



2018 – 2019 SPRING

*CMP 2004 Advanced Programming*

***Term Project***

You are expected to implement a simple multiplayer network game with the following scenario:

Three-cushion billiards (sometimes called three-cushion carom,<sup>[1]</sup> three-cushion, three-cushions, three-rail, rails, and the angle game) is a popular form of carom billiards. There are three modes inside the game. First mode (minimum criteria) is practice mode and playing alone try to pocket all balls, second mode (bonus criteria) is two player mode and third mode (minimum criteria) is online game. The object of the game is to carom the cue ball off both object balls and contact the rail cushions at least three times before the last object ball. A point is scored for each successful carom.

**Explanation :** <http://tinyurl.com/y38mnbzs>

*Minimum Criteria:*

You are expected to design the game by using java. Below are the minimal criteria:

- Proper object oriented (OO) hierarchy (Use concepts of interfaces, abstract classes while designing OO hierarchy)
- There are 2 types of ball. Any three standard balls, and one white cue ball.
- Mouse or Key listeners (Both of them must be used to control your cue stick. You can use arrows on the keyboard and click your mouse to control it.)
- When you press and hold a button or mouse, you can adjust your hit power.
- Minimal GUI elements (Minimal a button, a check box and a text field)
- You need to create an online network game. Two players can be playing the game using different computers. (You don't need to use any server. You can connect two computers to each other with Ethernet cable.)
- When you hit two balls, you increase score vice versa you need to lose score.
- Which player reaches 50 in score, game is over.
- You need to show ball speed, score and time information using GUI elements.
- Graphics (Java 2D API usage while designing your graphical elements)
- Animation
- Create a jar file
- High Score (Keep user high scores for only recent games. Show it in a GUI element, e.g. list box. You do NOT have to save it on disk and load it.)

These are the *minimum* criteria, you can use more than these. Your application should work without any errors, so don't forget to run and check your application.

### Bonus:

- Different cue sticks have different attributes (E.g. one cue stick power is bigger than the other and another cue stick has got the better accuracy). (*minimum criteria for 3 people groups*)
- Good game experience/pleasure (*minimum criteria for 3 people groups*)
- Save and Load High Score information to/from disk (*minimum criteria for 3 people groups*)
- Using multiple Threads
- HTTP download (e.g. download and display of high scores of other people which are set on a webpage) (*minimum criteria for 3 people groups*)
- Creating smooth online game.
- Creating a new playing mode. 2 player game in one computer. (*minimum criteria for 3 people groups*)
- Creating cheats codes. (*minimum criteria for 3 people groups*)
- Creating online tournament in the game with more than 2 people. (You don't need to use any server. You can connect three or more computers to each other with Ethernet switch.)

### Limitation:

You **cannot** use third party libraries in your project.

### Project Report:

You can found report template in itslearning system.

### Teamwork:

You are expected to work as teams, since one outcome of this course is to teach you to do teamwork in software development. That is why if you submit as a single person you will be graded from 50% of the full grade. The project is for 2 people but you can create groups of 3, but you have to do more work than minimal requirements to get full grade.

### Cheating Policy:

Cheating is strictly prohibited. It must be you own work. Do not use each other's code. In such case all the cheaters, including the original project, will be penalized heavily. Do not include external people for help.

### Submission:

Project Announcement date: 15 April 2019

Last Submission date: 10 May 2019 23:59 (Late submission will not accept)

You must upload your project with executable jar file using itslearning system.

Don't forget to add your Project Group's Members using itslearning system.

Your project file name must be same your group members name. Do not forget to zip your project.

### Presentation:

Presentation date: Will be announced later.

All presentation will cover after the 10 May 2019 so plan your holiday for your presentation. If you don't do presentation, you won't get any point from project. Detail information will be announced later.