Resolution & Result

Bug 1: The player is not paid out correctly

1 Resolution

One possible solution is to take the bet after the game finishes. This means that if the player wins, the winnings will be added and no bet is taken from the balance. Otherwise, if the player makes no match, the bet will be taken from the balance.
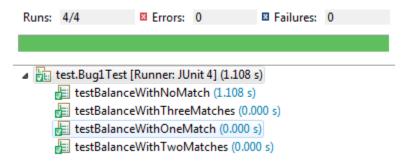
This could be done by moving the takeBet method as below:

```java
public int playRound(Player player, DiceValue pick, int bet ) {
    if (player == null) throw new IllegalArgumentException("Player cannot be null.");
    if (pick == null) throw new IllegalArgumentException("Pick cannot be negative.");
    if (bet < 0) throw new IllegalArgumentException("Bet cannot be negative.");

    // player.takeBet(bet);

    int matches = 0;
    for ( Dice d : dice) {
        d.roll();
        if (d.getValue().equals(pick)) {
            matches ++;
        }
    }

    int winnings = matches * bet;

    if (matches > 0) {
        player.receiveWinnings(winnings);
    }
    else player.takeBet(bet);
    return winnings;

}
```

There is no risk if fixing according to this, as other variables are not dependent on the balance at this stage. Also, if the matches is zero, the winnings will be calculated as zero.

2 Result

2.1 Bug1Test.java

Runs: 4/4   ☒ Errors: 0   ☒ Failures: 0

test.Bug1Test [Runner: JUnit 4] (1.108 s)
    testBalanceWithNoMatch (1.108 s)
    testBalanceWithThreeMatches (0.000 s)
    testBalanceWithOneMatch (0.000 s)
    testBalanceWithTwoMatches (0.000 s)

```
Automated Test for Bug 1: The player is not paid out correctly
Start game
October starts with balance 100, limit 0

Rolled ANCHOR, ANCHOR, DIAMOND
October bet 5 on HEART
balance now 95

Winnings: 0

Automated Test for Bug 1: The player is not paid out correctly
Start game
October starts with balance 100, limit 0

Rolled HEART, ANCHOR, DIAMOND
October bet 5 on HEART
balance now 105

Winnings: 5

Automated Test for Bug 1: The player is not paid out correctly
Start game
October starts with balance 100, limit 0

Rolled HEART, HEART, DIAMOND
October bet 5 on HEART
balance now 110

Winnings: 10

          -

Automated Test for Bug 1: The player is not paid out correctly
Start game
October starts with balance 100, limit 0

Rolled HEART, HEART, HEART
October bet 5 on HEART
balance now 115

Winnings: 15
```

2.2 Console from Main

Result from the console shows no error as well:

```
Start Game
Fred starts with balance 100, limit 0
Turn 1: Fred bet 5 on CLUB
Rolled CROWN, CROWN, CLUB
Fred won 5, balance now 105

Turn 2: Fred bet 5 on CROWN
Rolled CROWN, CROWN, CLUB
Fred won 10, balance now 115

Turn 3: Fred bet 5 on CROWN
Rolled CROWN, CROWN, CLUB
Fred won 10, balance now 125

Turn 4: Fred bet 5 on CLUB
Rolled CROWN, CROWN, CLUB
Fred won 5, balance now 130

Turn 5: Fred bet 5 on DIAMOND
Rolled CROWN, CROWN, CLUB
Fred lost, balance now 125

Turn 6: Fred bet 5 on HEART
Rolled CROWN, CROWN, CLUB
Fred lost, balance now 120
```