Sprint 4: Testing Report

Group: C1.04.14

Repository: https://github.com/marizqlav/Acme-L3-D04

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Summary

Acme Life-Long Learning, Inc. (Acme L3, Inc. for short) is a company that specializes in helping learners get started on a variety of matters with the help of renowned lecturers. The goal of this project is to develop a WIS to help this organization manage their business.

Then, we analyze the performance of the tests in teams different from the documents automatically generated when running the tests: request-performance and test--performance.

Using the Excel data analysis tool, we were able to compare the performance obtained by each team. To do this, we performed two analyses: descriptive statistics and the z test.

For a better overview of the analysis, we generated several graphs with the average access times.

Revision table

Number	**Date**	**Description**
1	25/05/2023	Full redaction of the document

Introduction

This document lists the individual tasks assigned to the student during the fourth spring of development on Acme L3.

This document presents the analysis and comparison of the performance of the project's tests on two different computers. We have used a statistical analysis and a hypothesis test.

We have divided the document according to the test carried out and the computer involved. Therefore, the structure that consists would be distributed as follows:

- Functional testing
- Performance Tests
    - Evolutionary graphs
        - Computer feature
    - PC - Performance Request
    - PC - Performance Test Case
        - Statistic analysis

Once we reach the end of the document, we collect the result of the analysis carried out in the conclusion.

Contents

Functional testing

Due to the individual nature of this report, the team member designated to each task will be omitted. During the Sprint 4, we have implemented the following test cases, grouped by functionality. For each test case, a succinct description will be provided plus a clear indication of how effective it was in detecting errors.

Peep Test

There is no hack test because peeps can be accessed by anyone and when they are created they are published instantly.

- **Create:**
  - **positive:**

  Create a peep
  - **negative:**

  The peep is not created because the restrictions are not met

- **ListAll:**
  - **positive:**

  Check that the listing shows the expected data of peeps.
  - **negative:**

  There aren't any negative tests for this feature because it's a listing

- **Show:**
  - **positive:**

  Lists all of the peeps, clicks on one of them, and checks that the form has the expected data.
  - **negative:**

  There aren't any negative tests for this feature because it's a listing that doesn't involve entering any data in any forms.

Performance Tests

Chapter on performance testing: You should provide proper graphs and a 95% confidence interval for the wall time your project takes to serve requests in your functional tests on a two-time computer, before doing the refactoring and after. the refactoring, plus a 95% confidence hypothesis test on what is the best state for the code.

- Evolutionary graphs
    - Computer feature
- PC - Performance Request
- PC - Performance Test Case
    - Statistic analysis

Once we reach the end of the document, we collect the result of the analysis carried out in the conclusion.

Evolutionary graphs

A comparison of the average response time of the GET and POST requests made to the server between two different machines has been carried out. It can be seen that the graphs vary depending on the characteristics of said equipment.

