Design of the triangle class

# Workflow



# Step1: Validation of the triangle

Three parameters are used to create a triangle. They have to meet some requirements before constructing the Triangle object.

Firstly, the lengths of three laterals must be greater than 0.

Secondly, the sum of any two laterals must be larger than the third one. Otherwise, it is not possible to form a triangle.

If the two criteria are not met, the system throw exceptions. It is better that the system warn the user and ask the user to re-input. However, for the time being, I would just throw the exception. It is to be enhanced in the future.

# Step 2: Decide the triangle type

There three types of triangle. The easiest one is equal-lateral. The condition for this is simple. If the first lateral equals the second and the second equals the third, the triangle is considered as equal-lateral.

It is easier to determine whether a triangle is scalene than isosceles. Thus, the next sub-step is to check whether the triangle is scalene. This needs three pairwise comparisons of the laterals, if all are different, the triangle is scalene. Otherwise, it is isosceles.

# The definition of equality

In a real project, equality usefully is not 100% equality. Some error must be allowed. The error can be measure by length or percentage. I prefer to measure it by percentage. Percentage makes more sense. However, matters like that needs discussion with the customer.