



Milestone 3: Game API Design - Uno

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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



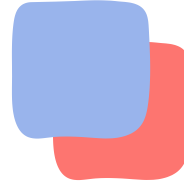


API Endpoints



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:

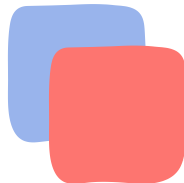
- game:state:update (public)
- game:hand:update (private)

★ 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

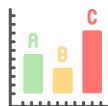
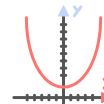
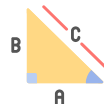
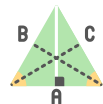
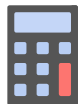
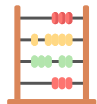


Thank you for
Listening

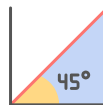
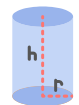
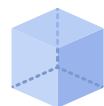




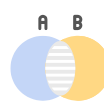
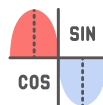
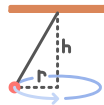
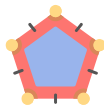
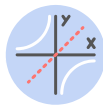
★ Maths icon pack ★



$$\pi$$
$$3,14$$



$$E=mc^2$$





★ Alternative resources ★

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



★ Resources ★

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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

