

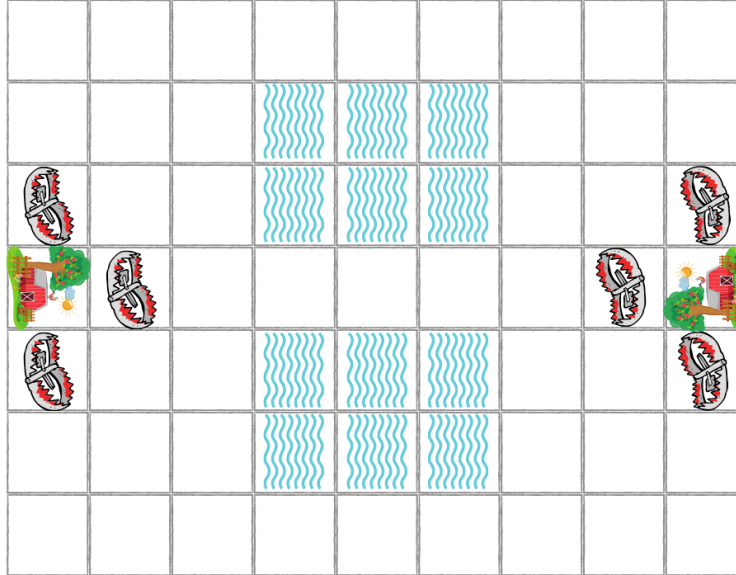
# CCPROG3

Term 3, AY 2020 – 2021

## MACHINE PROJECT SPECIFICATIONS











**Animal Chess** is a turn-based two-player board game. The game board has 9 rows and 7 columns, where each space on the board is either a *land*, a *trap* , an *animal den* , or a *river* .



Each player occupies one side of the board and has 8 starting pieces. Each piece is an animal with different ranks and the initial positions these pieces are shown below.



Each animal has its ranking, or degree of power. The table below shows the animal ranking from highest (8) to lowest (1).

Rank	8	7	6	5	4	3	2	1
Animal	 elephant	 lion	 tiger	 leopard	 dog	 wolf	 cat	 mouse

R: (2,0) (0,6) (6,0) (2,4) (1,5) (2,2) (1,1) (2,6)  
B: (6,6) (8,0) (8,6) (6,2) (7,1) (5,4) (5,7) (6,0)

## The Game








Before the start of a game, each player picks one animal piece. The one with the higher-ranked animal is the first player. The players will choose a color for their animal pieces (e.g. Player 1 chooses red, Player 2 chooses blue). The player takes turn in moving their animal pieces on the board. Game ends when a player successfully moves any of his animal pieces into his opponent's *animal den*.

Generally,













- pieces can move one space horizontally or vertically; and
- pieces may land on and capture an opponent's piece that has equal or lower rank.

However the following exceptions apply:

### Movement

- The mouse  is the only animal that is allowed to move on the river .
- Both the lion  and the tiger  can jump from the land before the river to the land after the river , horizontally or vertically, as long as there is no mouse along the way .
- A player **may not** move his own piece to his own *animal den* .

### Capturing an opponent's piece

- A player may capture an opponent's piece with a higher rank that is on one of his *traps* .
- An elephant  **may not** capture a mouse  while the mouse  **can capture an elephant** .
- A mouse on the river  **may not** capture an elephant  or another mouse  on land.
- A mouse on the river  may capture another mouse on the river .
- A mouse on land  **may not** capture a mouse on the river .

## Deliverables for each Phase

1. UML class diagram (**png** file)
2. Java source code files of the implemented classes, with internal documentation
3. Meaningful program documentation generated via **javadoc**
4. Test case document

## MCO1 Requirements:

Due: **Jul 23, 2021 1230**

1. Draw the UML class diagram to represent the system described.
2. Implement only the classes that allows the \_\_\_\_ and \_\_\_\_ pieces to move on the board with all terrains except *trap*. The program ends when the piece reaches the opponent's den.
3. Phase 1 implementation requires user to enter L, R, U, D (or any other keys to indicate direction), and displaying of essential information on the console (no GUI required yet).

## MCO2 requirements:

Due: **Sep 13, 2021 2359**

1. You must follow the MVC architecture.
2. Your final system **must be a GUI-based program**. All interactions will be on the GUI components. Console outputs will not be checked.
3. Complete UML class diagram.
4. Phase 2 implementation requires GUI.
5. Additional features may be implemented by the programmer. However, these should not contradict the requirement. Implemented additional features should be reflected in the UML class diagram too.

## Important!

1. This project is at most done in **groups of 2**. However, a student may choose to work alone. A student must not discuss or ask about design or implementation with other students or another groups, except his/her groupmate.

*Copying other people's work and/or working in collaboration with other groups are not allowed. These acts are punishable by a grade of 0.0 for the entire CCPROG3 course, and a case may be filed against all involved students with the Discipline Office.*

2. If you have questions, please post your questions in the Discussion item for MP in AnimoSpace.
3. For the minimum requirements of this MP, all the requirements written in this document should be present and working.
4. Do not forget to include internal documentation (comments) in your code.
5. You are required to create and use methods and classes whenever possible. Make sure to use Object-based (for MCO1) and Object-Oriented Programming concepts (for MCO2) properly. No brute force solution.
6. Submission of the project for each phase was announced during first day of classes, and indicated also in the Syllabus. Late submission, as indicated by AnimoSpace, will not be accepted, and will therefore result to 0 for that phase.
7. The students are responsible in submitting in the AnimoSpace assignment submission page the correct version. Only the last uploaded version by the deadline will be used as basis for assessment. As part of the requirement, the proponent/s should make pertinent back-ups of his/her/their own project.
8. During the MP demo, it is expected that the program can successfully be interpreted into bytecode file and will run. If the program does not run, the grade for that phase is 0. However, a running program with complete features may not necessarily get full credit, as design and implementation (i.e., code) may still be checked.
9. During the demo, all members of the group should be present. The group should know how to generate the bytecode file and to run the said file in the command prompt. Apart from question-answer, there is an Individual Programming Task that will be given to each member. Each will have to work on and finish the given task during the demo period.
10. A student or a group who cannot answer questions regarding the design and implementation of the submitted project convincingly will incur a grade of 0 for that project phase.
11. All sources should have proper citations. Citations should be written using the APA format. Examples of APA- formatted citations can be seen in the References section of the syllabus.

### Sources:

*How to Play Dou Shou Qi "The Jungle Game".* <https://ancientchess.com/page/play-doushouqi.htm>

*How to Play Jungle / Dou Shou Qi .* <https://www.ymimports.com/pages/how-to-play-jungle>