Bug 3

*Odds in the game do not appear to be correct.*

#### Sample Buggy Output

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| 76 turns later.  End Game 99: Fred now has balance 200  Win count = 3877, Lose Count = 5745, 0.40 | 62 turns later.  End Game 99: Fred now has balance 200  Win count = 4289, Lose Count = 6771, 0.39 |
| 136 turns later.  End Game 99: Fred now has balance 200  Win count = 5922, Lose Count = 3922, 0.60 | 152 turns later.  End Game 99: Fred now has balance 200  Win count = 3423, Lose Count = 4998, 0.41 |

1. The bug is somewhere in the rolling of the dice. So within **public** DiceValue roll() function of the Dice class.

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| Test | Place a breakpoint on line 37  d.roll(); |
| Prediction | The dice isn’t a fair dice and not returning truly random faces. |
| Result | The dice values seem to be random. |
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| Notes | * There is something wrong with DiceValue.*getRandom*(); it seems that SPADE is never returned. * *RANDOM*.nextInt(DiceValue.***SPADE***.ordinal());   value is too low. It needs to be 1 above the value of  DiceValue.***SPADE***.ordinal() |

1. Given than spades aren’t being returned which would change dice odds, in turn changing the game odds.

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| Test | Add 1 to DiceValue.***SPADE***.ordinal().  Line 26 is of DiceValue is now  **int** random = *RANDOM*.nextInt(DiceValue.***SPADE***.ordinal() + 1); |
| Prediction | The odds should be 0.42 |
| Result | The odds are 0.50 |
| 228 turns later.  End Game 99: Fred now has balance 200  Win count = 18422, Lose Count = 18502, 0.50 |
| Notes | * Is that another bug that wasn’t in the bug report? Or Just part of this bug? Adding it as another bug anyway. |

1. Now that the dice is fair and rolling correctly. But the odds are still not correct, perhaps the returned value from dice.getValue()

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| Test | Put a breakpoint on line 38 of Game  **if** (d.getValue().equals(pick)) {  Check if the returned value of getValue is incorrect and pick is incorrect. |
| Prediction | Returned value of getValue or pick is incorrect. |
| Result | N/A |
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| Notes | * Noticed that when the dice is rolled the value is returned and not stored in value. Added   value = DiceValue.*getRandom*();  to roll function. |

1. Should work now.

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| Test | Run the games |
| Prediction | Odds should be 0.42% aprox. |
| Result | Odds are 0.42% |
| 92 turns later.  End Game 99: Fred now has balance 200  Win count = 11192, Lose Count = 15423, 0.42 |
| Notes | * N/A |

### *Sample Fixed Output*

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| 142 turns later.  End Game 99: Fred now has balance 200  Win count = 11062, Lose Count = 15185, 0.42 | 72 turns later.  End Game 99: Fred now has balance 200  Win count = 9711, Lose Count = 13450, 0.42 |
| 64 turns later.  End Game 99: Fred now has balance 0  Win count = 10844, Lose Count = 14763, 0.42 | 444 turns later.  End Game 99: Fred now has balance 0  Win count = 10102, Lose Count = 14080, 0.42 |

### *Before and after screen shot of the bug.*

 