Departamento de Eng. Electrotécnica e de Computadores
FCTUC

Relatório

Computação Gráfica

Professor: José Carlos Teixeira (teixeira@mat.uc.pt)

Trabalho 1 : Dashboard de Gestão Escolar

Autores:

Aurélien Bernier Levalois

aurelien.vincotte@gmail.com

Yoann Fleytoux

yoann.fleytoux@gmail.com

Data:

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1. Summary

Create an application using C and OpenGL to manage a school's resources.

This application will contain an exhibit of what we've learned in the theoretical and practical classes of the course of Computer Graphics.

2. Introduction

2.1 Theme

This application will allow the user to edit and visualize ergonomically a number of variables linked to the management of the school's budget.

2.2 Analysis and specifications of the project

The user will be able to enter the costs related to electricity, gas, water and culture and modify them while being able to visualize the interesting data with a pie chart, a scatter plot and a bar chart.

The following functions will be supported :

- Manage a number of students
- Manage the schedule
- Manage the costs of electricity, gas, water
- Manage the cultural budget
- Edit all those values
- Save and load from save files
- Compute meaningful indicators
- Visualize the data with a pie chart, a bar chart and a scatter plot

3. Development

3.1 Conception

We built the application using C++ and OpenGL under the implementation of FreeGlut.

The IDE used was Code::Blocks under Windows and the program is intended to work under Windows.

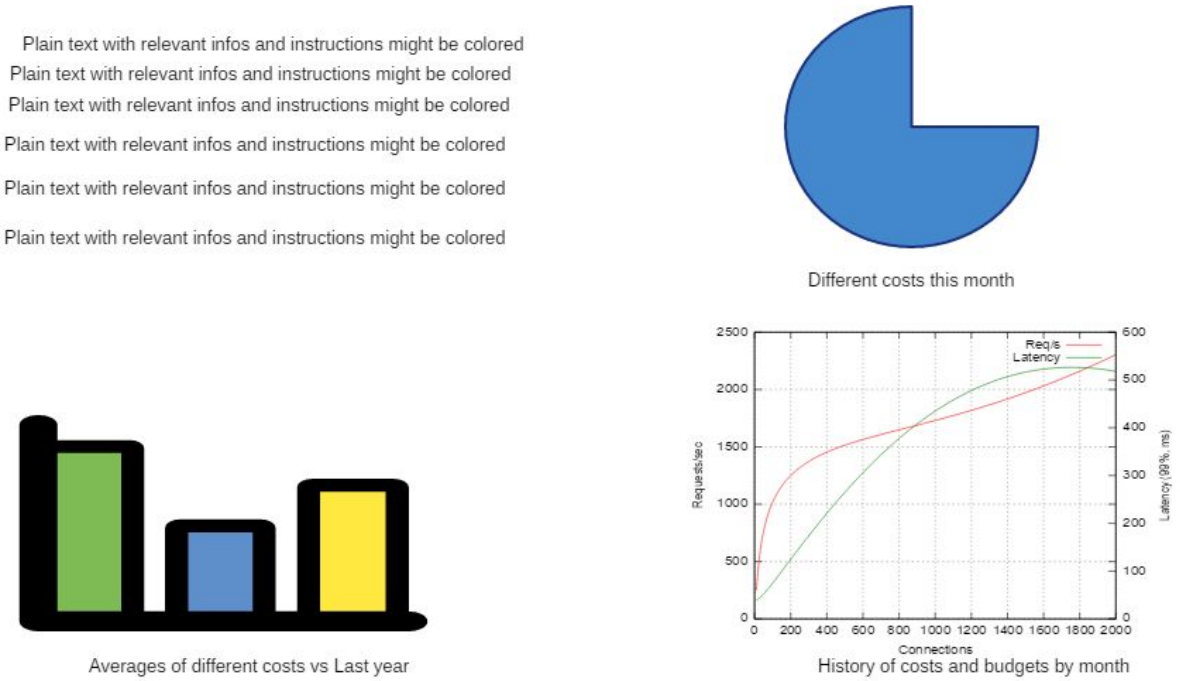
3.2 Architecture of the program

The program is made using the following files :

- Main.cpp : Manages all the GLUT related functions and the display
- resourceManagement.h : Header file for resourceManagement.cpp
- resourceManagement.cpp : Manages all the user data, from computation to save and load
- Data.sav : Save file to write into.
- Data2.sav : Save file to read from.

