

Sistemas Informáticos (Computer Systems)

Second term assessable activity



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Updated December 2023



SECOND TERM ASSESSABLE ACTIVITY

! Attention: read the whole activity before beginning.

1. INTRODUCTION

Your client **BiCiBiKeR S.L.** is very pleased with your job. They want to hire you again to improve their systems. **BiCiBiKeR S.L.** is going to buy new hardware in order to modernize their computer. The needs of the company are:

- One computer system for office workers, cheap and ready to do office task (Internet, word processor, ...). It has to be a Desktop computer.
- A POS (Point of sale) to hire bikes on shops. It can be a Laptop or other solution that you consider for a POS (Tablet, Barebone, Special hardware for POS, etc.).
- A server. It has to allow the concurrent work of 20 workers, although its main job is to store the database. It has to be a Desktop computer with a RAID system.
 - Hardware to store backups of database.
 - **Also, you have to define a proper and logic backup policy.**
- Some computer system could require peripherals, like:
 - Monitors, keyboards, mouses, printers (one injection, another laser), and webcam with microphone.
- Other peripheral that you consider useful (for example, a NAS system, tapes, etc.).

You are a very skilled pupil and those tasks are piece of cake for you :)

2. ACTIVITIES

2.1 Dossier

You have to deliver a dossier. This document has to include:

- Two budgets of each kind of computer. You have to justify which of the two is the one chosen.
 - Laptops and POS can be bought like a “single product”, but desktop computers should be bought by pieces.
- Where you have found each product/component.
- Why you have selected that component.
- You have to check if the component is supported by the rest of components.
- Any extra peripheral that you consider interesting.
- A document explaining the backup policy for the server’s database. This document should include:
 - Which kind of RAID system purpose for the server.
 - When you do each kind of backup (periodicity of Full backup, differential backup and iterative backup).
 - What hardware use to store backups and where should be placed.

2.2 Assembly

Choose one of the desktop computers and indicate the steps to make the assembly. You have to create a presentation in *LibreOffice/OpenOffice .odp* format (recommended) or *PowerPoint* format *.ppt* explaining these steps. Also, you can use <https://canva.com> or similar and export presentation in PDF Format.

2.3 Maintenance

The assembly of the computers has been a bit problematic and several problems have raised... but you can solve everything!!!!

You have to create a document answering with possible solutions to next questions. Try to answer them in a reasoned way.

- A. The computer does not start.
- B. The computer starts, but nothing is visible on the screen.
- C. You've dropped water on one of the laptops. What do you do?

2.4 Python script and scheduling it

Create a simply Python script that accepts as argument an absolute route of a directory.

The script has to create a ".zip" file of that directory and save it in your current directory with a name including current date and time in a format similar to "Backup-2023-02-27-11-00.zip".

You have to obtain date and time using Python functions or checking environment variable.

When you have created and tested this script, write in a code commentaries the commands to schedule this script in a Linux system (directory "/Data" and in a Windows system ("c:\Data").

3. DELIVERY

This assessable activity has to be written in English by yourself. You are not allowed to use translation tools and its use will be punished as it was a copy.

You have to deliver:


- A spreadsheet for each budget.
 - In each spreadsheet you have 6 sheets (each one for the 4 different kinds of computers), 1 for the common peripherals and **1 sheet (the most important) to group the whole budget**. The budget have to allow change some values like the number of computers, the discount, etc...

! Attention: Remember to present final prices, with and without VAT

- A document defining Backup Policy.
- A document with explanations relating to activity 1 (**maximum 1/2 page per budget**).
- A presentation with the steps of the activity 2.
- A document answering questions of activity 3.
- A .py file with the script of the activity 4.
 - You have to write in code commentaries the commands to schedule this script in a Linux system (directory "/Data" and in a Windows system ("c:\Data").

4. ASSESSMENT

The activity is individual and non-transferable. To consider it completed, it is not enough just to deliver the dossier. The student must be able to defend his/her exercise at the request of the teacher and be able to make small modifications related to it, in order to demonstrate the acquisition of knowledge and avoid any suspicion of copying.

 **Important:** you should do this activity by yourself. Using tools like ChatGPT, DeepL, Google Translate or help from a human person is punished as copy with every consequence (fail of the complete module).

The copy is punished with the fail of the complete module.

The evaluation is done in a global way and takes into account elements such as:

- Correction in the explanations.
- Correct operation of the script.
- Nice visual presentation of documents.
- A right structure in the generated documents:
 - Index
 - Page break
 - Styles on the page
 - Numeration
 - Header and footer
 - Animations and transitions in presentation
 - References and functions in spreadsheet.

5. RECOMMENDATIONS

The assessable activity is designed in order to put into practice the theoretical knowledge. The objective is not to assemble the perfect computers, but to face the practical problem of setting up a computer from scratch.

The fundamental objectives are:

- Improve your knowledge about computer hardware.
- Select properly computer hardware to assemble a computer.
- Detect and select component that are compatible.
- Detect needs of an organization and find peripherals that can solve the need.
- Make a budget.
- Create and use an adaptable spreadsheet.
- Create a presentation.
- Create a simple Python script to do a Backup.
- Schedule task on Linux and Windows Systems.
- Write documentation properly. Remember, you are not talking in a WhatsApp Chat with your friends, you are writing formal documents for a company.