Inteligência Artificial

Projeto Wumpus

Grupo:

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github.com/UFCGProjects/ia

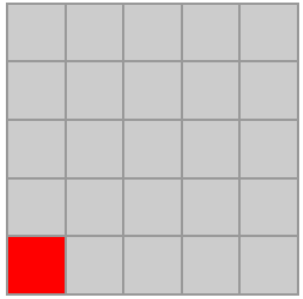
Wumpus

http://osric.com/wumpus/

Wumpus

Hunt the Wumpus

Arrows remaining: 5



You are at 0,4

Move (ctrl+arrow) Shoot (alt+arrow)

About Hunt the Wumpus

The original version of Hunt the Wumpus was created by Gregory Yob in 1972. The original version was quite a bit different than this version: it was text based, and was ba
(rather than a grid). Each room (vertex) connected to 3 others (rather than four). You can read more about it in the author's Hunt the Wumpus.

Rules (for this version)

1. There are 3 hazards:
    1. A bottomless pit (you will feel a breeze nearby).
    2. A colony of bats that will pick you up and drop you in a random space--including potentially deadly spaces (you will hear flapping nearby).
    3. A fearsome, hungry, and unbathed wumpus (you will smell it nearby).
2. The wumpus is heavy; bats cannot lift him.
3. The wumpus is covered in suckers; he won't fall down the bottomless pit.
4. Firing an arrow that misses the wumpus may cause it to move.
5. You have 5 wumpus-piercing arrows.
6. You may find an arrow dropped by a previous hunter.

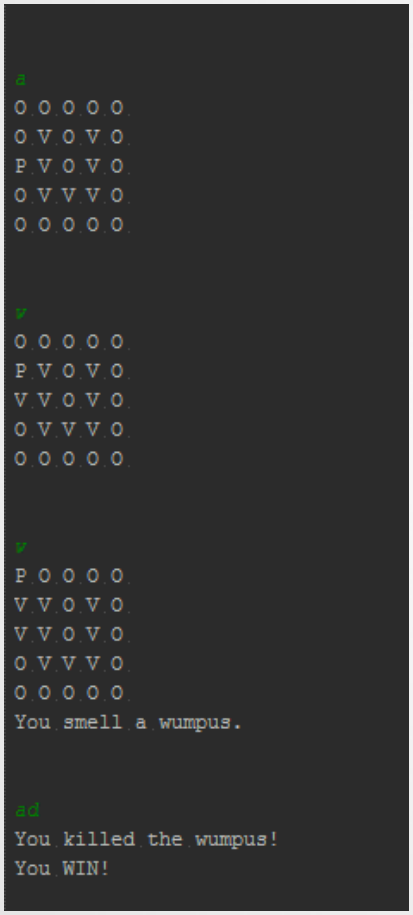
Keyboard Shortcuts

- Use CTRL+arrow keys to move
- Use ALT+arrow keys to fire arrows

Javascript Keyboard Shortcuts from OpenJS

http://osric.com/wumpus/

Nosso Wumpus



Comandos de Movimento:

- w (cima)
- s (baixo)
- a (esquerda)
- d (direita)

Comandos de Atirar Flechas:

- aw (cima)
- as (baixo)
- aa (esquerda)
- ad (direita)

