

Tim Magee, Audrey Nichols, Fabio Tran

Group 3

## ***Game Design and Rules***

### **Game Description**

- Card
  - A card will have a color, type, and number associated with it, determining which other cards it can be placed on top of. The Card class can also check for all of these factors, as well as compare them.
  - Cards move from the Deck to a player's Hand before it can be appropriately placed on the discard deck during a player's turn.
  - Cards interact with Deck and Hand, both of which extend Pile.
- Pile
  - Pile is a collection of cards.
  - A Pile will only be as large as the original size of the Deck, can be shuffled, can have cards added, or can have cards removed.
- Deck
  - Deck extends Pile and interacts with Hand.
  - After the deck is initialized, cards are taken from the deck so that each player can have a starting hand of seven cards.
  - Cards are then taken from the deck when a player does not have sufficient cards in their hand to play onto the discard deck.
  - Cards are also taken from the deck if a player is instructed by the last card in the discard deck to either draw 2 or 4 extra cards.
- Player
  - Player tracks the player name, points, and hand.

- Each player has a unique hand of cards, the player will be reminded of the cards in their hand at the beginning of each turn.
- Hand
  - Hand extends Pile and interacts with Deck.
  - A starting hand contains 7 cards from the deck.
  - If the cards in a hand are not compatible to be played with the last card in the discard pile, the player must draw a cards from the deck into the hand until they draw a compatible card to play.
  - A round is won when a player has no cards left in their hand, and then points are tallied and given to appropriate players.
- UnoGame
  - The UnoGame interacts with the Players and the Deck, initializing all players and the new Deck at the start of the game.

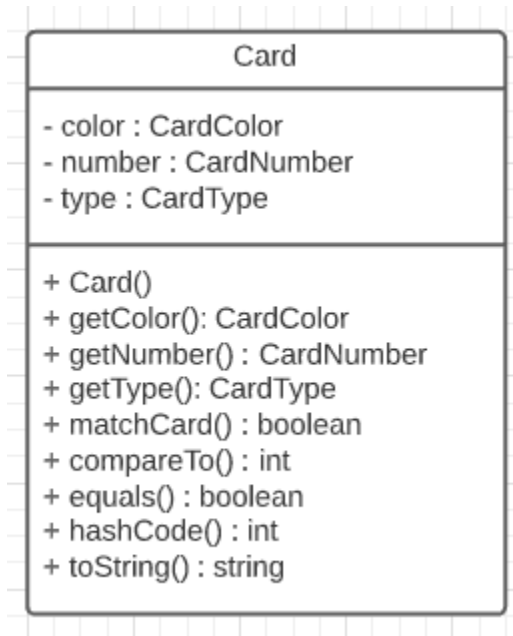
## Questions

- How many players participate? Fixed number? Minimum required? Maximum supported?
  - UNO can support 2-10 players, not a fixed amount
- If applicable to your game, can you run out of cards? If so, now what?
  - You can run out of cards in the draw pile. When this happens, set aside the top card of the discard pile which will remain in this pile. Take the rest of the cards and reshuffle them into a new draw pile
- Are there other objects that affect playing the game?
  - No other objects besides cards
  - In real-life UNO, players can affect the game (saying UNO if a player has one card left), but this implementation is console based and runs on a singular device
- How will users interact with your game?

