Departamento de Informática

Cloud Computing (14459)

MSc in Computer Science and Engineering

Academic Year 2023/2024, 2nd Semester

Laboratory Project 1 – Serverless function to generate prime numbers.

Organization of Student Groups: Work to be carried out by a group of, at most, 2 students.

Marks: This work contributes 8.0 points out of 20.0 (40%) to the final classification.

Report Format: The report must comply with the IEEE format, as specified in Moodle. Formato do Relatório.

Practical Classes to Carry Out the Work: The work must be carried out in practical classes and outside of practical classes.

Date and Form of Submission of Work: One student from each group must submit the report, in a pdf file, by June 3, 2024. This report must be submitted on the Moodle platform, or in the event of not having access, send via email to the addresses mariof@ubi.pt with the subject: CC 2023/2024 – Work 1.

Objectives

The central objective of this work is to implement a serverless function that generates prime numbers less than 1,000.

Description

In this work we intend to implement a serverless function that manages prime numbers less than 1,000. The function can be implemented on a serverless platform chosen by students, for example IBM Cloud Functions [1] (lite mode) or Cloud Functions for Firebase [2] or Edge Functions from Supabase (The Open Source Firebase Alternative) [3], or Azure Functions [4].

After implementing the function and its respective deployment on the cloud computing platform, the function must be executed in order to measure and evaluate i) the latency and latency in concurrent use of that function; ii) the could start relative to this function.

The report must be organized as described in the following section, and must include details about the implementation of the function and the deployment of the function on the cloud computing platform and an analysis of the results obtained regarding latency and cold start.

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Organization of the Report

The report must have a maximum of 8 pages in IEEE format and must be organized according to the following structure: Title, Names and Affiliation of Authors, Abstract, I. Introduction, II. Serverless Computing and Functions as a Service, III. Platforms for Serverless Computing, IV. Platform Choice, Function Implementation and Deployment, V. Performance Analysis, VI. Conclusions, References. The report can be written in Portuguese or English. The template is the IEEE conference paper format.

References

[1] IBM Cloud Functions, 2024. [Online], URL: https://cloud.ibm.com/functions/.
[2] Cloud Functions para Firebase, 2024. [online], URL: https://firebase.google.com/docs/functions?hl=pt-br
[3] Supabase | The Open Source Firebase Alternative, Edge Functions, 2024 [Online], URL: https://supabase.com/
[4] Microsoft Azure, Funções do Azure, 2024 [Online], URL: https://azure.microsoft.com/pt-pt/products/functions/