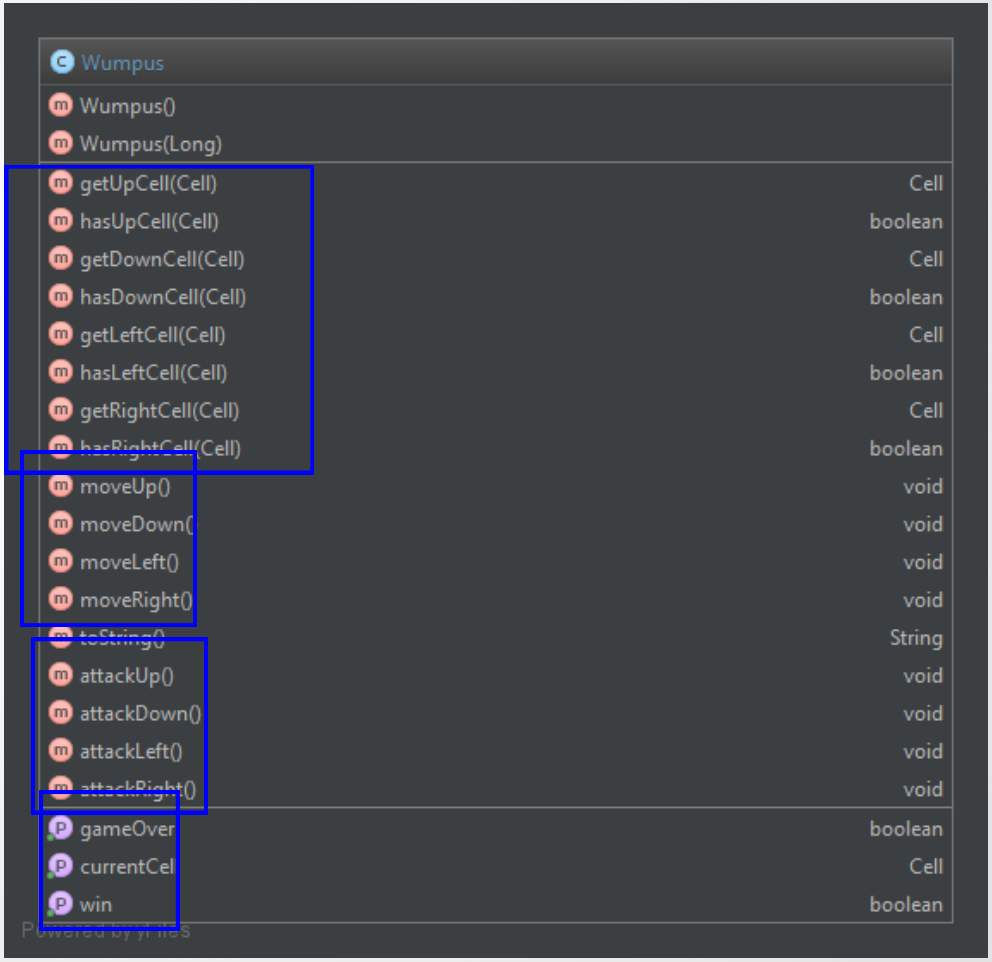
Nosso Wumpus

Celulas

Movimento

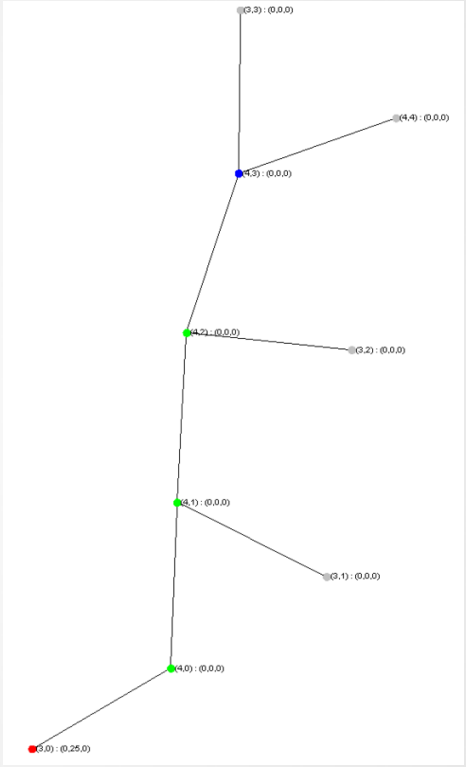
Attack

Estado do Jogo

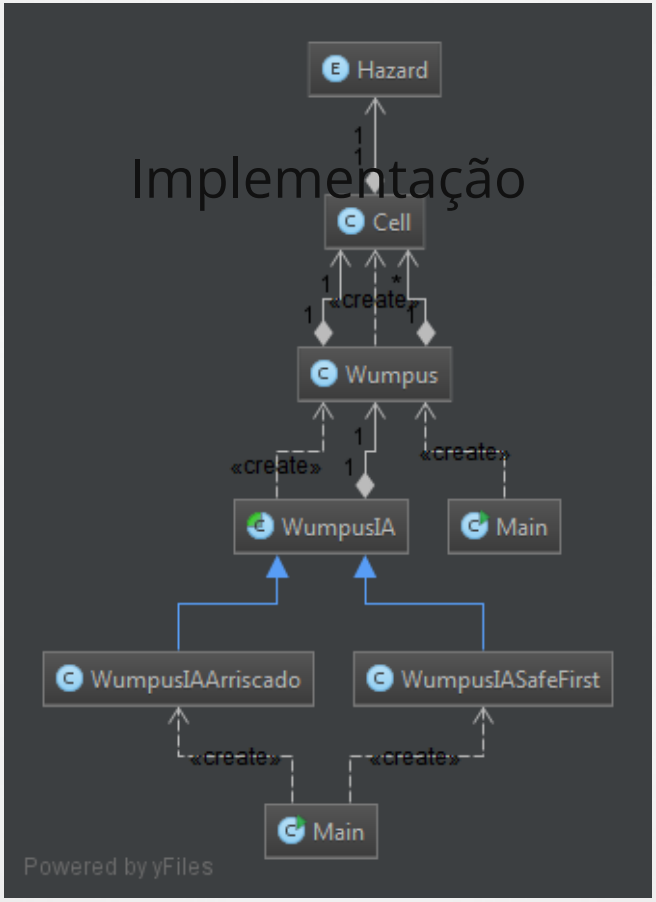


Wumpus IA

- Grafos para representar as cavernas e seus caminhos
- Caminhamento em Grafos
- Probabilidade



WumpusGame + WumpusIA



WumpusIA

```
while (!getWumpus().isGameOver()) {
    if (!refreshNodes()) {                      // Atualiza os nós na árvore.
        refreshDanger();                        // Atualiza os perigos na árvor
    }

    refreshNodesLabel();                        // Atualiza os nomes dos nós (f