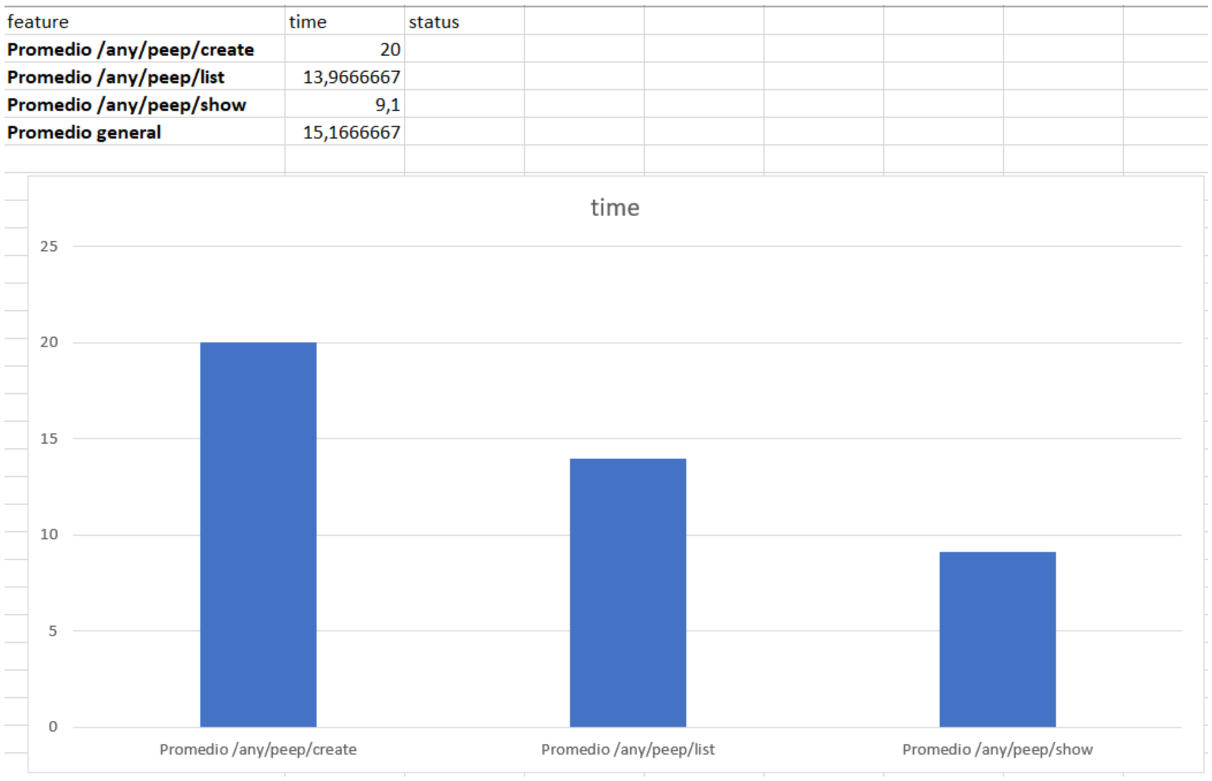
Computer Feature:

Nombre de dispositivo: DESKTOP-DICBMLN
Procesador: AMD Ryzen 7 3750H
RAM instalada: 16,0 GB (15,4 GB usable)

