Assignment 1

Multitier and Web

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Two tasks

Task 1: Implement server-based calculator

Task 2: Migrate some functionality on client side

Simple Calculator

Write simple calculator server

Two arguments, one operator, submit button

Possible operators +, -, *, and /

Input form looks like this:

Results from Server

Server returns result of calculation and new input form

Must keep track of all previous calculations and show their results on screen

Just like old tape calculators

How you implement history is up to you

Several possible solutions exist

Client

You need to write several versions of the client

Follow the three steps specified in the following slides

All three steps are required to pass the course

Client: Step 1

Modify form to have only 1 input field and submit

Write Javascript to parse input field

Send each "atomic" operation to server

Precedence left-to-right

Step 1: Example

Input field has expression: "1 + 2 * 3 / 4"

Three requests sent to server

Output:

    1 + 2 = 3

    3 * 3 = 9

    9 / 4 = 2.25

Client: Step 2

Change parsing to allow for parenthesis

Parenthesis have usual effect

Overall precedence remains left-to-right

Client: Step 3

Recognize sine function "sin(x)" and plot it

Implement three variants of plotting:

      1. All on server

      2. All on client

      3. Client uses atomic operations on server and plots locally

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Guidelines

Use users.cs.helsinki.fi for running your scripts

Ask Liang for help if needed

No external libraries except as explicitly specified

Free selection of server-side code

What to Return?

Source code of all programs

Documentation on how to compile/run them