    String nextMove = heuristicaToFindMove();   // Heurística para decidir o pr
    execMove(nextMove);                         // Executa o movimento. Ex.: ("
}
```

```
@Override
String heuristicaToFindMove() {
    String nextMove = findNextMoveToSafeNode();

    if (nextMove == null) {
        nextMove = findNextMoveToWumpusNode();
    }

    if (nextMove == null) {
        nextMove = findNextMoveToLessDangerousNode();
    }

    return nextMove;
```

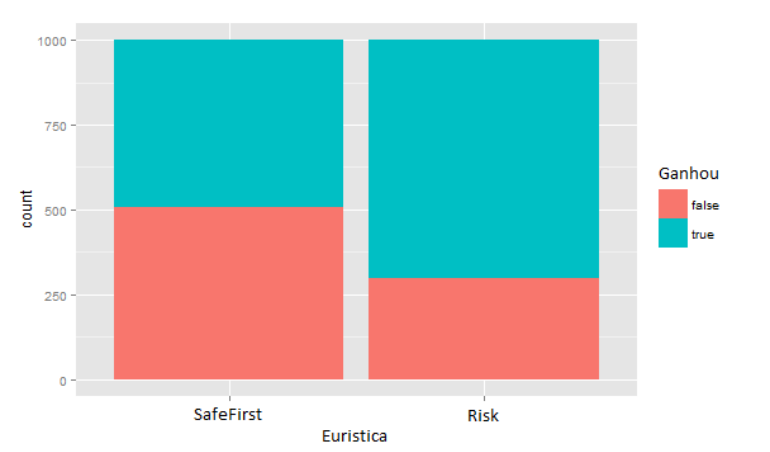
Demonstração

“ Que os Deuses das demonstrações estejam conosco."