Below are the graphs of the request file executed on the machine

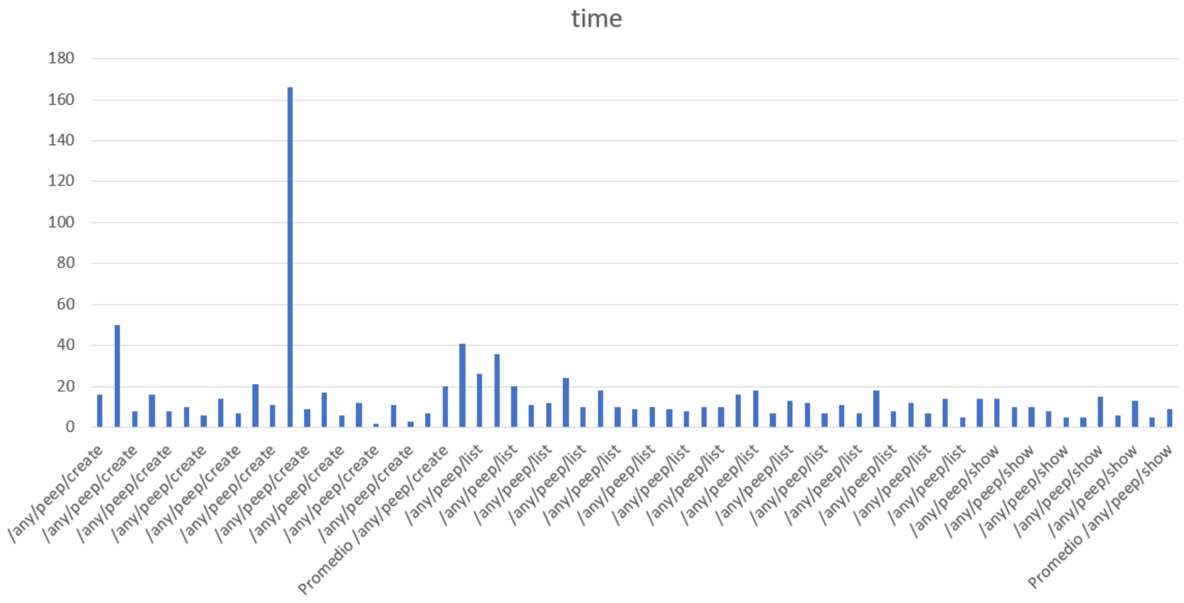
PC – Performance Request

The following chart intuitively clarifies which functions are the most time consuming:



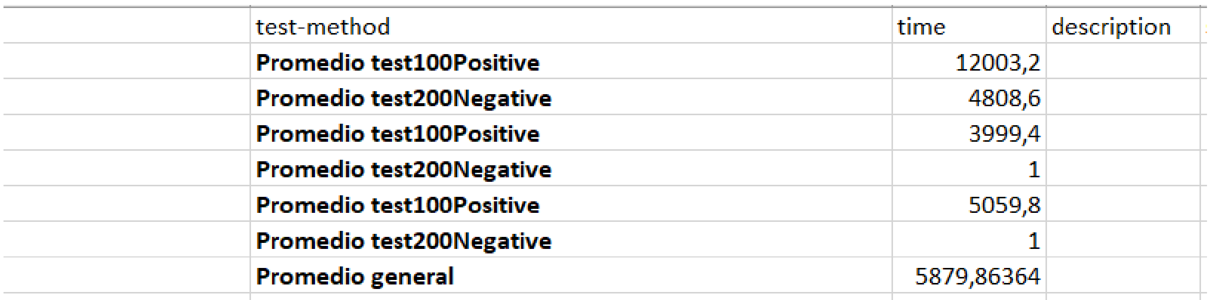
feature	time	status
Promedio /any/peep/create	20	
Promedio /any/peep/list	13,9666667	
Promedio /any/peep/show	9,1	
Promedio general	15,1666667	

We have obtained the following graph of displaying each of the tests:

