

Calculator Report

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1. Implementation Report

The calculator implementation has been created after following the suggested tutorials, as well as some new ones found online. The calculator has been created using the bottom-up approach.

The `CalculatorInterface` provides the communication mechanism between the client and the `Calculator` object. As the name suggests, it is solely an interface, thus defining the methods the calculator should be able to perform (addition, subtraction, multiplication and division).

The implementation of the said methods resides in the `CalculatorImplementation` file, and it naturally follows the suggested operations, being straight forward.

The `CalculatorService` publishes the service online to a provided endpoint, so it can be accessed by clients.

A `CalculatorClient` class has been written for testing purposes and can be used to play around with the calculator, as it reads input from the user.

2. Answer to required Question

The calculator could be made stateful by keeping track of a number of commonly used operations. For example, the implementation might store the result of the simple operations most commonly requested by the user, and just return the result instead of calculating it. While this may not be most efficient for simple operations only, it might come in handy when extending the calculator to more advanced operations, supporting chains of operations, or when calculating a chain of operations in multithreaded programs.

3. How to run calculator

The java files need to be compiled in the desired folder with the following command (compilation and run of the files should be done in the same folder where the java files reside, otherwise directory tree is required before the name of the .java class):

```
javac *.java
```

The interface then needs to be published :

```
java CalculatorService
```

Then, the calculator can be tested by running the client program :

```
java CalculatorClient
```