



# Milestone 3: Game API Design - Uno

Jasmine Hernandez, Sarah Sahajlan,  
Daniel Perez Paiz, Katy O'Brien



## Game Overview



- Uno is a turn-based multiplayer card game
- Players match cards by color and value
- Includes special action cards: Reverse, Skip, Draw 2, Wild, Wild Draw 4.
- Goal: play all your cards before anyone else
- Gameplay involves turn order, color changes, penalties, and strategic card use



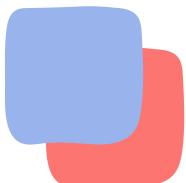


# API Endpoints



## Game Management

- Create Game:  
POST /api/games
- Join Game:  
POST /api/games/:gameId/join
- Start Game:  
POST /api/games/:gameId/start
- Get Game State:  
GET /api/games/:gameId



## Game Actions

- Play Card:  
POST /api/games/:gameId/play-card
- Draw Card:  
POST /api/games/:gameId/draw
- End Turn:  
POST /api/games/:gameId/end-turn



# ★ Deep Dive I: Play Card ★

## Play Card: POST /api/games/:gameId/play-card



### Validation Checks:

- Game exists & in "playing" state
- User is current player
- User owns the card
- Legal play (matching color/value or Wild)
- Wild/Wild+4: chosen color required
- Wild+4 allowed only if no matching color
- Pending penalties handles



### State Updates:

- Remove Card from hand
- Add card to discard pile
- Apply effects (skip, reverse, draw 2, draw 4)



### Socket Events:

- game:state:update (public)
- game:hand:update (private)
- game:ended





# Continued...



Play Card: POST /api/games/:gameId/play-card

Edge Cases:

- Wild +4 Misuse
- Reverse and 2 player skip rule
- Stacking draw penalties (optional)
- Playing last card triggers game end



## ★ Deep Dive 2: Start Game ★

Start Game: POST /api/games/:gameId/start



### Validation Checks:

- Game exists
- Caller is host
- Game in "lobby"
- At least 2 players



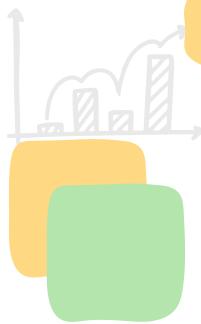
### State Updates:

- Shuffle deck
- Deal 7 cards to each player
- Flip first discard pile card
- Set = state "playing"
- Set current player and turn order

### Socket Events:

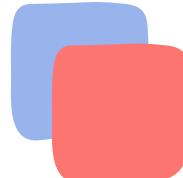
- game:state:update (public)
- game:hand:update (private)

# ★Socket.io Events Summary★



## Public Events

- game:start
- game:player:joined
- game:player:left
- game:state:update
- game:card:played
- game:turn:changed
- game:uno:called
- game:ended

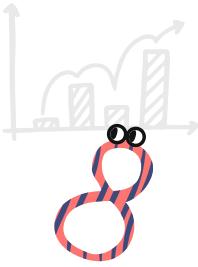


## Private Events

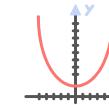
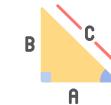
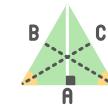
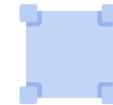
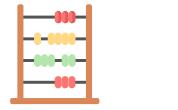
- game:hand:update
- game:draw:result
- game:error



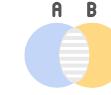
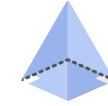
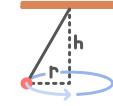
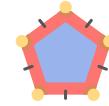
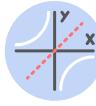
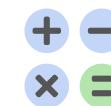
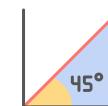
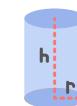
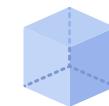
Thank you for  
Listening



# ★ Maths icon pack ★



$\pi$   
3,14





## ★Alternative resources★

Here's an assortment of alternative resources within the same style of this template



# ★ Resources ★

Did you like the resources on this template? Get them for free at our other websites.



## Photos:

- Smiley teacher holding a bunch of books and an apple with copy space
- Senior male professor holding notebook standing against blackboard
- Schoolgirl with notepad grimacing
- Schoolgirl on math lesson



## Vectors:

- Hand drawn mathematical symbols
- Hand drawn school infographic elements
- Hand drawn school infographic elements

## Icons:

- Maths icon pack

