

Rapport projet S103

Installation of a development workstation.

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Introduction

This report outlines the various steps and the roles assigned to each member of our group throughout the execution of the S103 project. Our team consisted of three students: Mihary RAJAONARISON, Onitiana ANDRIAMIALISOA, and Christelle Vanessa SOUBEIGA. As a team, we collaborated to install an operating system and configure a database management system (DBMS) on a Raspberry Pi 400. Each of us contributed to different aspects of the project, ensuring that all tasks were completed efficiently and according to the project requirements. This report details the work carried out by each member and the overall process of setting up the system.

Task Distribution

Onitiana ANDRIAMIALISOA 27%

She was responsible for preparing the hardware and flashing the SD card. She ensured that all the equipment was functional before starting. She also wrote the SQL scripts to create the tables and insert the data.

Mihary RAJAONARISON 46%

He took charge of the installation and configuration of MariaDB and supervised the initial installation of the operating system.

Christelle Vanessa SOUBEIGA 27%

She tested the functionality of the database. Additionally, she focused on the documentation and the final review of the project.

As for the writing of the report, we worked on it together, ensuring that all the steps were clearly explained and that the tests were presented in a clear manner.

The hardware and software used in this project

Supplied Hardware

- Raspberry Pi 400
- Blank 32 GB SD card
- USB-Ethernet adapter
- HDMI to mini-HDMI cable
- USB-C power supply
- Ethernet cable

Necessary Software

- **Operating System:** Raspberry Pi OS
- **DBMS:** MariaDB
- **Flashing Tool:** Raspberry Pi Imager

Installation of the Operating System

Flashing of the SD Card (Onitiana ANDRIAMIALISOA)

1. Launch rpi-imager with the following command
`sudo rpi-imager`
2. Select the available Raspberry Pi OS image from /Pub/S103/.
3. Flash the SD card and insert it into the Raspberry Pi.

Initial Configuration (by Onitiana ANDRIAMIALISOA and Mihary RAJAONARISON)

1. Connect the peripherals (power, HDMI, Ethernet).
2. Start the Raspberry Pi and follow the on-screen instructions to configure the basic settings (language, time, network).
3. Enable SSH for remote operations.

Installation and Configuration of MariaDB

Installation (by Mihary RAJAONARISON)

1. Setting of the date and time

```
sudo date -s '2025-01-20 15:44:00'
```

2. Update of the system

```
sudo apt update && sudo apt upgrade
```

3. To install MariaDB

```
sudo apt install mariadb-server -y
```

Creation and Insertion of the Database (by Onitiana ANDRIAMIALISOA)

1. Creation of the database and tables

```
CREATE DATABASE CAMPING;
```

```
CREATE TABLE ACTICAMPING (  
  NumCamping INT,  
  NumActivite INT,  
  PrixActivite DECIMAL(10, 2)  
);
```

```
CREATE TABLE ACTIVITE (  
  NumActivite INT,  
  NomActivite VARCHAR(255),  
  TypeActivite VARCHAR(255)
```

);

```
CREATE TABLE CAMPING (  
    NumCamping INT,  
    NomCamping VARCHAR(255),  
    AddrCamping VARCHAR(255),  
    TelCamping VARCHAR(15),  
    DateOuv DATE,  
    DateFerm DATE,  
    NbEtoiles INT,  
    QualiteFrance VARCHAR(50)
```

);

2. Insert data into the tables

```
INSERT INTO ACTICAMPING VALUES (1, 101, 20.50), (1, 102, 15.75);  
INSERT INTO ACTIVITE VALUES (101, 'Randonnée', 'Nature'), (102,  
'Escalade', 'Aventure');  
INSERT INTO CAMPING VALUES (1, 'Le Paradis', '123 Rue de la Forêt', '01  
23 45 67 89', '2023-05-01', '2023-10-31', 4, 'Excellente');
```

Validation et Tests

Tests Fonctionnels (par Christelle Vanessa SOUBEIGA)

1. **Connection SSH**

- Check the remote connection via SSH with the Raspberry Pi's IP address.

2. **Database**

To ensure that the tables are correctly created and contain the correct data, you can use the following SQL commands:

```
SELECT * FROM ACTICAMPING;  
SELECT * FROM ACTIVITE;  
SELECT * FROM CAMPING;
```

Evaluation Script (by Christelle Vanessa SOUBEIGA)

The script provided and explained by our professor was executed to validate the configuration and the database. The tests confirmed that the server is functioning correctly.

Example of command used:

- Bash environment.sh
- bash execution.sh

Problems Encountered

Regarding the SSH verification, initially, we had the IP address 10.42.0.5. But after that the professor could change it. Also, at the beginning, we forgot to add the user "prof" and "student" so we decided to start everything from the beginning to understand it better.

Conclusion

This project allowed us to develop skills in:

- Installation and configuration of an operating system.
- Database management and administration.
- Team collaboration to solve technical problems.

Finally, we would like to thank the entire team at the IUT for organizing this enriching project. We also extend our gratitude to our professor, Mr. ZEMA, for his patience and guidance throughout this project.