Question 2

const express = require('express');

const axios = require('axios');

const { Queue } = require('queue-typescript');

const app = express();

const port = 9876;

const WINDOW\_SIZE = 10;

const MAX\_RESPONSE\_TIME = 500;

let windowState = new Queue<number>(WINDOW\_SIZE);

const testServer = 'http://20.244.56.144/';

app.get('/numbers/:numberId', async (req, res) => {

const { numberId } = req.params;

try {

const response = await axios.get(`${testServer}/test/${numberId}`);

const numbers = response.data.numbers;

numbers.forEach(num => {

if (!windowState.contains(num)) {

if (windowState.size() === WINDOW\_SIZE) {

windowState.dequeue();

}

windowState.enqueue(num);

}

});

const windowPrevState = windowState.toArray();

let avg = null;

if (windowPrevState.length === WINDOW\_SIZE) {

avg = windowPrevState.reduce((acc, cur) => acc + cur, 0) / WINDOW\_SIZE;

}

const latestResponse = await axios.get(`${testServer}/test/${numberId}`);

const latestNumbers = latestResponse.data.numbers;

const windowCurrState = windowState.toArray();

const responseObj = {

windowPrevState,

windowCurrState,

numbers: latestNumbers,

avg

};

res.json(responseObj);

} catch (error) {

console.error('Error:', error);

res.status(500).send('Internal Server Error');

}

});

app.listen(port, () => {

console.log(`Average Calculator Microservice listening at http://localhost:${port}`);

});

Output