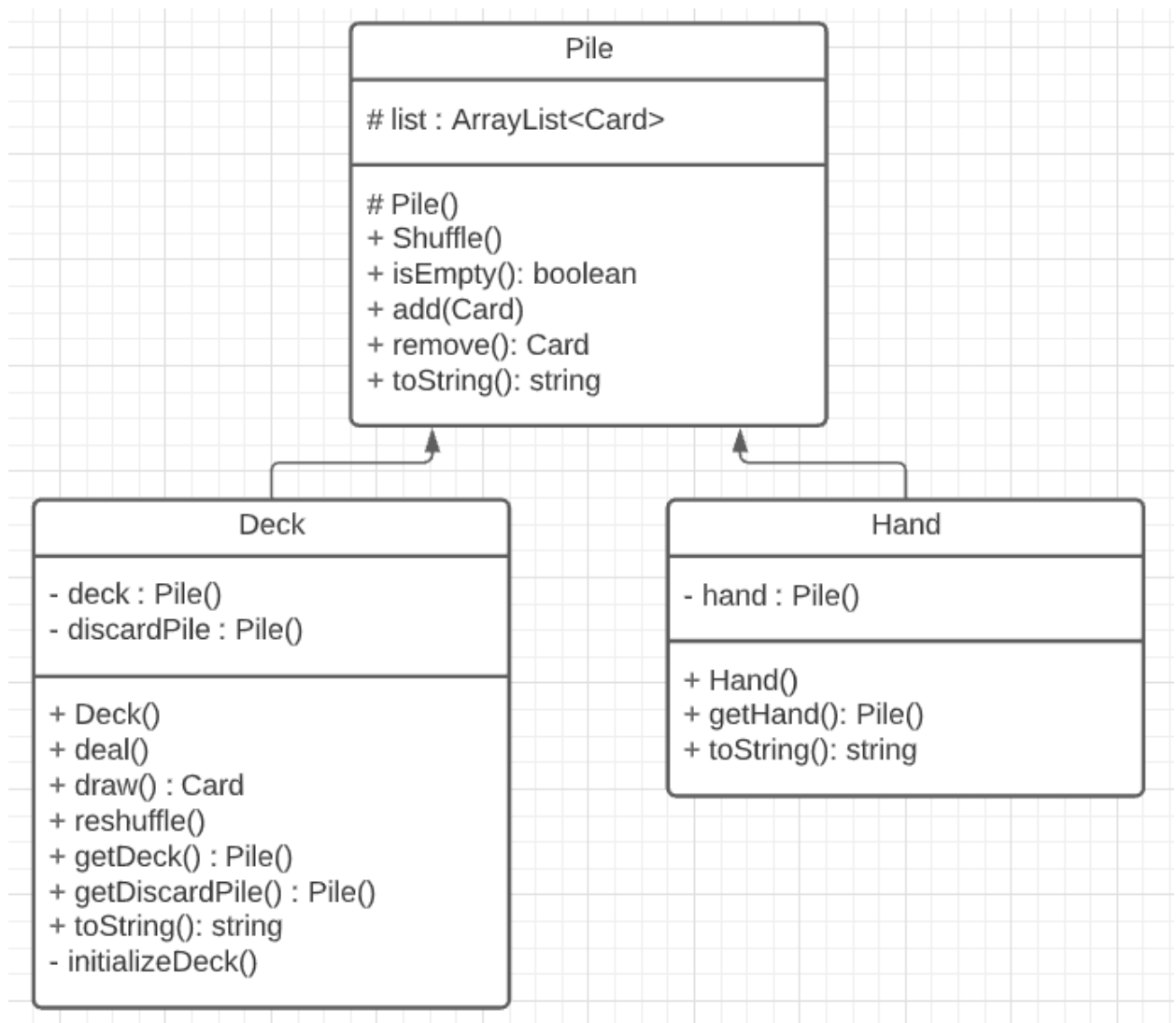
- Users will interact with the game through the eclipse console

