Euler Number(e)

Zinnia Rana
zinnia.rana1@gmail.com

Concordia University– July 27, 2019

Introduction

Euler Number is one of the unique irrational number, and important among other popular numbers such as pi, discovered in early 18th century named after the Swiss mathematician Leonhard Euler. 'e'is considered as the base of natural logarithm and it natural log value is equal to one, and is often confused with Euler's constant. The first few digits are:**2.71828182845904523536028747135 27**

It is considered as the limit of <formula> as n increases. This expression lead to foundation of compound interest known as Napier's Constant. e is considered to be highly beneficial for continuously evolving process as is derived as the base of growth rate. It is commonly used in calculating probability in Bernoulli trials, Derangements and especically calculus.

User Stories

0.1 User Story 1

Statement: As a research assistant, I want to calculate growth/decay rate so that I can estimate software utilization over the period of time.

Constraints: Usability, Modifiability

Acceptance Criteria:

- Given that user press 'O' to list all pre-defined operations
  Then shows the list of all calculations that can be evaluated and it shows growth rate as an option.
  When user clicks on option growth rate then system displays the equation
  Then ask for input the values in the equation.
  And then system evaluates the equation and displays the result.

Priority: High

Estimate: 2

0.2 User Story 2

Statement: As a research assistant, I want to save the previous result to use it later in other calculations.

Constraints: Usability

Acceptance Criteria:

- Given any number pressed
  When press MM key, number is saved in the memory
  Then Display status 'S' to indicate number is saved
  Then Display 'O' to indicate next operation can be performed
- Given any number pressed
  When press MM key, number is saved in the memory
  Then Display status 'S' to indicate number is saved
  Then Display 'O' to indicate next operation can be performed

Priority: High

Estimate: 1

0.3 User Story 3

Statement: As a Statistical Analyst, I want to calculate time taken to get task done to depict the graph distribution.

Constraints: Accuracy, Modifiability

Acceptance Criteria:

-

Priority: High

Estimate: 1

0.4 User Story 4

Statement: As a Student, I want to calculate value at each point of graph to depict the graph distribution

Constraints: Accuracy, Modifiability

Acceptance Criteria:

- Check the entered number for calculation is valid
- Check the expected output is accurate.

Priority: High

Estimate: 1

0.5 User Story 5

Statement: As a research assistant, I want to calculate probability of a particular instance occurring using Euler identity so that I can estimate the priority of implementing features.

Constraints: Precision

Acceptance Criteria:

-

Priority: High

Estimate: 1

0.6 User Story 6

Statement: As a Garduate Mathematics student, I want my calculator should contain pi to calculate euler identity for probability solving questions.

Constraints: Accuracy, Modifiability

Acceptance Criteria:

- Correct precise value of pi returned
- Operations feasible with pi and other mathematical constants
- Result displayed should match precision decimal points user entered

Priority: High

Estimate: 1