# Bug 1 Test Investigation/Fix Log

## Hypothesis 1

That the method Game.playround() is the source of the bug as it calculates the winnings in each turn of play.

## Action

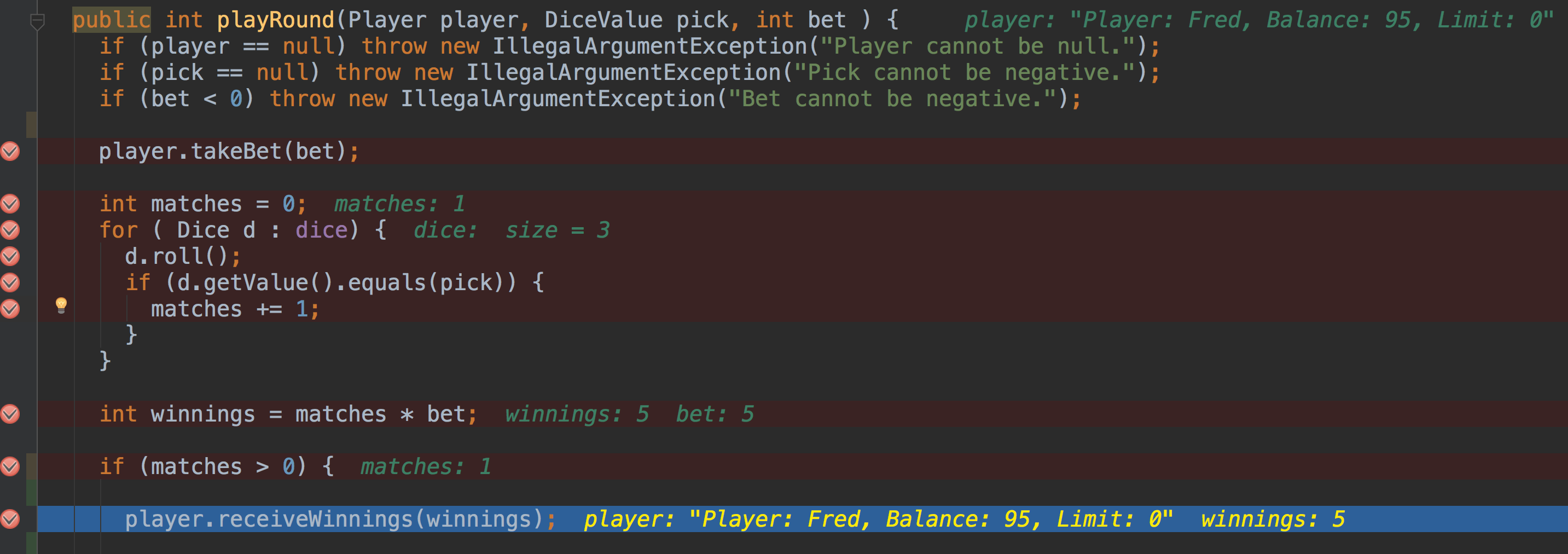
Place breakpoints into the Game.playround() method to observe the content of variables for winnings and balance.

## Results

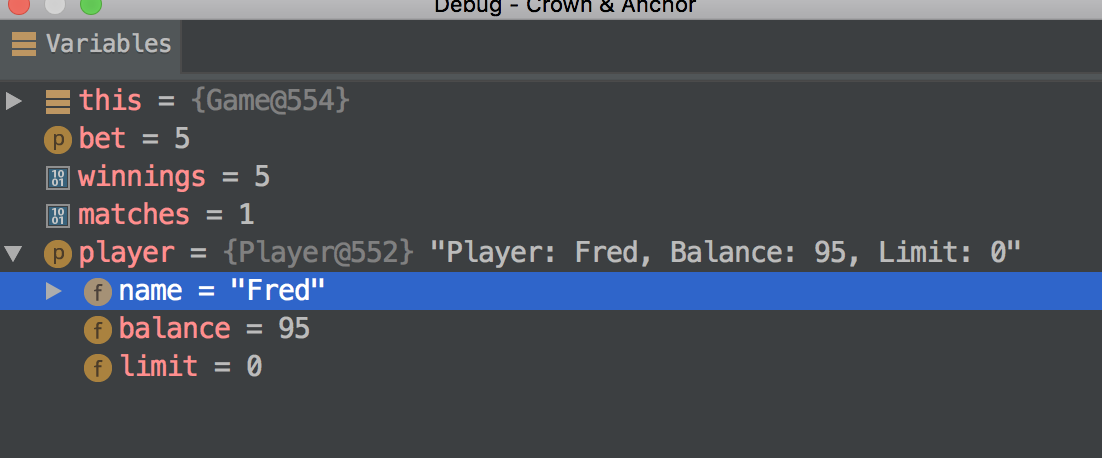
Investigation into Bug 1 shows that the balance is increased by the winnings when there is one match against a die. However, the balance is then reduced in the next turn when the value of the bet is subtracted from the player’s balance. This is a bug because the bet should only be subtracted from the player’s balance if the player loses. See the screenshots below that show the balance is increased by the winnings in Player.receiveWinnings(), but then reduced by the value of the bet in Game.playRound().

