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ANU College of Engineering & Computer Science



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## Deadline

Friday 25 May (end of Week 12): Your work should be committed and pushed to GitLab no later than 11:59pm on Friday 25 May as recorded by timestamp on GitLab.

## Backgammon

Quoting Wikipedia:

Backgammon is one of the oldest known board games. Its history can be traced back nearly 5000 years to archaeological discoveries in the Middle East. It is a two player game where each player has fifteen pieces (*checkers*) which move between twenty-four triangles (*points*) according to the roll of two dice. The objective of the game is to be first to *bear off* i.e. move all fifteen checkers off the board. Backgammon is a member of the tables family, one of the oldest classes of board games.

If you don't know Backgammon already, you will probably want to familiarise yourself with its rules and play by trying it yourself online at <http://247backgammon.org>. To emulate the game configuration in which your bot will be expected to play you should choose settings as follows:

- Reverse Direction: OFF
- Doubling Cube: OFF

Fortunately, you don't need to know or program the rules of Backgammon for this assignment. We will provide the machinery to tell you the possible moves at each turn of the game. Your task is simply to choose from among the legal moves at each turn. Thus, it is possible to complete this assignment with minimal understanding of the game. Nevertheless, in what follows we will go ahead and describe the basics of Backgammon for you, because we hope you will find the game fun to play and strategise.

## The Board

Each side of the board comprises a series of 12 *points*, or positions on which the pieces are placed, and to which they can move according to a dice roll. The points form a continuous track in the shape of a *horseshoe*, and are numbered from 1 to 24 depending on the perspective and direction of play of each player. Each player begins with 15 pieces, two placed on their 24-point, three on their 8-point, and five each on their 13-point and their 6-point. The two players move their pieces in opposite directions, from their 24-point to their 1-point.

Points 1 through 6 are called the *home* or *inner* board, and points 7 through 12 are called the *outer board*. The 7-point is referred to as the *bar point*, and the 13-point as the *mid point*.

The board starts in the configuration illustrated below, with each player's pieces distinguished