

Final Work of Comp. Syst. Perf. Analysis Requirements, Evaluation, Rules

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1 Introduction

The TF consists of carrying out a performance analysis of a computational object, using either *simulation* or *measurement* techniques, with the goal of identifying, quantifying, and interpreting the main factors that influence its performance. The TF is divided into three stages: 1. Proposal; 2. Partial; 3. Final with report. All stages involve a presentation to the class on the dates specified in the schedule. The following three sections list the minimum requirements to be included. Active participation of classmates during these presentation sessions will be taken into account.

The work must be carried out in groups of **three people**. The group definition is final, made via Moodle through the appropriate link, and remains valid for the entire semester.

2 Stage 1: Proposal (Weight 10)

The goal of the first stage is to define the computational object to be studied and the method of analysis, providing proper justification for this choice. Minimum requirements include:

1. Clear description of the computational object, with detailed main characteristics;
2. Choice of analysis method, whether by simulation (define environment and tool) or by measurement (define environment, tools, and metrics);
3. Justification of the choice within the group's context and experience, with an appropriate explanation of the object and method;
4. Definition of the metrics to be analyzed;
5. Preliminary schedule for the next stages, with activities specific to the chosen computational object.

3 Stage 2: Partial (Weight 20)

The goal of this second stage is to show effective progress in the analysis and validate the methods applied, for example, by discussing whether the initial choices were appropriate. Minimum requirements include:

1. Description of the test or simulation environment;
2. Data collection methods (for measurement) or model configuration (for simulation);
3. Preliminary results, through graphs or tables with the chosen main metrics, analyzing trends, bottlenecks, and preliminary comparisons, for example;
4. Listing of difficulties encountered and solutions developed by the group;
5. Plan for finalizing the work and updated schedule of specific activities.

4 Stage 3: Final (Weight 70)

The goal of this third stage is to present the complete analysis and discuss results, conclusions, and learnings from the TF. Minimum requirements include:

1. Review of the proposal and methodology;
2. Detailed description of the environment, tools, and methods;
3. Presentation of the final results, with graphs, tables, metrics, and comparisons;

4. Critical discussion of the results, including interpretation, validation, and study limitations;
5. Conclusions and recommendations for performance improvement, with practical implications.

5 General Requirements

Format and style of the final report

Use the Primary Article Template - L^AT_EX (2.14; published June 6, 2025) for writing the report, using the `sample-acmsmall.tex` template contained in the zip package. The language of the document may be Portuguese, English, French, or Spanish. Choose one in which all group members feel comfortable. The final report must describe, in clear and concise technical-scientific language, the elements of the work carried out by the group. Recommended books to improve technical writing skills:

- The Elements of Style by Strunk and White
- Essential Communication Strategies by Hirsch
- Writing for Computer Science by Zobel

Reproducibility aspects

Employ reproducibility and version control practices, using modern tools for executing experiments and data analysis. Any conclusion presented by the group must be auditable through notebooks recording everything from experimental designs to data analysis.

6 Submission Procedure

Your working directory must contain all files necessary for the evaluation of the work. With a free structure but under version control, it must include elements specific to the object of study. Computational mechanisms ensuring reproducibility must be present, such as *scripts*, lab notebooks, source code, slides, report text, etc. The working directory must therefore centralize all elements of the TF. Submissions will consist of sending a `tgz` file containing the entire working directory.

By submitting a solution for any stage of this course, you declare:

1. that the submission reflects your own authorship of the proposed problem's solution;
2. that it was not copied or extracted, either partially or fully, from any source other than public ones that were properly cited in the work; and
3. that you are aware that plagiarism is a serious violation according to the UFRGS Student Disciplinary Code. If you agree with this statement, use the link provided in Moodle to submit the file.

7 Evaluation of Stages

Each stage of the TF is evaluated subjectively. The **subjective grade** is defined by the professor, based on:

1. Review of the material submitted by the group, ensuring adherence to this document and the general concepts of the course;
2. Presentation delivered by the group, effectively demonstrating knowledge.

This subjective grade considers the complexity of the computational object studied, originality (compared to the state of the art), quality of the material, as well as the overall organization and any additional resources the group may include. Members of the same group may receive different grades.