# **Set Calculator – Project Description**

Interface: Element

Calculates add action for two elements.

Calculates multiply action for two elements.

Create a clone of an Element.

## Abstract class: Numerator (implements Element)

Server of: Real, Rational.

Converts a cational number/real number into double.

#### Class: Real (extends Numerator)

Implements: transformAdd, transformMul, clone.

Server of: Set, Calculator, Rational.

Add & multiply two real numbers.

Add & multiply real and rational numbers.

Verify String is a legal input and converts it to a Real object.

#### Class: Rational (extends Numerator)

Implements: transformAdd, transformMul, clone.

Server of: Set and Calculator.

Client of: Real.

Add & multiply two rational numbers.

Verify String is a legal input and converts it to a Rational object.

### Class: Set (implements Element)

Implements: transformAdd, transformMul, clone.

Client of: Set, Rational, Real.

Server of: Calculator. Inserts Element to set. Removes Element from set.

Returns set size.

Calculates unification of two sets.

Calculates intersection of two sets.

Calculates difference of two sets.

Calculates power of a set.

Verifies if a set contains an element

Verifies if an element exists in a set or it's elements.

Calculates add between all the set's elements with a number.

Calculates multiply between all the set's elements with a number.

Clones set into a new set.

Verify String is a legal input and converts it to a Set object.

Class: Calculator (Main)

Client of: Set, Rational, Element.

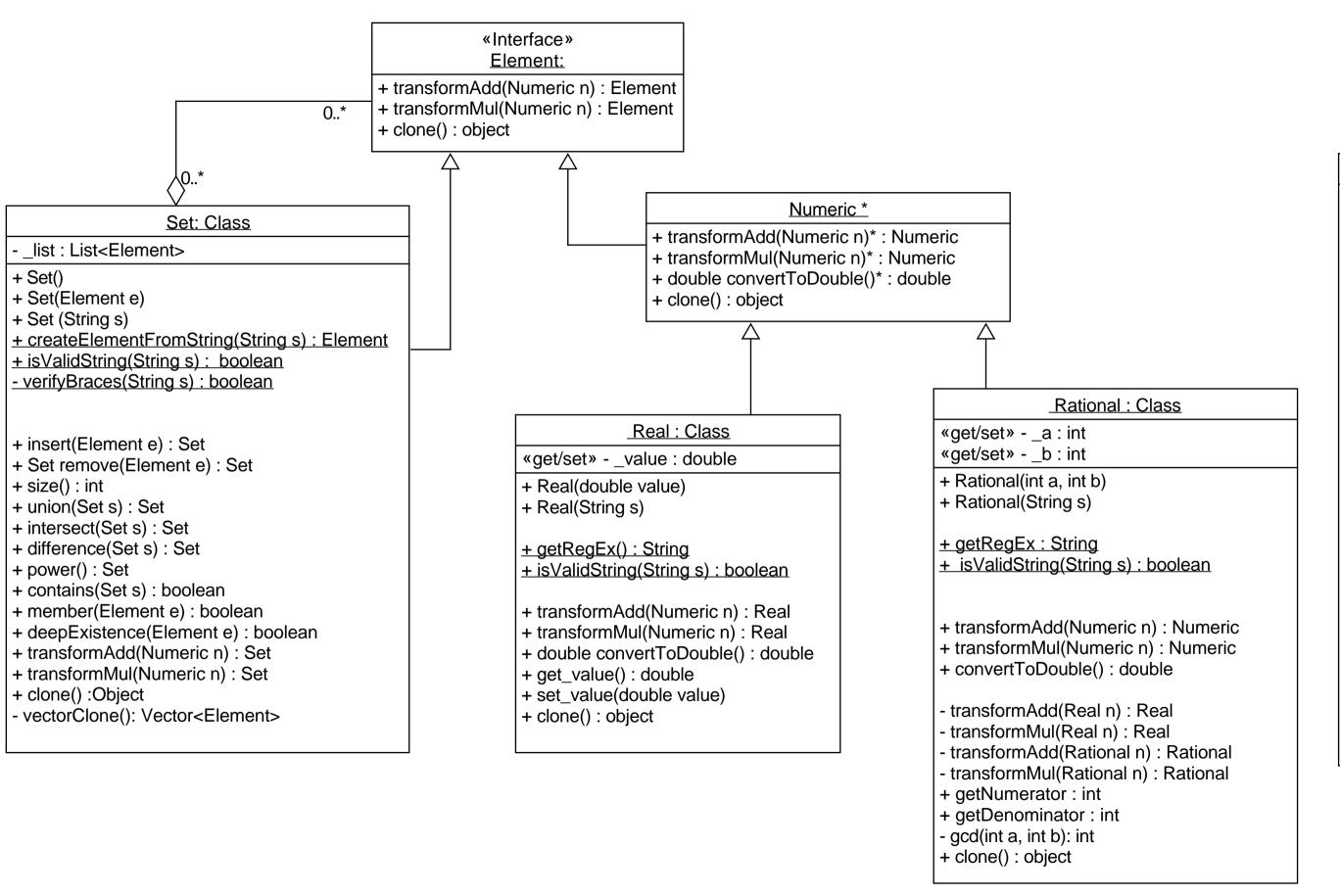
Receives user input.

Verifies legality of user input.

Preform insert, remove, unify, intersect, difference, power, member, deep existence, size,

transformAdd, transformMul actions on a set.

Preforms transformAdd, transformMul on numbers (real and rational).



# Calculator: Main

- + main(String[] args)
- + calc(String instructions) : String
- + insert(String [] input) : String
- + remove((String [] input)) : String
- + size(String [] input) : String
- + union(String [] input) : String
- + intersect(String [] input) : String
- + difference(String [] input) : String
- + power(String [] input) : String
- + contains(String [] input) : String
- + member((String [] input) : String
- + deepExistence(String [] input) : String
- + transformAdd(String [] input) : String
- + transformMul(String [] input) : String
- + equals (String [] input): String
- + help (String [] input): String
- + bonus (String [] input): String
- + exit (String [] input): String
- print (String s) : String
- isSet (String s): boolean
- isElement (String s): boolean
- isNumeric (String s): boolean
- createSet (String s): Set
- createNumeric (String s): Numeric
- createElement (String s): Element