## UML Diagrams

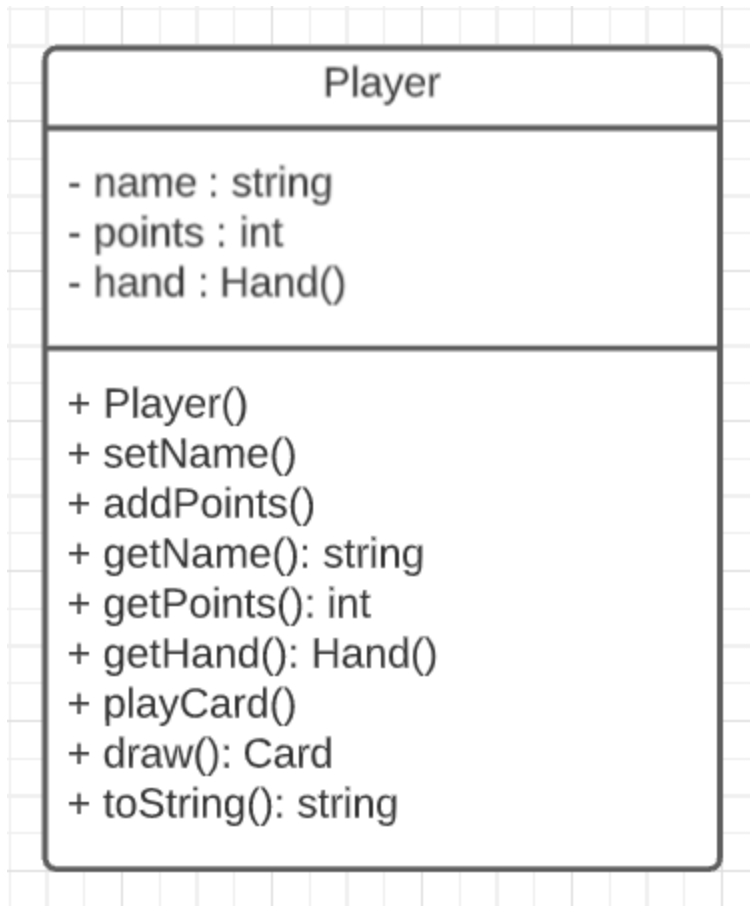
- Card class (enumerations will be used for color, type, and number of the UNO cards)



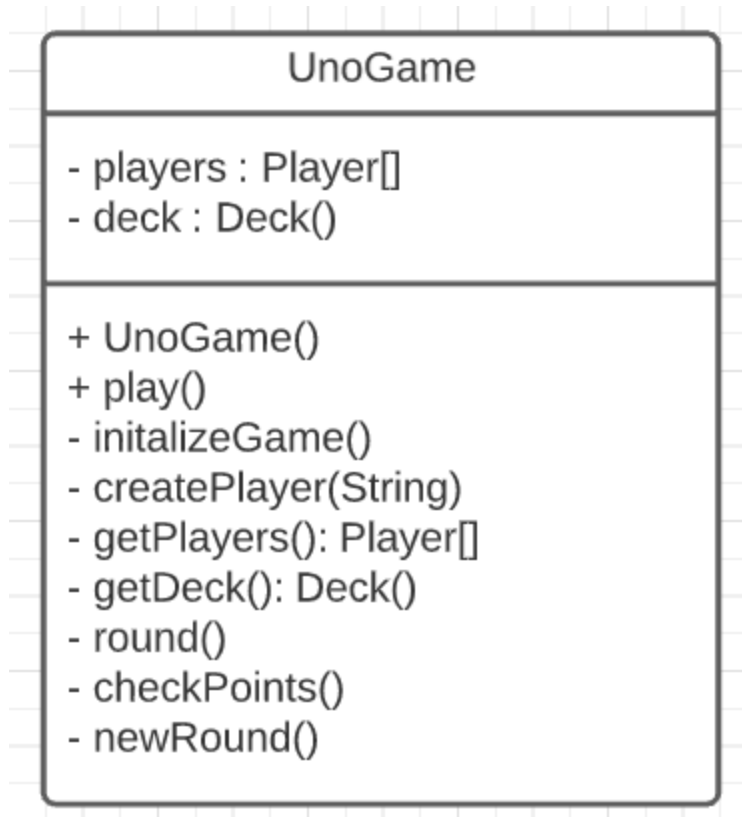
- Pile, Deck, and Hand Class



- Player class



- UnoGame class (additional utility method will probably be created to handle game logic as we implement our code)



- We will determine if we need other classes to make our program cleaner as we implement our code

