

State Diagram

## **Explanation:**

Unauthenticated - Authenticated - Browsing: user logs in and lands on the main menu.

Browsing - GameSelected - GameFlow: user picks a game; we request a game session via the API Gateway.

GameFlow is a grouped (composite) state with the simple game lifecycle:

- Launching (start the game).
- InGame (playing) with optional Paused.
- GameOver (round ends).
- ResultsSubmitted (we send score/telemetry, then exit).
- SessionExpired: idle timeout kicks the user back to login.
- Error: generic failure bucket; either recover back to Browsing or force logout.

## The key transitions (events on the arrows)

loginSuccess / loginFailed move you out of Unauthenticated.

selectGame moves Browsing - GameSelected.

launchOK / launchFail moves Launching - InGame or error.

win | lose | userExit moves InGame - GameOver.

submitResultsOK moves GameOver - ResultsSubmitted - Browsing.

runtimeError, uiError, or apiError drop into Error; from there either recover to Browsing or forceLogout to Unauthenticated.

idleTimeout moves Authenticated - SessionExpired.

Unauthenticated: not logged in.

Authenticated: session valid.

**Browsing**: main menu and game selection in the WebApp.

GameSelected: a game was chosen.

**GameFlow**: launch  $\rightarrow$  play  $\rightarrow$  finish  $\rightarrow$  submit results.

**SessionExpired**: idle or timeout.

**Error**: generic failure; can recover or force logout.

**ResultsSubmitted**: scores/telemetry sent, then back to Browsing.