Wumpus Game

Wumpus IA

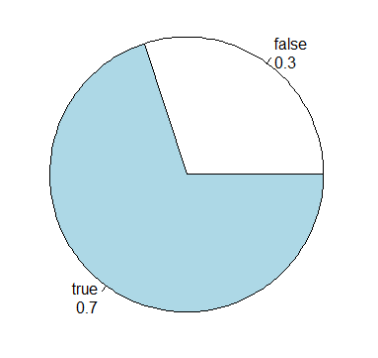
Analise - Aproveitamento



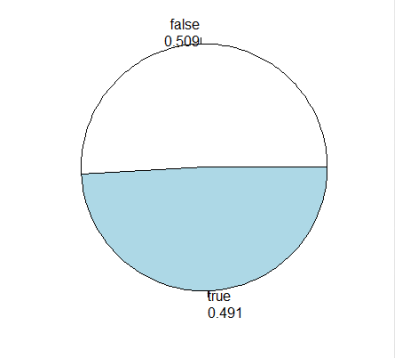
SafeFirst: 70%

Risk: 49%

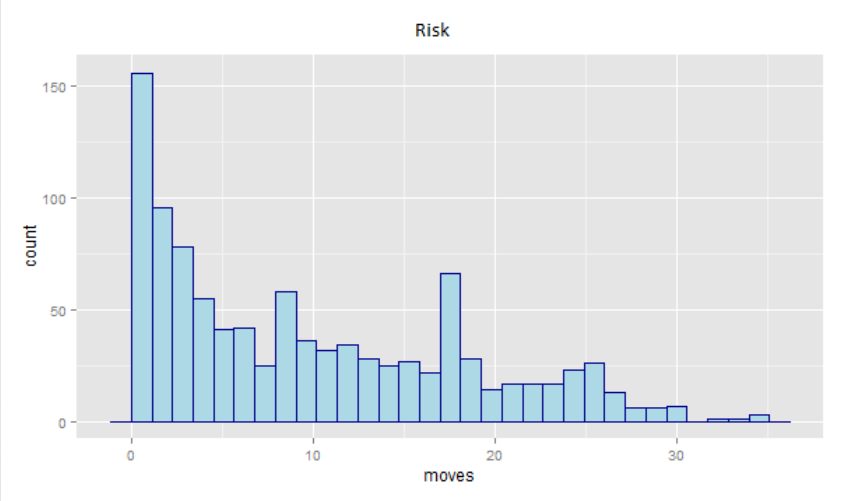
SafeFirst



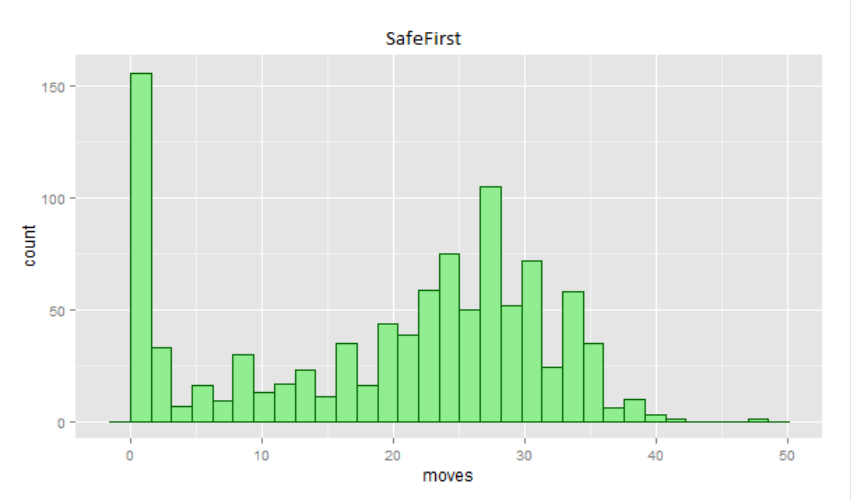
Risk



Analise - Movimentos

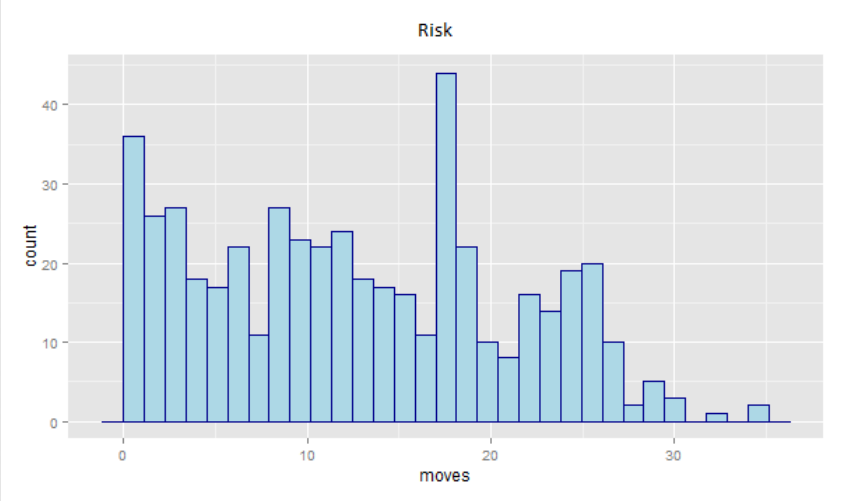


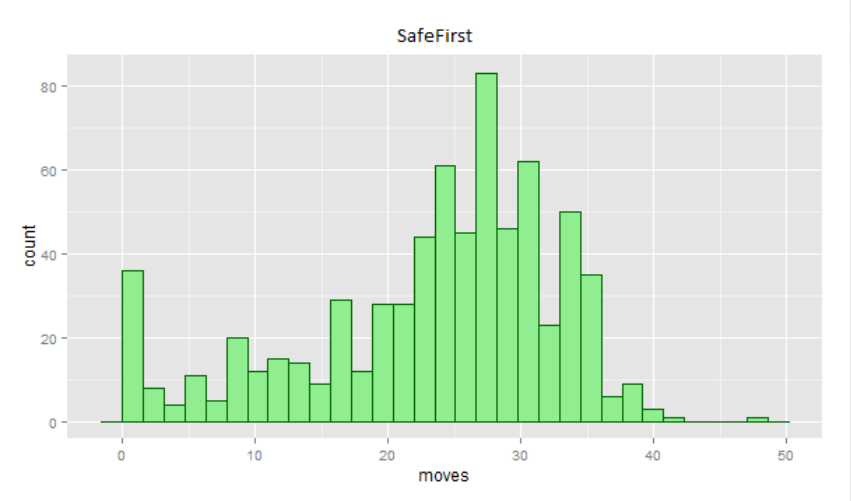

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    2.00    8.00    9.88   16.00   35.00
```




```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    9.00   23.00   19.82   29.00   48.00
```