Note that this also relevant to “Bug 5” as mentioned in UAT Scenario – Bug 1; Bug 5 was that when the player was observed as having rolled a matching die against two of the games rolled dice, only one win was recorded (the balance only increased by one bet). This is again caused by the same reason, that the bet should only be subtracted if the player loses the turn (and is also relevant for a match against three dice).

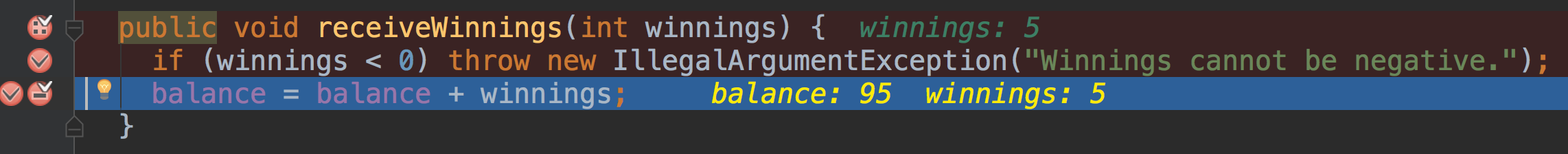
Screenshot 1: code in Game.playRound() shows balance reduced by value of bet, regardless of whether the player has won or lost:



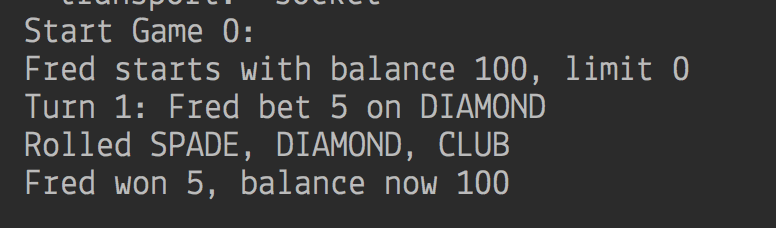
Screenshot 2: variables reflect balance reducing even if player has won:



Screenshot 3: code in Player.receiveWinnings() method shows balance at $95, winnings at $5:



Screenshot 4: console output shows balance is not increased even though player won against one matched die:



## Hypothesis 2

The source of the bug is to be found in the Game.playround() method, where the bet is subtracted from the player’s balance before the dice are rolled and regardless of the result of the dice rolls. If the bet subtraction happens only if the player loses, i.e. if dice matches = zero, this should fix the bug.