### **Game Rules (Official Rulebook)**

# UNO

CARD GAME



## Contents

### 112 Cards as follows:

- 19 Blue cards - 0 to 9
- 19 Green cards - 0 to 9
- 19 Red cards - 0 to 9
- 19 Yellow cards - 0 to 9
- 8 Draw Two cards - 2 each in blue, green, red and yellow
- 8 Reverse cards - 2 each in blue, green, red and yellow
- 8 Skip cards - 2 each in blue, green, red and yellow
- 4 Wild cards
- 4 Wild Draw Four cards
- 1 Wild Swap Hands card
- 3 Wild Customizable Cards

## Object of the Game

Be the first player to get rid of all of your cards in each round and score points for the cards your opponents are left holding. Points in rounds accumulate and the first player to reach 500 points wins.

## Setup

- Each player draws a card; the player that draws the highest number deals (count any card with a symbol as zero).
- The dealer shuffles and deals each player 7 cards.
- Place the remainder of the deck facedown to form a DRAW pile.
- The top card of the DRAW pile is turned over to begin a DISCARD pile. NOTE: If any of the Action Cards (symbols) are turned over to start the DISCARD pile, see FUNCTIONS OF ACTION CARDS for special instructions.

## Let's Play

The person to the left of the dealer starts play.

On your turn, you must match a card from your hand to the card on the top of the DISCARD pile, either by number, color or symbol (symbols represent Action Cards; see FUNCTIONS OF ACTION CARDS).

**EXAMPLE:** If the card on the DISCARD pile is a red 7, the player must put down a red card OR any color 7. Alternatively, the player can put down a Wild card (See FUNCTIONS OF ACTION CARDS).

If you don't have a card that matches the one on the DISCARD pile, you must take a card from the DRAW pile. If the card you picked up can be played, you are free to put it down in the same turn. Otherwise, play moves on to the next person in turn.

You may also choose NOT to play a playable card from your hand. If so, you must draw a card from the DRAW pile. If playable, that card can be put down in the same turn, however you may not play any other card from your hand after the draw.

## Functions of Action Cards



**Draw Two card** - When you play this card, the next player must draw 2 cards and miss their turn. This card may only be played on a matching color or on another Draw Two card. If turned up at the beginning of play, the same rule applies.



**Reverse card** - When you play this card, the direction of play reverses (if play is currently to the left, then play changes to the right, and vice versa). This card may only be played on a matching color or on another Reverse card. If this card is turned up at the beginning of play, the dealer goes first, then play moves to the right instead of the left.



**Skip card** - When you play this card, the next player is "skipped" (loses their turn). This card may only be played on a matching color or on another Skip card. If a Skip card is turned up at the beginning of play, the player to the left of the dealer is "skipped," hence the player to the left of that player starts play.



**Wild card** - When you play this card, you get to choose the color that continues play (any color including the color in play before the Wild card was laid down). You may play a Wild card on your turn even if you have another playable card in your hand. If a Wild card is turned up at the beginning of play, the person to the left of the dealer chooses the color that continues play.



**Wild Draw 4 card** - When you play this card, you get to choose the color that continues play PLUS the next player must draw 4 cards from the DRAW pile and lose their turn. However, there is a hitch! You may only play this card when you do NOT have another card in your hand that matches the COLOR on the DISCARD pile (but it is acceptable to play this card if you have matching number or Action Cards). If turned up at the beginning of play, return this card to the deck and pick another card.

**NOTE:** If you suspect that a Wild Draw 4 card has been played on you illegally (i.e. the player has a matching card), then you may challenge that player. The challenged player must show you (the challenger) their hand. If guilty, the challenged player must draw the 4 cards instead of 5. However, if the challenged player is innocent, you must draw the 4 cards PLUS an additional 2 cards (6 total).



**Wild Swap Hands card** - When you play this card, you may choose any opponent and swap all the cards in your hand with all the cards in their hand. This is a wild card so you may play it on your turn even if you have another playable card in your hand. Also, you choose the color that resumes play. If this card is turned up at the beginning of play, the person to the left of the dealer chooses the color that begins play.



