

## Equivalence Class Testing

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**Table 1: Equivalence Classes**

Test Functions	Variables being tested	Equivalence classes
testRadiusValue()	round_shot.radius	(-INF, 0) , [0] , [0.26, INF)
testMassValue()	round_shot.mass	(-INF, 0) , [0] , [50, INF)
testIntialSpeedNegativeValue ()	cannon.intialSpeed	(-INF, 0)
testExternalForceNegativeVlaue_XComponent()	cannon.externalForce[0]	(-INF, 0)
testExternalForceNegativeVlaue_YComponent()	cannon.externalForce[1]	(-INF, 0)
testExternalForceNegativeVlaue_ZComponent()	cannon.externalForce[2]	(-INF, 0)

**Table 2: Equivalence Class Tests**

Test method	Test Purpose	Expected Outcome	Actual Outcome	Test Pass
validInputforSimulator()	To check if the new simulator is created	The array of the position should not be null	The array of the position is not be null	Yes
testRadiusValue()	Test Negative Value for the Radius	IllegalArgument Exception should thrown	IllegalArgument Exception thrown	Yes
testRadiusValue()	Test zero Value for the Radius	IllegalArgument Exception should thrown	IllegalArgument Exception thrown	Yes
testRadiusValue()	Test Exceeding Value for the Radius	IllegalArgument Exception should thrown	IllegalArgument Exception thrown	Yes
testMassValue()	Test Negative Value for the Mass	IllegalArgument Exception should thrown	IllegalArgument Exception thrown	Yes
testMassValue()	Test Zero Value for the Mass	IllegalArgument Exception should thrown	IllegalArgument Exception thrown	Yes
testMassValue()	Test Exceeding Value for the Mass	IllegalArgument Exception should thrown	IllegalArgument Exception thrown	Yes
testIntialSpeedNegative Value ()	Test Negative value for the initial speed	IllegalArgument Exception should thrown	IllegalArgument Exception thrown	Yes
testExternalForceNegativeVlaue_XComponent()	Test negative x component of the external force	The position of the array should not be null	The array of the position is not be null	Yes
testExternalForceNegativeVlaue_YComponent()	Test negative y component of the external force	Test passes if no exception is thrown	The test passed	Yes
testExternalForceNegativeVlaue_zComponent()	Test negative x component of the external force	The position of the array should not be null	The array of the position is not be null	Yes