3.3 User Interface

Early mock-up of the interface :



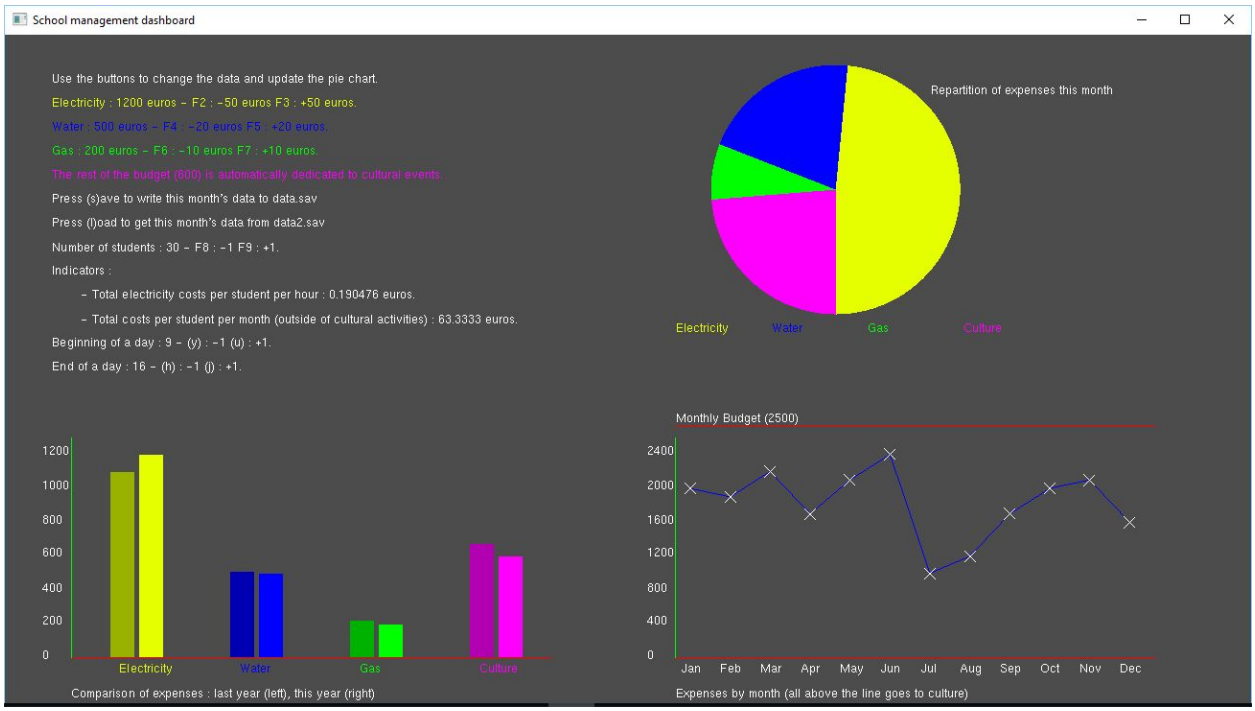
We stuck to this idea because it is not too condensed yet easily readable.

3.4 Data Structure

The data structure is very basic : floats and ints, no interesting optimization made.

4. Typical session

4.1 Bootup



4.2 Possibilities

The user can manage all the data according to the text in the upper left with the buttons. He can also quit with ‘q’ or ‘Esc’. The visualizations will be updated in real time.

5. Conclusion

This project was the first real implementation of our OpenGL skills learned in the Computer Graphics course. We were able to use OpenGL as a tool to express the ergonomic needs of the application while we were working on the technical implementations during the labworks. We also had the opportunity to learn new things, writing texts for example.

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