Rodion Burmistrov MSOFT Project

Jersey Webpage Algebraic Specification

Game Adding UseCase

Types:

  - *Game*: Represents a game.

  - *GameDeveloper*: Represents a game developer.

  - *WebGameAddition*: Represents the state of the system.

  - *GameInfo*: Represents information about a game, including title, picture, contact address, and vote counter.

Functions:

1: addGame: *Game* x *GameDeveloper* x *WebGameAddition* -> *WebGameAddition*

2: getGames: *WebGameAddition* -> *ListOfGameInfo*

3: getVotes: *Game* x *WebGameAddition* -> VoteCount

Functions: Explanations

F1: Takes a game, a game developer, and the current state of the system and returns the updated state after adding the game.

F2: Retrieves the list of games with their information on the website.

F3: Retrieves the vote count for a specific game.

Axioms:

$\forall$ **g, g1, g2**: *Game*, **gd**: *GameDeveloper*, **w**: *WebGameAddition*

A1: getGames(addGame(**g, gd, w**)) = getGames(**w**) union {gameInfo(**g, gd**)}

A2: (**g1** != **g2**) **=>** (getGames(**w**) intersection {**g1, g2**} = empty set)

A3: addGame(**g1, gd**, addGame(**g2, gd, w**)) = addGame(**g2, gd**, addGame(**g1, gd, w**))

A4: getVotes(**g**, addGame(**g, gd, w**)) = 0

Axioms: Explanation

A1: This axiom ensures that adding a game includes its information in the list of games

A2: This axiom ensures that the added game is not already on the website

A3: This axiom ensures that the order of adding games does not affect the result

A4: This axiom ensures that a newly added game has zero votes initially

Preconditions:

1: *addGame* requires *GameDeveloper = true*

2: *WebGameAddition != false*

3: *GameInfo* requires *GameInfo > 0*

Preconditions: Explanation

P1: Before calling addGame, it is assumed that Game Developer is valid and registered.

P2: The website system is assumed to be in a consistent state, and adding a game does not violate any other system invariants.

P3: It is assumed that the information provided by the game developer includes a valid picture and contact address for the game.