

# Hiring - Game of Knights

“Game of knights” is a basic turn-based game that can be used to assess a candidate's basic programming skills and algorithmic thinking. A candidate is asked to complete an implementation of the game of knights in 30 minutes.

The challenge can be implemented in the language of choice of the applicant. It should be a simple “console” application, test-driven development is encouraged.

## Description

The game is played by multiple knights forming a "circle" where each knight has a successor, and where the first knight is the last knight's successor. For example, for three knights *k1*, *k2*, and *k3* playing a game, *k2* is *k1*'s successor, *k3* is *k2*'s successor, and *k1* is *k3*'s successor. Each knight has a number of hit points and a name. All knights start the game with the same amount of hit points.

When the game starts, knights take turns attacking their successor. The amount of damage a knight deals to its successor is based on a die roll. The result of the die roll will be subtracted from the hit points of the attacked knight. If a knight has no hit points left, then the knight dies and leaves the circle without taking another turn. The attacking knight will always target its next living successor. For example, for three knights *k1*, *k2*, and *k3* playing a game, when *k2* dies, the next time *k1* attacks, it will target *k3*.

The game continues until there is only one knight alive.

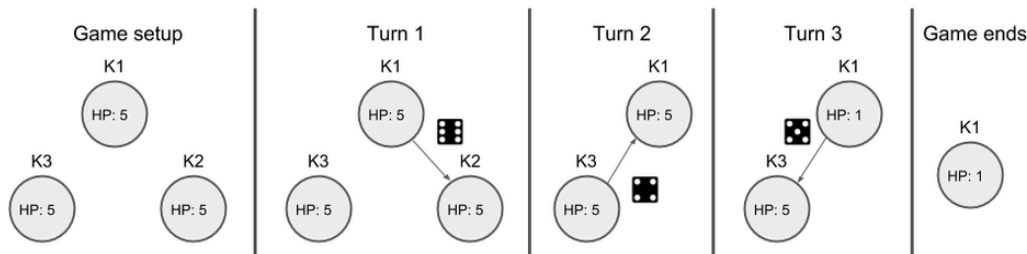
Knights don't battle in silence.

- Each time a knight deals damage to its enemy, it claims "Knight X deals Y damage to knight Z", where X is the name of the attacking knight, Y is the amount of damage dealt, and Z is the name of the knight taking the damage.
- If a knight dies, then it exhales "Knight X has died..." with its last breath.
- Once the game ends, the winner roars with triumph, "Knight X stands victorious!"

The journal of the battle is returned as a list at the end of a game.

## Example

The visualization of the example game with three knights is provided below. The game is played by three knights (*k1*, *k2*, and *k3*), each of them start with five hit points (HP). Knight *k1* starts the game and takes a turn by rolling a die. A six is rolled, so *k1* deals six damage to *k2*. Knight *k2* dies and leaves the game. Knight *k3* is next and takes a turn by rolling a four and deals four damage to *k1*. Knight *k1* rolls a five and deals five damage to *k3*, killing the knight. Knight *k1* wins the game with 1 hit point left.



The journal of this battle would look like this:

- "Knight k1 deals 6 damage to knight k2"
- "Knight k2 has died..."
- "Knight k3 deals 4 damage to knight k1"
- "Knight k1 deals 5 damage to knight k3"
- "Knight k3 has died..."

- "Knight k1 stands victorious!"