Analise - Movimentos Para Vencer

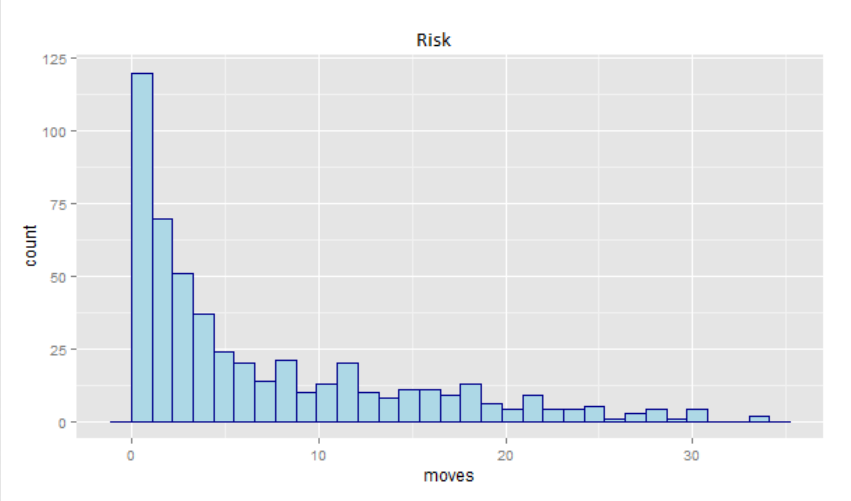


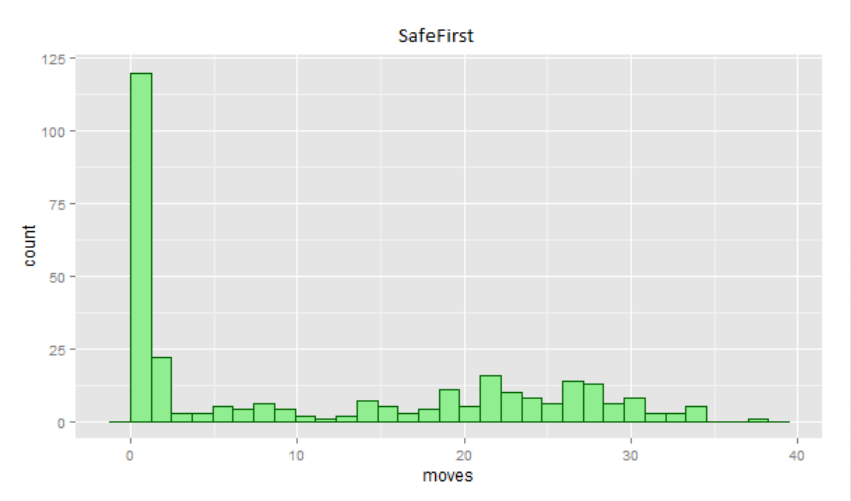



```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    5.00   12.00   12.76   19.00   35.00
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00   18.75   26.00   23.37   30.00   48.00
```

Analise - Movimentos Para Perder






```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   1.000   2.000   4.000   7.106  11.000  34.000
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    1.00    5.50   11.52   23.00   38.00
```

Dúvidas?

github.com/UFCGProjects/ia

Obrigado.