## Use Cases related to Core Game

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| **Flow of Events for Mouse Movement** | |
| Use Case ID | ucG001 |
| Objective | Paddle movement must reflect mouse movement |
| **Precondition** | *Must be in an active game* |
| **Main Flow** | 1. *User moves mouse* 2. *If resultant puck movement is within game board bounds, update position of paddle* |
| **Alternative Flows** | *At 2, if resultant puck movement would move paddle off screen, update paddle at the boundary of the board* |
| **Post-condition** | *Paddle has new position on board* |

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| **Flow of Events for Paddle Strike** | |
| Use Case ID | ucG002 |
| Objective | Paddle strikes the puck |
| **Precondition** | *Must be in an active game* |
| **Main Flow** | 1. *Extends* uc*G001* 2. *Paddle movement causes paddle and puck to collide* 3. *Puck inherits certain velocities of the paddle and moves accordingly* |
| **Alternative Flows** | *N/A* |
| **Post-condition** | *Puck direction is changed* |

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| **Flow of Events for Puck Movement** | |
| Use Case ID | ucG003 |
| Objective | Puck moves with realistic physics for impacts and is never still |
| **Precondition** | *Must be in an active game* |
| **Main Flow** | 1. *Puck is receives initial strike* 2. *Puck moves according to physics simulation* 3. *Puck doesn’t stop moving (always maintains minimum velocity)* |
| **Alternative Flows** | *N/A* |
| **Post-condition** | *Puck is in motion* |

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| **Flow of Events for Goal** | |
| Use Case ID | ucG004 |
| Objective | Score is recorded and puck reset for opposite player |
| **Precondition** | *Puck is in board area marked as goal* |
| **Main Flow** | 1. *Puck is in P2’s goal area* 2. *Score of P1 is incremented* 3. *Game pauses to display score* 4. *Puck is reset to P2’s start position* 5. *Game recommences* |
| **Alternative Flows** | *At 5 if score limit has been reached, game is over* |
| **Post-condition** | *P1’s score has increased* |

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| **Flow of Events for Pause Game** | |
| Use Case ID | ucG005 |
| Objective | Game enters pause menu state |
| **Precondition** | *Game is not paused* |
| **Main Flow** | 1. *User pauses game* 2. *Game enters pause menu* |
| **Alternative Flows** | *N/A* |
| **Post-condition** | *Pause menu is in control of game flow (eg, continue, quit)* |