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**Advance Topics in Software Engineering**

**SYSC5709F 2020**

**Project Topic**

**UNO Card Game**

Deliverable 1: Problem Statement and Software Requirements

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# **Software Purpose**

UNO is a fun and interesting game, traditionally played by a group of people with a deck of printed cards. We are proposing to develop this interactive game online in C programming language which supports a single player competing against a computer system. Playing games online with computers could speed up our responses and develop logic skills. And during the covid-19 pandemic, when we can’t afford to spend time with our friends, we can use this game to keep ourselves entertained.

What’s more, this game will keep you engaged and reduce stress.

# **System Features and Requirements:**

All the software requirements are classified by prioritization, and will be implemented in two releases:

*Release 1:*

1. A human player with a computer opponent.
2. AI algorithm for computer player.
3. Human player starts a new game.
4. Deck Cards:
   1. UNO deck consists of 88 cards, of which there are 76 number cards, 8 action cards and 4 wild cards.
   2. Number Cards: 76 Number cards with four different colours (red, yellow, green and blue). Each colour consists of one zero, two each of 1 through 9.
   3. Action Cards: “Skip”, and two cards in each color.

The next player to play loses his turn and is "skipped."

* 1. Wild Cards: 4 cards

This card can be played on any card. The person playing the card calls any color to continue play, including the one presently being played if desired. A Wild card can be played even if the player has another playable card in his hand.

1. On a player's turn, they must do one of the following rules:
   1. Play one card matching the discard in colour, number, or symbol.
   2. Play a Wild card. (Only when rule 6.1 is not satisfied)
   3. Draw the top card from the deck, then play it if possible. (Only when rule 6.1 and 6.2 are not satisfied)
2. Game display screen with console output
   1. Game start welcome screen: includes software name and copyright.
   2. Game selection screen: “Start New Game”, “Resume Game”, and “Exit”.
   3. Player name inquiry screen: requires the human player to enter the name.
   4. Message screen:
      1. Warns the human player in case an illegal move or action.
      2. The latest discarded card information.
   5. End of game message: Notifications for win and lose with the player’s name.
3. Determination of the game result: The first player to get rid of their last card wins the game

*Release 2:*

1. If a human player takes no actions during her/his turn, then the computer player will win the game.
2. Supports addition action cards:
   1. Draw Two Cards: When this card is played, the next person to play must draw 2 cards and forfeit his turn.
   2. Wild Draw Four Cards:
      1. The player playing the card calls any color to continue play, additionally the next player has to pick 4 cards and forfeit his turn.
      2. The player can only play this card when you don't have a card in your hand that matches the color of the card previously played.