<div align="center">

CS 414 Object Oriented Design
Fall 2018
Project 1.0: Let the games begin!

</div>

<div align="right">

Due date: 09/25/2018
Presentation: 09/20/2018

</div>

1 Introduction

In this project, you are to develop a software system to play online a specific board game[1], henceforth referred to as the *X game*. Besides allowing users to play the *X game*, there are some other features that the system should provide.

Remember that this is an iterative project. There will be three iterations along the semester plus a final delivery. The requirements are always prone to change.

Read carefully this document before proceeding!

2 The *X game* system

The *X game* system is a platform that allows a user to play the *X game* online against other players. More information about the system is described next.

2.1 Core features

By the end of the project, the *X game* system must work according to the description below. If you have any doubt, ask for clarification.

> *"What I need is something like a platform that allows users to play the X game online. Anyone could register to this platform, for example by using an email, which would be unique for that user. To register, the person should also provide a nickname (also unique, maybe public???) and a password.*
>
> *What can a user do in the platform? Mmmm. She could create a new match (so she can play it). Since she can't play by herself, she should be able to invite another user to join the match. Perhaps she could send more than one invitation, and then it would be something like "first come, first served", so the first user accepting the invitation will be the one joining the match??? Is that possible?? I guess a user also needs to be able to reject an invitation, so it would be nice if the user who sent it receives a notification anyway.*
>
> *It would be cool if a user could be part of multiple games at the same time, though maybe she would want to quit from any game at any time? I guess a user would also want to be able to unregister.*
>
> *So, the platform needs to record the history of matches played by a user. Info like players, start and end dates and times, and end results would be useful to know who won or lost or if there was a withdraw. I guess info about abandoned games should be also recorded. All this info would be part of the user profile, which can only be viewed by registered users.*
>
> *The gameplay, well--the X game has a set of rules[2], which need to be followed during a match. Besides that, of course a game can't start until enough players have joined and I'm guessing that after a match starts no other player should be able to join. Who starts the match? If I'm not wrong, that should be specified in the rules of the game. If I am wrong… the user who created the match would be the one making the first move. Mmmm,*

---

[1] Find out which board game was assigned to your team by following this link.
[2] Section 7 provides a starting list of resources for the X game. The rules of the game itself will not change.

the system should be able to determine whose turn is it... according to the rules, right? Meaning, a player can only make moves when it's her turn... allowed moves, that is... the rules.

What else? Oh right. The state of the matches should be saved in some way, so the user can play whenever she wants. My guess is that users won't be playing the whole time, so for example, a user would make a move whenever is her turn and log out, and after a while she would come back and check if the other player made a move and it's her turn again. Asynchronous matches, I think that describes it. The system needs to know when a game is over and should let know the players who won or lost. All according to the rules."

2.2   Extra features

Once the set of core features has been implemented in the *X game* system, you will choose to implement any of the following features or propose a new one (this will require the instructor's approval).

"It would be super cool if a user could play against a bot player, you know, something like an AI agent that could decide what's the best move to make??

Another nice thing would be the organization of tournaments. So, a user could start a tournament that other users could join. Then the tournament would start with something like eight matches between unique players. The hierarchy of the matches could be randomly determined by the system before the first round of games starts. Badges!! The winner of the tournament would receive a gold badge and the second place would receive a silver badge. Those badges need to become part of the user profile, a public part. So, the system can use this info in a public rank of the players according to their badges.

What about a chat or some messaging feature? that would be so cool, too. Is that possible???"

3   Requirements analysis

As a development team, you are to flesh out the requirements listed above. You are to analyze and model the requirements as use cases, and to identify actors, preconditions, main and alternate scenarios, and any other unit of information you think appropriate to provide complete use cases. The use case analysis will be done **only for the set of core features**.

You must provide an overview diagram of all your use cases, as well as a detailed version of each one of them. You can follow the format discussed in class or look for one that fits your needs.

4   Development environment setup

There are only a few restrictions in the tools and technologies used to develop the project.

- The project must be stored in a **GitHub** repository. Name the repository after your team's name as follows: `cs414-f18-001-teamname`. The repository should be used to store and track changes to the source code and any other document generated during the development of the project (i.e., development artifacts, presentation slides, etc.).
- The project must be written in Java.
- Testing is mandatory!
- Extra points are given for using continuous integration technologies.

5   Deliverables

There are two deliverables for this assignment:

1. **Use case document.** The document should be uploaded to the respective GitHub repository. The document should report all the use cases in fully-dressed form.

2. **Presentation**. The progress on the project is to be presented during class, on **09/20/2018**. Besides presenting of the use cases, you are to present a brief description of the *X game*, as well as any process/product decision you have made. Note that the presentation will take place before the document deadline. This means that you will be able to obtain feedback and make updates to the document, before delivering it.

The grades for this assignment will apply to the deliverables uploaded to the GitHub repository before class (i.e., 2:00pm).

6   Notes

- Delivery dates associated with deliverables will be verified in the repository. Late work policies apply. Once the repository has been created, add the instructor[3] and TA[4] as collaborators.
- Instead of making assumptions about the requirements, talk with the client (i.e., the instructor).
- Grading criteria:
    - Document: 50%
    - Presentation: 50%
- Points will be deducted if:
    - The submission requirements are not met.
    - The instructor and TA are not added to the GitHub repository.
    - You are late with the submission.
- You will not receive credit for this assignment if:
    - You do not submit the deliverables.
    - You do not present during class.

7   Board game resources

7.1   Hnefatafl

- Hnefatafl – The strategic board game, Sten Helmfrid
  Available: http://hem.bredband.net/b512479/#Chap9
- Rules of the game Hnefatafl, Dragonheel's Lair
  Available: http://www.dragonheelslair.com/en/ruleshnef.php
- Fetlar Hnefatafl, Cyningstan
  Available: http://tafl.cyningstan.com/page/88/fetlar-hnefatafl

7.2   Banqi

- Banqi, Wikipedia
  Available: https://en.wikipedia.org/wiki/Banqi
- Banqi, Woody Thrower
  Available: https://woodpress.org/banqi/

7.3   Jungle

- Jungle, Wikipedia

---

[3] GitHub account: lmorenoc
[4] GitHub account: mohammedrefai

Available: https://en.wikipedia.org/wiki/Jungle_(board_game)
- Shou Dou Qi – The battle of the animals, Chess variants
  Available: http://www.chessvariants.com/other.dir/animal.html
- How to play Dow Shou Qi "The jungle game," Ancient Chess
  Available: http://ancientchess.com/page/play-doushouqi.htm
- Dow Shou Qi ("Game of fighting animals), Jonathan K. Vis
  Available: http://liacs.leidenuniv.nl/~visjk/doushouqi/about.html

7.4 Rollerball

- Rollerball, Wikipedia
  Available: https://en.wikipedia.org/wiki/Jungle_(board_game)
- Rollerball, A world of chess
  Available: http://history.chess.free.fr/rollerball.htm
- Rollerball, Chess variants
  Available: http://www.chessvariants.com/40.dir/rollerball/index.html

7.5 Chad

- Chad, Wikipedia
  Available: https://en.wikipedia.org/wiki/Chad_(chess_variant)
- Chad, MindSports
  Available: http://www.mindsports.nl/index.php/arena/chad/
- Chad, Chess variants
  Available: http://www.chessvariants.com/ms.dir/chad.html