"Ss. Cyril and Methodius" University in Skopje
FACULTY OF COMPUTER
SCIENCE AND ENGINEERING

Cloud Computing
Project 1 Specification

Cloud Computing
Fall 2023

Goal

Create a web application and web service (API) and host them on a Cloud provider (Google Cloud, AWS, and Azure).

Web Application

Task

Enable user interface to

- upload an input file,
- threshold value
- start calculation via API web service,
- display the result on the screen (table),
- download the output file (csv)

Programming Language

Your choice

File Specification

File is in text format with at least the number of lines based on the problem description.
File to be generated outside the application (e.g., a textual file with integers written as text with a random value between 0 and 1023, or a CSV file with two values per line: the first date/time stamp and the second an integer written as text with a random value between 0 and 1023), alternative JSON file. For example 500000 (entries).

Web Service (API)

Specification

Create an API call specification, including return status: 0: OK, 1: wrong input format, 2: error in calculation.

Input

File collected by the web application

Tasks

Each student chooses one of the following or a similar computational task:

a) Sort the input according to date/time (ascending),

b) Sort the input according to date/time (descending),

c) Sort the input according to the numbers (ascending),

d) Sort the input according to the numbers (descending),

e) Create a file where each line represents the sum between two neighboring integers,

f) Create a file where each line represents the sum between three neighboring integers,

g) Create a file where each line represents the sum between four neighboring integers,

h) Create a file where each line represents the average between two neighboring integers,

i) Create a file where each line represents the average between three neighboring integers ,

j) Create a file where each line represents the average between four neighboring integers ,

k) Find max integer location (line number) and value,

l) Find min integer location (line number) and value ,

m) Find mean date/time ,

n) Find average integer value,

o) Find standard deviation of integers,

p) Find sum of numbers.

Traffic Pattern

Each student chooses one of the following or a similar traffic pattern:

a) Constant Traffic

b) Linear Traffic

c) Exponential Traffic

d) Sudden Spikes/Bursts

e) Periodic Peaks

f) Decreasing Traffic

g) Random Traffic

Results Table

Example Exponential Traffic:

Table 1: Request and Processing Time

Number of Requests	**Processing Time (ms)**
2	2000
4	4000
8	8000
16	16000
32	32000
64	64000

Programming Language

Your choice

Output

Return a calculated value or output file