**Online Calculator System Design Document**

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# Purpose

Purpose of document is to describe system design of Online Calculator

# Problem

Provide system design for an online-calculator. The online-calculator should support:

1. Parsing complex arithmetic expressions e.g. (4+2) x 4 / 2

2. Should support Memory Save and Recall e.g. <MR> + 3

3. Bonus: Memory Save should persist across sessions

         4. Bonus: Memory save for one user should not be visible to other users

# Scope

To provide design and implementation details on online calculator.

# Design Diagram

## Class Diagram

Class diagram is provided below.

## Interaction Diagram

Interaction diagram is provided below.

## Sequence Diagram

Sequence diagram is provided below.

# Implementation Details

## Implementation Approach

Implemented in .Net Core C# Azure Function

## Unit Tests

Added unit test to test function app

# Extensibility

Implemented to be extended to different type of calculators and operators.

# Deployment

The executable code is deployed in Azure Function App

Azure Deployed URL : [Your Azure Function App is up and running. (onlinecalculatorapp.azurewebsites.net)](https://onlinecalculatorapp.azurewebsites.net/)

Function App : <https://onlinecalculatorapp.azurewebsites.net/api/OnlineCalculator_Evaluate>

|  |  |
| --- | --- |
| Online Calculator Function App URL | <https://onlinecalculatorapp.azurewebsites.net/api/OnlineCalculator_Evaluate> |
| ContentType | JSON |
| Request Body | {  "UserName": "Balaji",  "InfixExpression": "(((2+2)\*4/2+2))\*10/5\*2\*100"  } |
| Response Body | Hello, Balaji. Your input expression ((((2+2)\*4/2+2))\*10/5\*2\*100) has been evaluated to : 4000. |