are used to hold seeds as shown below.



Taken from http://upload.wikimedia.org/wikipedia/commons/6/6d/Wooden_Mancala_board.jpg

Rules of simplified Game
At the start of the game each pot holds 4 seeds – each player has 24 seeds
The players take it in turn to select and empty one of their own pots.
When a pot is selected the seeds are distributed, one at a time into the successive pots, moving anti-clockwise.
If the last pot in which a seed is put belongs to the opponent and has 2 or 3 seeds, after the seed has been added, the number of seeds in the pot is added to the player's score and the seeds are removed from the board.
The player then moves clockwise one pot at a time, and takes the seeds in the pot if there are now 2 or 3 in the pot.
This continues until a pot is either not one belonging to the opponent or does not have 2 or 3 seeds.
The game ends when one of the players has no seeds left in their pots
The winner is the one with the highest score.
This information could be moved into the Appendix as it is background information.

After I had described the problem, my computer teacher agreed to be my supervisor (**advisor**) and my cousin who enjoys playing Mancala, offered to be a tester and end-user (**client**).
Clear identification of client, end-user and advisor.

2. Rationale for Solution

The reason for computerising the game is out of interest in the way in which a computer can be used as an opponent and also to give a vehicle to understand better the strategies that can be employed in this game. Setting up the board to play repetitively is tedious and takes too long. Using a computer allows the player to quickly evaluate different ways of playing. It also means that anyone interested in playing the game does not have to rely on a partner and if they belong to a club where the game is played they can practise strategies between matches.

I decided to use Scratch because it has the following characteristics:

- Graphical interface – methods can be called when the player clicks on a pot.
- Objects can be created with visual characteristics that can change – a pot can change appearance according to the number of seeds it contains.
- Objects with specific methods are easily copied and small changes made if need be – all the pots have the same reaction when chosen or when seeds are dropped.
- The visual drop and drag environment is flexible and easy to use as it avoids typing
- Scratch is a free download and is multi-platform
- The game can also be published to the Scratch site (www.scratch.mit.edu) for more availability.

Clear justification of rationale for use of Scratch

3. Criteria for Success

1. The interface to the game is a clear graphical representation of the board, showing the number of seeds in each pot.
2. Player or computer to go first is randomly chosen.
3. The player can make the move easily by clicking on the chosen pot.
4. The computer calculates an efficient move that gains as many points as possible and does not leave it in a vulnerable position.
5. If there is no preferred move the computer randomly chooses a pot which is not empty.
6. The rules of the game are correctly implemented.
7. The pot situation is updated as soon as a seed is dropped.
8. Scores are adjusted correctly and a visual simulation of "taking seeds" made.
9. The game finishes when one of the players has all of the pots empty.
10. The player with the highest score is announced as winner.

Appropriate success criteria identified.

Word count 492

The moderation was made easier by watching the video first.

This criterion was awarded 6 marks.