Suppose we are planning an online poke game system of “Chu Da Di”(锄大地游戏，此题同样适用于其它扑克牌游戏). Four players play the game with 52 cards (without 2 jokers) on a board. Please model the key function via the approaches of object-oriented analyze and design.

Suppose users are ranked with the scores they have won and the users could enter a game home with boards and start a “Chu Da Di” game. When the users play the game, each of them is distributed with 13 cards at random. When the player takes the turn to show cards, the player selects a group of cards and show it. The group of cards should be validated by the type of card, which is established by the rules of “Chu Da Di” game. When one of the players has showed all of the cards on hand, the game is over and the system will calculate the score of each player according to the game rules. Players can decide to leave or continue the game. If a player leaves the game before the end of the game, he or she would be given penalty.

1. Draw a UML use case diagram for the system (score 7).
2. Give the class diagram with the analysis classes representing business entities involved in the system along with their relationships and multiplicities. (score 10)
3. Give the state diagram of player (score 5).
4. Draw a UML sequence diagram to model the activity of playing game (score 8).