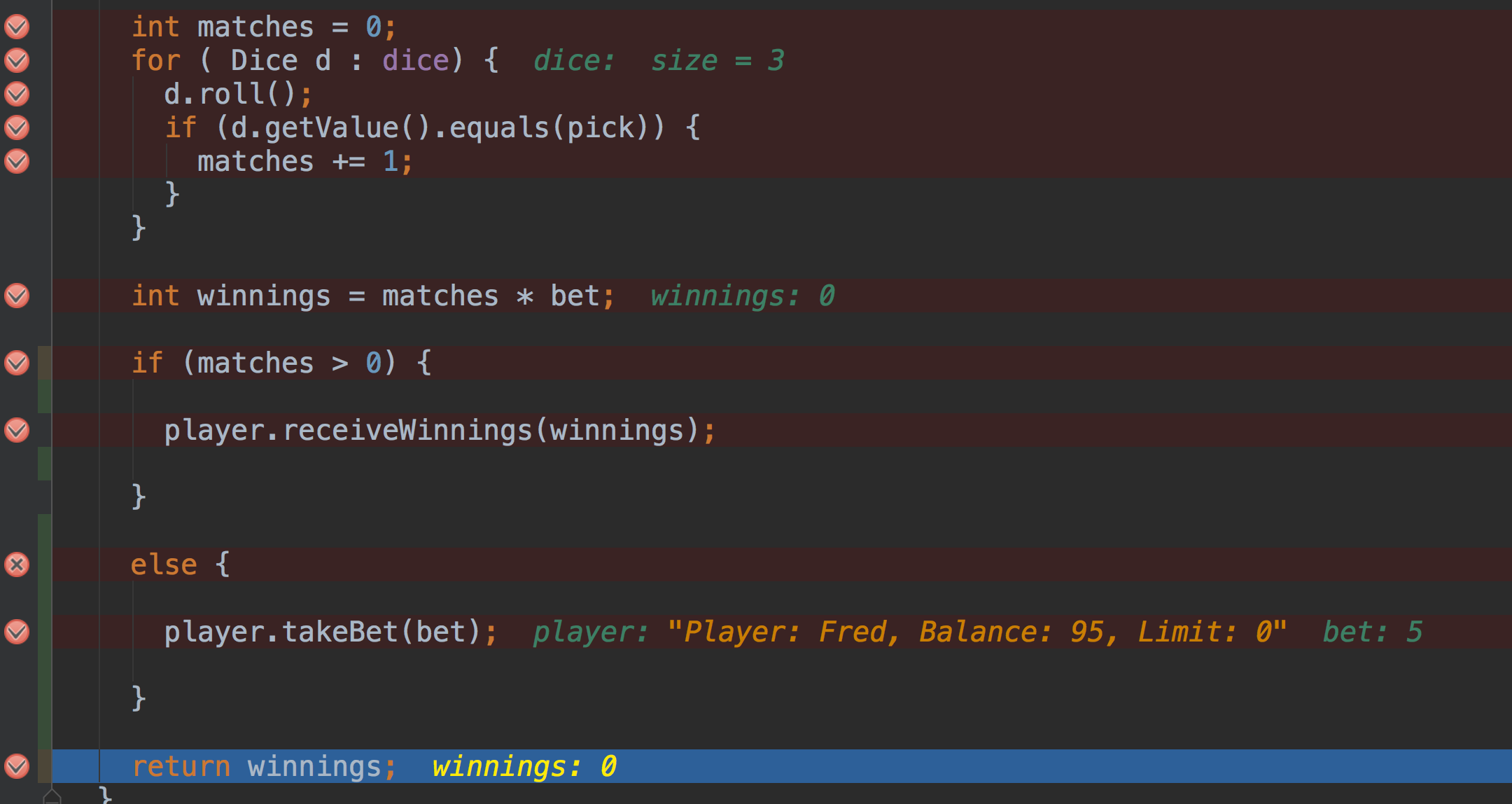
## Action

Change Game.playRound() so that the Player.takeBet() code (where subtraction of bet happens) is only called if the player loses the turn.

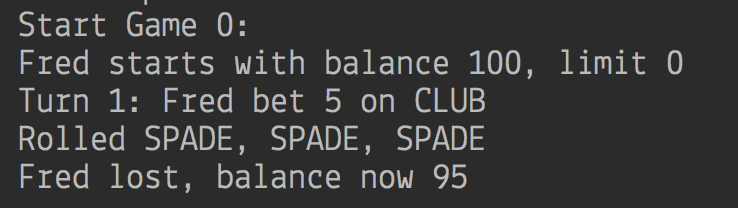
## Results

After the code in Game.playRound() was fixed, the game is performing correctly and the bug is fixed. See the screenshots below:

Screenshot 5: variables in Game.playRound() show balance is reduced by correct amount when player loses:



Screenshot 6: console output shows player lost turn and balance correctly decremented:



Screenshot 7: variables in Game.playRound() show balance is increased by correct amount when player wins one match against dice:



Screenshot 8: console output shows player won turn and balance correctly incremented by bet amount:

