**Individual Test Cases for Program 2**

Name: Kelly Sovacool Section: 6

At first, don't worry about the graphics at all. Use as many table lines as you need, there may be lines left over. You should try to have a sufficient number of test cases without being redundant. Read the assignment description carefully.

You should have at least 10 non-redundant test cases, not counting the example. Consider the control structures and how to test them. You will not be able to be as specific as you were for Program 1, due to the random numbers involved in the program.

First think about the game as a whole. Test the mechanics of the loop control structure. Be descriptive in the first column.

|  |  |  |
| --- | --- | --- |
| Description | Inputs (number of rounds, level of difficulty) | Expected behavior of program |
| loop with multiple iterations, level of difficulty large | 3, 100 | plays three rounds with level of difficulty 100, reports results of each run and a summary |
| Error case: loop with zero iterations, large level of difficulty | 0, 100 | Crashes: plays no rounds, cannot report summary because division by zero |
| Loop with one iteration, small level of difficulty | 1, 10 | Plays one round with difficulty level 10, reports results of the run and a summary |
| Special case: loop with zero iterations, small level of difficulty | -5, 10 | Plays no rounds, reports summary of zero percent accuracy |
| Loop with multiple iterations, negative level of difficulty | 3, -50 | Plays three rounds, reports results of each run and summary (holes made will always be 0%) |

Then think about how to test ONE ROUND. Think about the logic which decides if the ball gets to the hole or not. Think about the other logic which determines what message is reported at the end of the game.

|  |  |  |
| --- | --- | --- |
| Description | Inputs (reached the hole or not) | Expected behavior |
| normal, successful round | angle and velocity that cause the hole to be hit | reports the location of the hole, the distance flown and that the hole was hit, increments hole counter, increments successful shots counter |
| Normal, unsuccessful round | Angle and velocity that cause the hole to be missed | Reports the location of the hole, the distance flown, that the hole was missed, increments hole counter |
| Error case, no inputs | User clicks without entering angle or velocity | Crashes: cannot typecast string to float from nothing |
|  |  |  |
|  |  |  |

CONTINUED ON NEXT PAGE

Think about the numeric inputs. What test cases can you get from those? Look at the formulas! Here you should be able to calculate some precise numbers.

|  |  |  |
| --- | --- | --- |
| Description | Inputs (angle, velocity) | Expected behavior |
| Normal case, positive int angle, positive int velocity | 45, 50 | Ball travels 255.1 |
| Special case, negative angle, positive velocity | -50, 70 | Ball travels -492.4 |
| Normal case, positive float angle, positive float velocity | 51.1847, 68.2913 | Ball travels 464.8 |
| Special case, positive angle, null velocity | 60, 0 | Ball travels 0.0 |

Test cases for Graphical version

All of the test cases above will still apply in the graphics version. You might consider clipping. Can that happen in the graphical version?

|  |  |  |  |
| --- | --- | --- | --- |
| Description | Inputs (level, angle, velocity) | Hole location | Expected behavior |
| Normal case, ball makes it | 50, 40, 60 | 400 | Ball travels 361.8, reports that ball makes it, draws trajectory of ball across 361.8 horizontal pixels |
| Normal case, ball misses | 1, 30, 20 | 300 | Ball travels 35.3, reports that ball misses, draws trajectory of ball across 361.8 horizontal pixels |
| Special case, ball makes it, ball is clipped | 1000, 45, 90 | 350 | Ball travels 826.5, reports that ball makes it, draws partial trajectory of ball but clips at right edge of window |
| Special case, ball misses, ball is clipped | 10, -50, 40 |  | Ball travels -160.8, reports that ball misses, draws partial trajectory of ball but clips at left edge of window |

If you feel you want another table for a different situation, feel free to add it.