**Create Calculator Web Service (Backend)**

java

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import com.sun.net.httpserver.HttpServer;

import com.sun.net.httpserver.HttpHandler;

import com.sun.net.httpserver.HttpExchange;

import java.io.\*;

public class CalculatorService {

public static void main(String[] args) throws IOException {

HttpServer server = HttpServer.create(new InetSocketAddress(8080), 0);

server.createContext("/calculate", new CalculatorHandler());

server.setExecutor(null);

server.start();

System.out.println("Calculator Service started at http://localhost:8080");

}

static class CalculatorHandler implements HttpHandler {

@Override

public void handle(HttpExchange exchange) throws IOException {

if ("GET".equals(exchange.getRequestMethod())) {

// Parse Query Parameters

String query = exchange.getRequestURI().getQuery();

String[] params = query.split("&");

double a = Double.parseDouble(params[0].split("=")[1]);

double b = Double.parseDouble(params[1].split("=")[1]);

String op = params[2].split("=")[1];

double result = 0;

switch (op) {

case "add": result = a + b; break;

case "sub": result = a - b; break;

case "mul": result = a \* b; break;

case "div": result = a / b; break;

}

String response = "Result: " + result;

exchange.sendResponseHeaders(200, response.length());

OutputStream os = exchange.getResponseBody();

os.write(response.getBytes());

os.close();

}

}

}

}

**2️⃣ Run the Service:**

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javac CalculatorService.java

java CalculatorService

✅ Runs at http://localhost:8080/calculate

**3️⃣ Consume Web Service (Java Client)**

java

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import java.net.\*;

import java.io.\*;

public class CalculatorClient {

public static void main(String[] args) throws Exception {

// Query params: a=5, b=2, op=add

URL url = new URL("http://localhost:8080/calculate?a=5&b=2&op=add");

HttpURLConnection conn = (HttpURLConnection) url.openConnection();

conn.setRequestMethod("GET");

BufferedReader in = new BufferedReader(new InputStreamReader(conn.getInputStream()));

String response = in.readLine();

System.out.println(response);

in.close();

}

}

**4️⃣ Run the Client:**

bash

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javac CalculatorClient.java

java CalculatorClient

**Output:**

makefile

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Result: 7.0