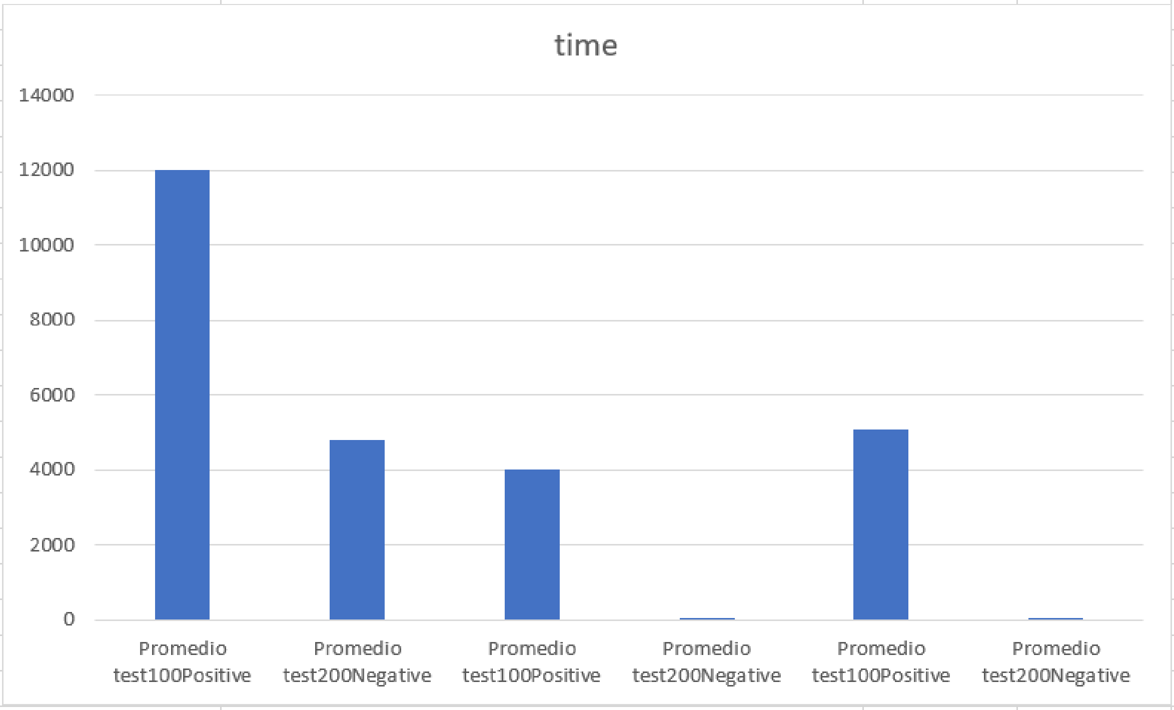


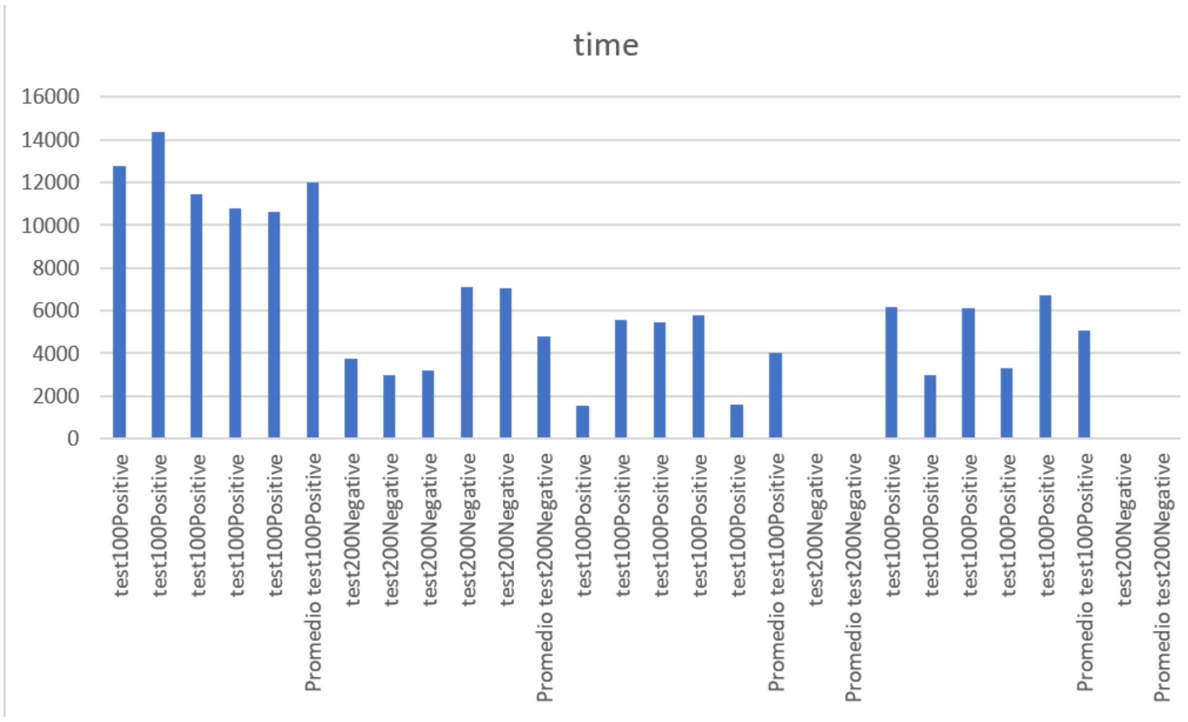
Intuitively, the conclusion is that most test cases take anywhere from about zero seconds to 165 seconds to complete.

