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1 User Stories

Note: The reference point for the user story estimate is 13 points for 1 day.

1.1 Global Constraints

- The system takes the text based inputs from the command line console.
- The system throws error on wrongly formatted input.

1.2 User Stories

Identifier	calc-us-001
Description	A user can calculate basic equations related to arithmetic operators.
Constraints	1. The user can use number pad to input the digits. 2. The user can use symbols to input the special constants. 3. The operations involve both numbers and symbols.
Acceptance Tests	1. The user is able to perform arithmetic operations between two numbers. 2. The user is able to perform arithmetic operations between symbols. 3. The user is able to perform arithmetic operations amongst number and symbols.
Priority	High
Estimate	5 points

Table 1: User Story 1

Identifier	calc-us-002
Description	A user can evaluate expressions with scientific operators.
Constraints	1. The user can combine two different kind of scientific operators.
Acceptance Tests	1. The user is able to perform logarithmic and trigonometric operations. 2. The user is able to use arithmetic operators with scientific operators.
Priority	Medium
Estimate	8 points

Table 2: User Story 2

Identifier	calc-us-003
Description	A user can evaluate an expression in order to process with variable data for his research.
Constraints	1. The expression can be the combination of arithmetic operations and logarithmic operations. 2. The expression may contain the Gelfond's constant.
Acceptance Tests	1. The user is able to calculate the roots of an equation.
Priority	Low
Estimate	13 points

Table 3: User Story 3

Identifier	calc-us-004
Description	A user can calculate the volume of n-ball sphere.
Constraints	1. The user will provide only the value of n. 2. The sphere will always be unit size.
Acceptance Tests	1. The user can validate the size of the balls to be unit. 2. The user can calculate the volume.
Priority	Medium
Estimate	21 points

Table 4: User Story 4

Identifier	calc-us-005
Description	A user can derive almost integer numbers.
Constraints	1. The user can use only transcendental numbers in order to mix it with the Gelfond's constant.
Acceptance Tests	1. The user should be able to generate Ramanujan's constant, $e^{\pi} - \pi$
Priority	Medium
Estimate	13 points

Table 5: User Story 5

2 Backward Traceability Matrix

2.1 Matrix

	Use Cases	Persona	Applications
calc-us-1	calc-uc-1		
calc-us-2	calc-uc-1	1	
calc-us-3	calc-uc-1		
calc-us-4	calc-uc-3		1
calc-us-5	calc-uc-2		1

Table 6: Backward Traceability Matrix

2.2 Description

The first column represents the use case identifiers. The use case identifiers are addressed in the User Stories section.

In the use cases column, **calc-uc-1** corresponds to "Evaluate Basic Expressions". **calc-uc-2** corresponds to "Calculate Almost Integer Number". **calc-uc-3** corresponds to "Calculate volume of u-unit balls"

3 Implementation

As part of implementation of the project, the following user stories are implemented.

1. **calc-us-1** belongs to the calculator's domain.
2. **calc-us-5** is specific to the Gelfond's constant.
3. **calc-us-4** implements one of the application of Gelfond's constant.