

Final

Chinese Dark Chess

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Chinese Dark Chess

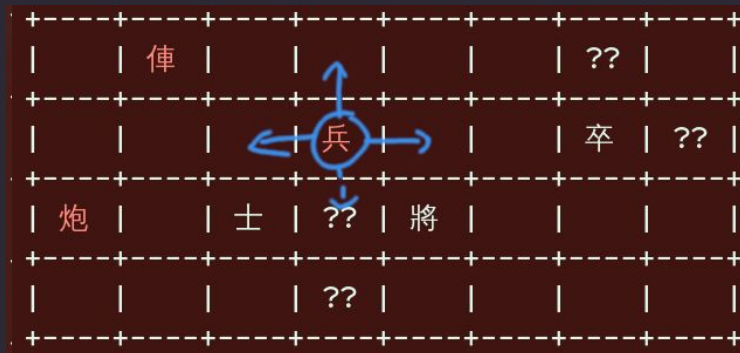
- All assignments of this course will be based on the popular park-bench pastime.
- Chinese Chess with extra quirks
 - **Stochastic:** unrevealed pieces are randomly distributed
 - Simpler movement rules
 - Played on half a board: 4x8 squares

+-----+-----+-----+-----+-----+-----+-----+-----+
俥 ??
+-----+-----+-----+-----+-----+-----+-----+-----+
兵 卒 ??
+-----+-----+-----+-----+-----+-----+-----+-----+
炮 士 ?? 將
+-----+-----+-----+-----+-----+-----+-----+-----+
??
+-----+-----+-----+-----+-----+-----+-----+-----+

Chinese Dark Chess Rules

- Movements

- All pieces move one square in any of 4 directions
- The cannon must *capture* by jumping over another piece



- Ranks

- There is a hierarchy of pieces, only certain pieces can capture others
- General (將) > Advisors (士) > Elephant (象) > Chariot (車) > Horse (馬) > Cannon (包) > Soldier (卒)
- Cannons can capture anyone
- Soldiers can capture Generals, and *not* vice versa
- You don't really need to remember this, the code provided will take care of it for you

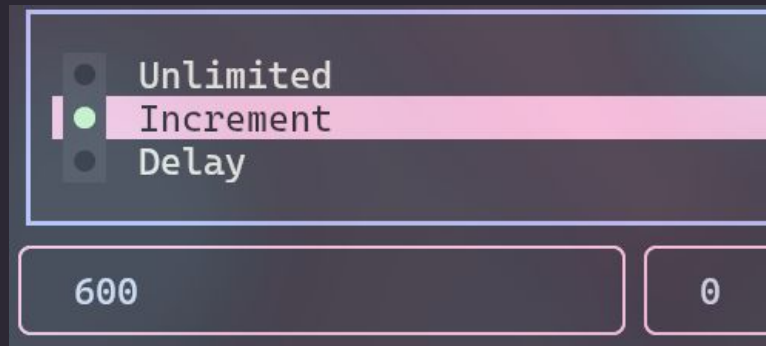
Your goal

- Do not lose.
- Do not not win.
 - The game will end in a draw if no captures or reveals are made by either side in 30 consecutive plies.

Timing

“The clock is the 33rd chess piece.”

- The time limit is **10 minutes for the entire game**
 - You should choose **Increment 600(seconds)+0** in the time control setting
- **Running out of time loses the game.**
- **Don't forget the network latency!**
 - It's really bad sometimes.



Grade overview

- Baseline (25%)
- Code (55%)
- Report (20%)
- Contest (10%)
 - Mandatory! Not showing up without reasons means 0% for the entire assignment!

Programming - Baseline (25%)

Your agent will play against a random baseline.

- 20 games (10 black / 10 red)
- Score 18 pts (out of 20 possible) for maximum points (25%).
- Points scale linearly below 18 pts, like in HW2.

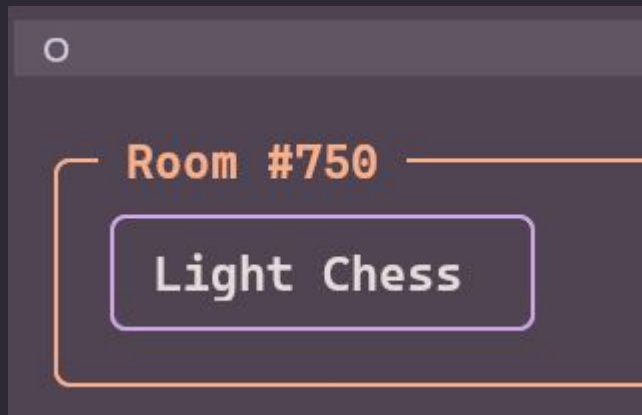
You get 1 pt for winning and 0.4 pts for a draw.

Programming - Code (55%)

- Negascout + Star1 search (30%)
 - Star 2+: *bonus* 5%
 - Star0.5: max 20%
 - Star0: max 10%
- Transposition table (Zobrist only) (10%)
- Time control & iterative deepening (5%)
- At least 2 other enhancements of your choice (10%)
 - chessprogramming.org

Game platform notes

- You can switch to dark chess by clicking the button in the top-left corner of the match screen.
 - The label shows the current mode.
- After setting the time control, you need to apply it.



Game platform notes

- The red side will reveal the first piece
- If they reveal a black piece, they then *become* the black side
- I hope it's not too much of a hassle.

Program rules

- Your code should run on the CSIE workstations.
- **You get one (1) thread.** No parallelism, forking, threading.
- No pragmas or any other similar gcc witchery.
 - We reserve the right to witch hunt.
- Memory limit: 1 GiB (virtual address space)
- We will not compile your code if there is any warnings.
- **Do not edit:**
 - lib/*

Written part - Report (20%)

Your report should contain the following:

- Explanation of your implementation (10%)
- Locations of your functions (5%)
 - (e.g. `star1 @ bad_code.cpp:L43072`)
- Experiment results (5%)
 - Showing the head-to-head results between each of them is recommended
- Do not exceed 6 (six) *legible, aesthetically pleasing* A4 pages.

Showdown script

You should use the updated version for the Final.

- Changes are minimal,
except it tells the referee not to reveal all the pieces.
- Features coming soon
 - Time & memory check

```
♣️ showdown_script >>> ./showdown.py
=== Results over 100 games ===
draw: 82
Agent 2: 10 (7 Red)
Agent 1: 8 (3 Red)
=====
Agent 1    49.0 - 51.0    Agent 2
```

TCG Contest (10%)

- Online contest
... but you can come to have fun if you are available.
- Bonus grades!

TCG Contest (10%)

- Practice practice session

(maybe) Every once in a while before the Practice session.

- For debugging of the client
- Completely optional

TCG Contest (10%)

- Practice session

Dec. 24th (Wed.) 14:20 ~ 17:20 @ R111

- You are encouraged to join, for testing (both your code and ours).
- No joining after starting.
- 2% OVERALL bonus grade for participation!
- You must finish every game to be eligible for the bonus.

TCG Contest (10%)

- Main tournament

Dec. 31st (Wed.) 14:20 ~ 17:20 @ R111

- Swiss matchmaking
- No joining after starting.
- Your bonus grade will be proportional to performance.
- You must start at least one game to have participated.
(join the tournament and be online when it starts)
- Participation is MANDATORY. Failure to attend will result in a 0% for this assignment.

Submission

- **Code**

- Due 2026, Jan. 3rd (Sat.) 17:00
- Simply zip all your files, no top level directory needed
- Do not include lib/

- **Report**

- Due 2026, Jan. 3rd (Sat.) 17:00
- You can submit the pdf directly

Late policy

No.