[[1]](#footnote-1)

Title of the simulation case study

First author, Second author, group

*Summary*—These instructions define the guidelines to prepare the report of the simulation case study. This template has to be modified as less as possible to guarantee the homogeneity and uniformity. The name of the document must be FamilyName1\_FamilyName2\_Case.docx. This summary must describe briefly the case study content as well as the results and conclusions. Before elaborating the document, we recommend to take into account the assessment criteria presented in section VIII. This report must be 4 pages long (1500 words) at the most.

*Keywords*—Sets of words or short sentences to describe the analysis.

# Statement

T

his section presents the description of the case study in your own words and the analysis to be done. Show also the elements of the system, the processes followed by the entities and assumptions made.

Mention explicitly references of similar case studies, see for example [1], which you may find after a search in internet or alternative sources (Google Scholar, etc.).

# Model logic

Insert one or several flowcharts or Arena drawings representing the processes followed by the entities along the system. Use the same naming convention of the Arena blocks.

# Results of the Simulation Model

This section shows the model results and its analysis. Remember that it is the most important part of developing quantitative decision models and it has to be carefully elaborated. The use of tables, see Table 1, or figures, see Figure 1, to make easier the understanding can be very appealing. Include especially all the graphs generated with Arena.

|  |  |  |
| --- | --- | --- |
|  | Destination 1 | Destination 2 |
| Origin 1 | 32 | 5 |
| Origin 2 | 12 | 6 |

1. Cases transported from origins to destinations.



1. Histogram of the bus queue.

Before analyzing the results, you must check that they are effectively correct by reasoning and doing a sensitivity analysis changing some input parameters. You must obtain samples of the output variables using different random generators for the input variables.

# Conclusions

This section presents a summary of the analysis, the best decisions found and potential applications in another framework of industrial engineering.

# Assessment Criteria

The assessment criteria will take into account:

1. Presentation
	* The document follows the pre-specified template
	* Grammar check of the content
	* Clarity of the content of the document
2. Flowchart
	* Flowchart accurate and suitable for the several segments of the process
3. Pseudo-code
	* Correctness of the simulation language code
	* Clarity of the code for being understood
4. Verification, validation and sensitivity analysis
	* Tests and sensitivity analysis done to validate the simulation model

# Annex I: Model Pseudo-Code

Insert the pseudo-code of the simulation model. It is very important to write a legible code. We advise to use names or acronyms with suitable meaning, to structure the code with indentation, to use lower or capital letters according to some criterion and the systematic introduction of explanatory comments.

Do not write line with more than 70 characters to have a nice format.

VARIABLES % VARIABLES of the system (static and dynamic)

vNumPrescriptions = 0 % total number of prescriptions in the system

vServiceMean = (3, 4, 5) % Service Time mean for 1, 2 or 3 prescriptions

ENTITIES % ENTITIES of the model

Customer

 myNP % number of prescriptions of the entity customer

 myArriveTime % arrival time of the entity customer

RESOURCES **%** RESOURCES **of the model**

Pharmacist

 Fixed capacity = 1

% CREATE customer according to Poisson process

% The time between arrivals follows an exponential of 16 min.

% The number of customers varies with the arrival according to a discrete dist.

CREATE (customer, EXPO(16), DISC(0.2, 1, 0.5,2, 1.0,3),30,EXPO(6))

% ASSIGN all the attributes of the customer and the variables of the system

ASSIGN (

 % The nº of prescriptions of the customer is according a particular discrete dist.

 customer.myNP = DISC(0.5,1, 0.8,2,1.0,3)

 % The variable number of prescriptions is incremented

 vNumPrescriptions = vNumPrescriptions + myNP

 % Set the arrive time of the customer

 myArriveTime = TNOW

)

% PROCESS: the entity customer is with the resource pharmacist for getting medicines

% logic: Seize Delay Release (SDR)

% Each customer requires one pharmacist

% The delay time is according to a discrete distribution

PROCESS (SDR, pharmacist, 1, EXPO(vServiceMean(myNP)))

% ASSIGN for decrementing the number of prescriptions in the system and by type

ASSIGN (

 % The variable number of prescriptions is decremented

 vNumPrescriptions = vNumPrescriptions - myNP

)

DISPOSE(customer) % dispose the customer leaving the system

# Appendix

As appendix, you can include the output file while it is not oversized. Otherwise, extract relevant parts to show the simulation model results. Showing the important results in a condensed way is crucial to be successful in your career. Nevertheless, keep the 4 pages as maximum paper length.

References

1. A. Sarabia, *La Investigación Operativa* Universidad Pontificia Comillas, 1996.
1. Write the date of the document in this footnote. October 5th, 2018, for example. [↑](#footnote-ref-1)