**Wild Customizable card** - Use a #2 pencil to write any house rule you wish on a card. The only limit is your imagination (and the consent of the other players). Before the game begins, decide how many of these cards to include. You may use only 1 or all 3, it's up to you. This is a wild card so you may play it on your turn even if you have another playable card in your hand. Also, you choose the color that resumes play. If this card is turned up at the beginning of play, the person to the left of the dealer chooses the color that begins play. **NOTE:** the cards are erasable, so you may write a new rule each time you play!

**FOR A CLASSIC GAME OF UNO®, TAKE THE WILD SWAP HANDS CARD AND 3 WILD CUSTOMIZABLE CARDS OUT OF THE DECK.**

### Using Customizable Cards

The customizable rule cards can be as wild as you like. Use them to speed up the game, add a bit more strategy, or force someone to do something silly. Here are some thought starters for your own custom rules:

1. The next player must draw until they draw a card of a certain color.
2. Everyone but you must discard all their Wild cards.
3. If the next player can't play a card, they take THREE cards from the DRAW pile.
4. Take an extra turn.
5. The next player must draw or discard until they have exactly 7 cards.
6. Everyone must discard (or draws) until they have exactly 3 cards.
7. Everyone must play with their hand face up until your next turn.
8. Tell a joke. If the no one laughs, draw 4 cards. Otherwise, discard down to 1 card (don't forget to yell "UNO!")
9. The next player cannot bend their elbows until someone says "UNO!"
10. The next player must perform their best rooster call or "chicken out" and draw 4 cards.

### Going Out

When you play your next-to-last card, you must yell "UNO" (meaning "one") to indicate that you have only one card left. If you don't yell "UNO" and you are caught before the next player begins their turn, you must draw two cards.

Once a player has no cards left, the round is over. Points are scored (see SCORING) and play starts over again.

If the last card played in a round is a Draw Two or Wild Draw Four card, the next player must draw the 2 or 4 cards respectively. These cards are counted when the points are totaled.

If no player is out of cards by the time the DRAW pile is depleted, the DISCARD pile is reshuffled and play continues.

### Scoring

The first player to get rid of their cards in a round receives points for all of the cards left in their opponents' hands as follows:

All number cards (0-9) .....	Face Value
Draw Two .....	20 Points
Reverse .....	20 Points
Skip .....	20 Points
Wild .....	50 Points
Wild Draw Four .....	50 Points
Wild Swap Hands .....	40 Points
Customizable .....	40 Points

Once the score for the round has been tallied, if no player has reached 500 points, reshuffle the cards and begin a new round.

### Winning the Game

The WINNER is the first player to reach 500 points.

### Alternative Scoring and Winning

Another way to score points is to keep a running tally of the points each player is left with at the end of each round. When one player reaches 500 points, the player with the lowest points is the winner.

YANG'S HOTEL MANAGEMENT & TOURS PTE. LTD. USE ONLY

YANG'S HOTELS TOURS & TRAVEL, 100, THE METRO, 100, SOUTH CITY, NO. 8, JALAN KERRICH, 59200 KUALA LUMPUR, MALAYSIA. TEL: 03-78803817, FAX: 03-78803867.



South City, No. 8, Jalan Kerrich, 59200 Kuala Lumpur, Malaysia. Tel: 03-78803817, Fax: 03-78803867.  
3185-6500, Dampier & Diederichs Hotel, Motel, Southeast Asia Pte. Ltd., No. 19-1, Tower 3, Avenue 7, Bangkok  
East Asia Ltd., Room 503-09, North Tower, World Finance Centre, Harbour City, Tsimshatsui, HK, China. Tel: (852)  
500303, Motel Australia Pty. Ltd., Richmond, Victoria, 3121 Consumer Advisory Service - 1300 135 312, Motel  
©2015 Motel. All Rights Reserved. Motel U.K. Ltd., Vaneau Business Park, Maidenhead SL6 4JB. Helpline 01628