Finally, graph your log. Intuitively, the conclusion is that most test cases take from roughly zero seconds up to 120 seconds to complete.

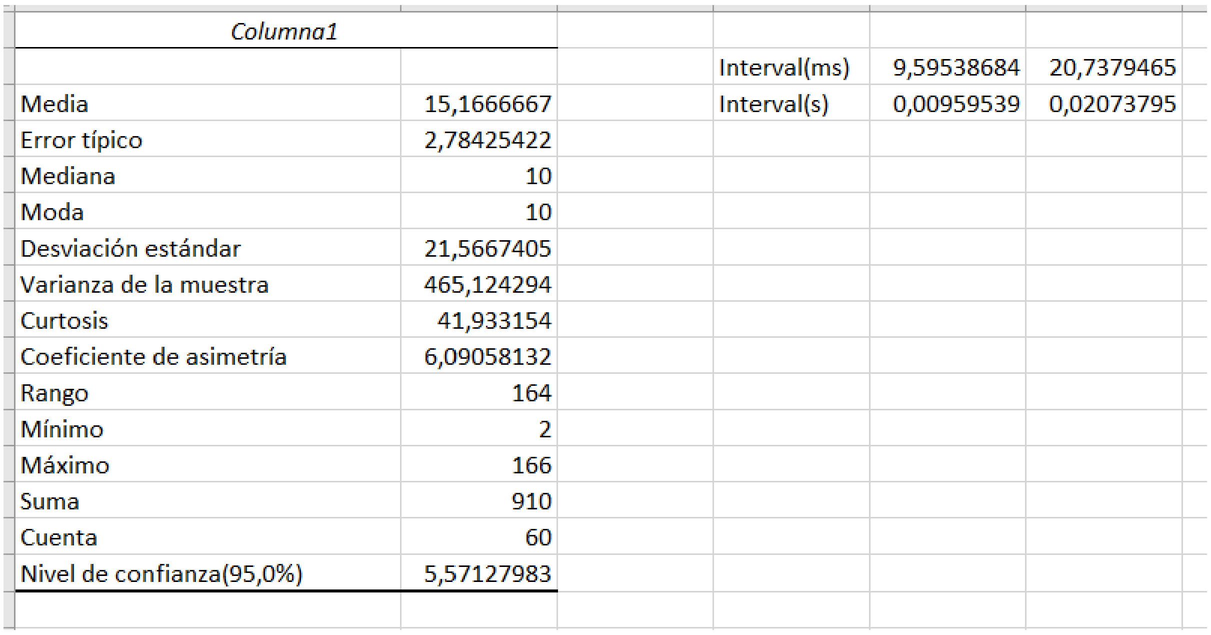


test-method	time	description
Promedio test100Positive	12003,2	
Promedio test200Negative	4808,6	
Promedio test100Positive	3999,4	
Promedio test200Negative	1	
Promedio test100Positive	5059,8	
Promedio test200Negative	1	
Promedio general	5879,86364	





In addition, an auxiliary scheme has been used that shows the different intervals in a very visual way:



