WEB3 Assignment 1

# The Case

UNO is a card game invented by Merle Robbins in 1971. The game can be played by 2 or more players. The game is played as a series of *hands*. After each hand, the winning player is awarded points (in standard rules). The first to 500 points wins the game.

Each hand is played out as follows:-

* Every player is dealt 7 cards
* A card is placed face up in the middle of the table – this forms the discard pile
* The remainder of the cards are placed next to the discard pile – this is the draw pile
* Every player in turn must play a card that matches the card on the top of the discard pile
* A card is a match if it has the same colour (i.e. blue) or the same type (i.e. same number or same type of special card) as the other card
* If a player can’t match the card, they must draw a card instead.
* The first player to play their last card wins the hand
* The winner is awarded points based on the remaining cards in the other player's hands
* UNO: Before a player plays their penultimate card, they must say “UNO”. Failure to say “UNO” is liable to a 4-card draw penalty.

On top of that, there are several special cards with different effects. Also, there are a lot of details not covered above. The rules are uploaded to itslearning.

# The Task

The task of assignment 1 is to implement the standard rules of UNO as described in the uploaded rule set. (**NOTE:** The special case of 2-player UNO is considered standard for this purpose.)

You must define and implement 3 interfaces (or object types, if you like):

1. Deck – this represents a deck of UNO cards. Including special cards, but not blank cards. You can also use this to represent the piles of cards if you like.
2. Hand – this represents playing a hand of UNO. This should not be confused with the 7 cards dealt to the player – I call this a “player hand” in my own code.
3. Game – this represents a full game of UNO. It consists of a series of hands until someone reaches the target score, default 500.

To aid with the implementation I have made a test suite based on my understanding of the UNO rules.

**NOTE:** It is not a requirement that the tests pass. You may have a different understanding of the rules. Also, feel free to modify the tests as you please.

# Deadlines and Other Rules

* Deadline for all assignments is 29 November 2024, but I recommend that you get the first 3 done before the end of the autumn break.
* The assignments are meant for groups of 2 or 3 students, but I’ll allow groups of 4 students. If you want to try to do it by yourself that’s okay but be aware that it’s a high payload.
* I cannot give feedback on all assignments, but I’m always available for questions.