

Project2 – Online Chess

Project program submission due Saturday, May 4th, by 11:59PM.

Submit demonstration recordings by Saturday, May 11th, by 11:59PM.

Specifications:

1. It is an individual project.
2. Each student will implement a program which will be able to carry out an online chess game:
 - a. Each student will implement the programs for the chess server and the chess client, which will **communicate directly using TCP socket**.
 - b. The first client login the server will be put into a “waiting” state; another client login the server can get a list of current available waiting player(s) and choose from the list to ask to play a game. **A client may reject another client’s request to play**. If both clients agree to play online chess they should negotiate (or ask the system to “toss a coin”.) who will be the black side and who will be the white side.
 - c. **Minimum requirements:** the chess server should allow unlimited clients to login and at least be able to handle one pair of clients to play online chess game at any moment.
 - d. After the game started, the chess board and the recorded time usage for both players should be shown on both players’ screens after each move. **One possible way** of presenting the chess board and command inputs for **the white side** can be:

```
Welcome to online chess by Alice and Bob
Start of game.
```

```
black (00:00:00)
```

```

r n b q k b n r
p p p p p p p p
. . . . . . . .
. . . . . . . .
. . . . . . . .
. . . . . . . .
P P P P P P P P
R N B Q K B N R
```

```
WHITE (00:00:00)
```

```
Move piece at (row column) -> 2 5
              to (row column) -> 4 5
```

```
black (00:00:00)
```

```

r n b q k b n r
p p p p p p p p
. . . . . . . .
. . . . . . . .
. . . . P . . .
. . . . . . . .
P P P P . P P P
R N B Q K B N R

```

```
WHITE (00:00:15)
```

```
...
```

- e. **Bonus 1:** If your server can handle more than one pair of players to play simultaneously, your team will receive **36 bonus points**;
 - f. **Bonus 2:** If your program can handle all the standard chess rules, you will receive **36 bonus points**;
 - g. **Bonus 3:** If your program provides a graphic user interface for the chess game, you will receive **36 bonus points**;
 - h. **Bonus 4:** If your program can work with another student's program seamlessly, you will receive **72 bonus points**.
 - i. **Bonus 5:** Normally this bonus points are given to team leader of a team. Since this is an individual project, and you will do much more by yourself, everyone will receive **20 bonus points** exclusively.
3. Please test your project using multiple online machines before the due time.

Submission & Grading:

1. Please zip your program project folder (please **don't** use rar) and submit a copy of the zip file to the Canvas before the due time.
2. Please submit a hardcopy of **a UML diagram of your design (with a note on the side of each class the name of the developer)** and **a vertical time sequence diagram** and **a state transition diagram** of your protocol design.
3. Demonstrate your project in recording on the due date.
4. **Total points** for each student **excluding bonus points** are **200**.