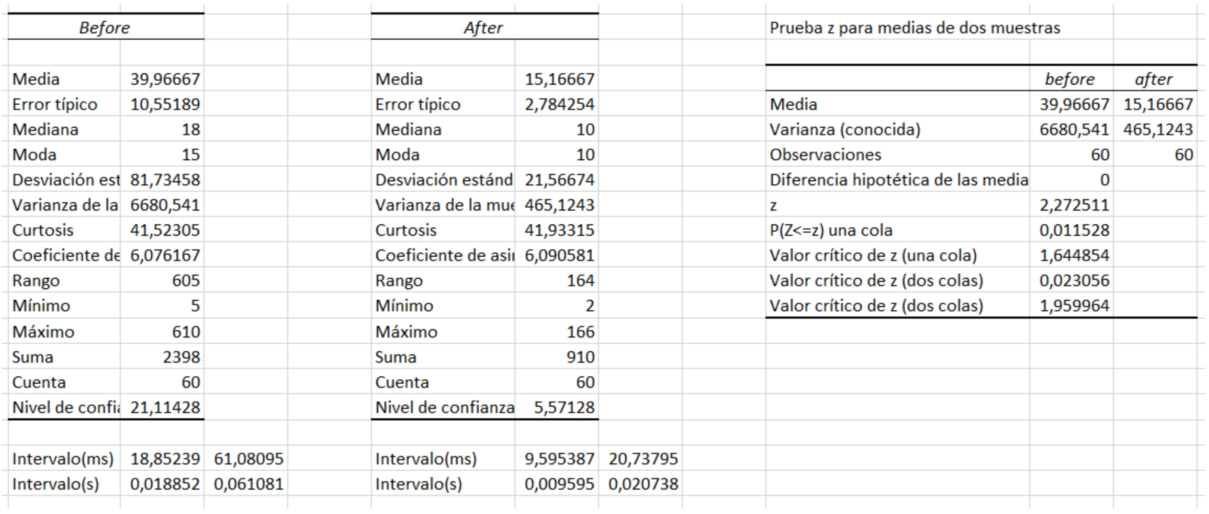
Columna1					
			Interval(ms)	9,59538684	20,7379465
Media	15,1666667		Interval(s)	0,00959539	0,02073795
Error típico	2,78425422				
Mediana	10				
Moda	10				
Desviación estándar	21,5667405				
Varianza de la muestra	465,124294				
Curtosis	41,933154				
Coeficiente de asimetría	6,09058132				
Rango	164				
Mínimo	2				
Máximo	166				
Suma	910				
Cuenta	60				
Nivel de confianza(95,0%)	5,57127983				

PC – Performance Test Case

We are going to show the before and after refactoring the tests.

Statistic analysis

In this section, a comparison is shown between two states of the same test of a machine executing GET requests. We have refactored following the -10% formula, taking into account 95% confidence intervals and a degree of significance α of 5% (0.05), the Z test is such that:



Before		
Media	39,96667	
Error típico	10,55189	
Mediana	18	
Moda	15	
Desviación est	81,73458	
Varianza de la	6680,541	
Curtosis	41,52305	
Coeficiente de	6,076167	
Rango	605	
Mínimo	5	
Máximo	610	
Suma	2398	
Cuenta	60	
Nivel de confi	21,11428	
Intervalo(ms)	18,85239	61,08095
Intervalo(s)	0,018852	0,061081

After		
Media	15,16667	
Error típico	2,784254	
Mediana	10	
Moda	10	
Desviación estánd	21,56674	
Varianza de la mue	465,1243	
Curtosis	41,93315	
Coeficiente de asi	6,090581	
Rango	164	
Mínimo	2	
Máximo	166	
Suma	910	
Cuenta	60	
Nivel de confianza	5,57128	
Intervalo(ms)	9,595387	20,73795
Intervalo(s)	0,009595	0,020738

Prueba z para medias de dos muestras

	before	*after*
Media	39,96667	15,16667
Varianza (conocida)	6680,541	465,1243
Observaciones	60	60
Diferencia hipotética de las media	0	
z	2,272511	
P(Z<=z) una cola	0,011528	
Valor crítico de z (una cola)	1,644854	
Valor crítico de z (dos colas)	0,023056	
Valor crítico de z (dos colas)	1,959964	

Conclusion

In conclusion, we can see that the tests are within the indicated parameters and that thanks to the refactoring the times have been improved.

Bibliography

- Document “On Your Derivables” of EV of the subject Design and Testing II.
- Document “So6 - On your follow-ups” of EV of the subject Design and Testing II.
- Document “o8- Annexes” of EV of the subject Design and Testing II.