

PROBLEM 5

SOEN 6011

SOFTWARE ENGINEERING PROCESSES

Github address : [git@github.com:mdhruvi/SOEN-6011-project.git](https://github.com/mdhruvi/SOEN-6011-project.git)

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1 Unit test cases

1.1 Test Case 1

- **ID** : TC1
- **Requirement ID** : FR1, FR2, FR4
- **Name of Test Case** : testGammafunctionforPositiveInteger()
- **Test Priority** : High
- **Pre-condition** : Start the programme, then type a value into the console.
- **Test Data** : 142, 234
- **Expected Outcome** : 1.8981437590761713E243, ∞
- **Actual Outcome** : 1.8981437590761713E243, ∞
- **Test Result** : Success

1.2 Test Case 2

- **ID** : TC2
- **Requirement ID** : FR2, FR5
- **Name of Test Case** : testGammafunctionforDecimalNumber()
- **Test Priority** : High
- **Pre-condition** : Start the programme, then type a value into the console.
- **Test Data** : 21.14
- **Expected Outcome** : 3.699869886541974E18
- **Actual Outcome** : 3.699869886541974E18
- **Test Result** : Success

1.3 Test Case 3

- **ID** : TC3
- **Requirement ID** : FR3
- **Name of Test Case** : testGammafunctionforPositiveInteger()
- **Test Priority** : High

- **Pre-condition** : Start the programme, then type a value into the console.
- **Test Data** : 0, -12
- **Expected Outcome** : Exception, Exception
- **Actual Outcome** : Exception, Exception
- **Test Result** : Success

1.4 Test Case 4

- **ID** : TC4
- **Requirement ID** : FR3
- **Name of Test Case** : testPositiveLimitForGammaFunction()
- **Test Priority** : Medium
- **Pre-condition** : Start the programme, then type a value into the console.
- **Test Data** : 175
- **Expected Outcome** : $+\infty$
- **Actual Outcome** : Exception, Exception
- **Test Result** : Success

1.5 Test Case 5

- **ID** : TC5
- **Requirement ID** : FR1
- **Name of Test Case** : testMainmethod()
- **Test Priority** : High
- **Pre-condition** : Start the programme, then type a value into the console.
- **Test Data** : 9 y ghjk 0 -4 200 67 y 150 0
- **Expected Outcome** : 40320.0, Exception, Exception, Error message, Error message, ∞ , 5.443449390774432E92, Exception, 3.8089226376305687E260, Error message
- **Actual Outcome** : 40320.0, Exception, Exception, Error message, Error message, ∞ , 5.443449390774432E92, Exception, 3.8089226376305687E260, Error message
- **Test Result** : Success

1.6 Conclusion

The Junit testing with the Junit 5 standard is used to test the Gamma Function programme. The running result and the expected outcome are compared using a series of "assertion" methods to determine whether all test cases either succeed or fail.