Computer Labs: Project Report

2º MIEIC

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Project Report: Goals

Show you've met the goals of the course (taken from the LCOM's description in SIGARRA)

- use the hardware interface of the most common PC peripherals;
- develop low level software and embedded software;
- program in the C language (in a structured way);
- use various SW development tools.

Help us grading fairly your project

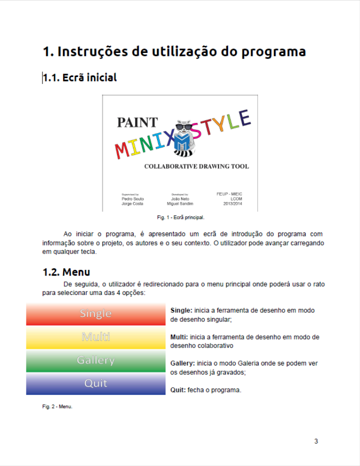
- There is a lot "under the wood" that may go unnoticed unless you bring it to our attention
- It is very hard to grade the work of each group member

Your help can prevent us from being unfair in our evaluation

Project Report: Sections I

User's Instructions i.e. how to use your project

- use it also to provide an overview of your project's functionality
- use (and abuse of) images ("1 picture is worth 1000 words")



1. Instruções de utilização do programa

1.1. Ecrã inicial

Fig. 1 - Ecrã principal.

Ao iniciar o programa, é apresentado um ecrã de introdução do programa com informação sobre o projeto, os autores e o seu contexto. O utilizador pode avançar carregando em qualquer tecla.

1.2. Menu

De seguida, o utilizador é redirecionado para o menu principal onde poderá usar o rato para selecionar uma das 4 opções:

Single: inicia a ferramenta de desenho em modo de desenho singular;

Multi: inicia a ferramenta de desenho em modo de desenho colaborativo

Gallery: inicia o modo Galeria onde se podem ver os desenhos já gravados;

Quit: fecha o programa.

Fig. 2 - Menu.

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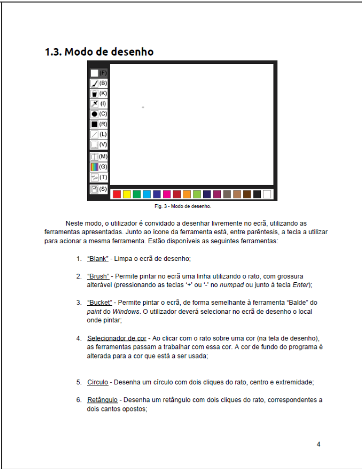

1.3. Modo de desenho

Fig. 3 - Modo de desenho.

Neste modo, o utilizador é convidado a desenhar livremente no ecrã, utilizando as ferramentas apresentadas. Junto ao ícone da ferramenta está, entre parêntesis, a tecla a utilizar para acionar a mesma ferramenta. Estão disponíveis as seguintes ferramentas:

1. "Blank" - Limpa o ecrã de desenho;
2. "Brush" - Permite pintar no ecrã uma linha utilizando o rato, com grossura alterável (pressionando as teclas '+' ou '-' no *numpad* ou junto à tecla *Enter*);
3. "Bucket" - Permite pintar o ecrã, de forma semelhante à ferramenta "Balde" do *paint* do *Windows*. O utilizador deverá selecionar no ecrã de desenho o local onde pintar;
4. Selecionador de cor - Ao clicar com o rato sobre uma cor (na tela de desenho), as ferramentas passam a trabalhar com essa cor. A cor de fundo do programa é alterada para a cor que está a ser usada;
5. Circulo - Desenha um círculo com dois cliques do rato, centro e extremidade;
6. Retângulo - Desenha um retângulo com dois cliques do rato, correspondentes a dois cantos opostos;

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Project Report: Sections II

Project status i.e. what functionality did you really implement?

- May be easier to list which functionality mentioned in the previous section you did not implement;
  - If e.g. you have a GUI to some functionality that you did not implement
- **Must** include a table with the I/O devices you have used, what you have used them for, how did you use them (interrupt vs. polling). For example:

Device	What for	Int.
Timer	Controlling frame rate	Y
KBD	Menu navigation	Y
Mouse	Tool selection and drawing	Y
Video card	Application menus and screens display	N

- For each I/O device should also include a paragraph with the device's functionality actually used and also a reference to the code where you use it (file name and line ranges)
  - Especially useful for more complex I/O devices

Project Report: Sections III

Code organization/structure

Must include one subsection per module (C source file), with:

1. "A one paragraph description" of the code contained in the module
2. Information on who did what, specifically:
    - the group member responsible
    - the participation and contribution of each group member to that module
    - relative weight (in %) of module in project

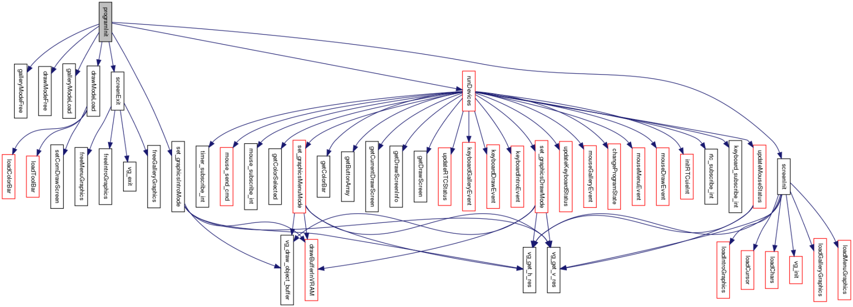
May also include:

- main data structures per module;

Project Report: Sections IV

Function call graph to give us an idea of the run-time organization of your code

- It can be generated automatically by Doxygen
  - May want to limit the depth so that the graph generated can be included in a figure in the report
    - The root in the figure below is the last function called in `main()`
  - Include also a short description of the "main" functions
    - This must include functions that call `driver_receive()`



Project Report: Sections V

Implementation details this is where you can show your domain over the course topics. In general, you should speak about things:

- That were covered in the lectures, but that required some ingenuity in their application to your project (e.g. layering, event driven code, state machines, object orientation, frame generation, assembly code, ...)
- That were not covered in the lectures/labs and that you had to learn by yourself (and may be you wished we had talked about it) (e.g. collision detection, call of assembly functions from C, ...)

Project Report: Sections VI

Course evaluation

- Mostly the bad (with suggestions for improvement)
- But also the good, if you feel like (so that we do not change things that you liked)

Self evaluation Overall project self-evaluation. Consider two aspects:

Participation expect $1/n$ if you did your share

Contribution expect $1/n$ if you did your share

where n is the number of elements in group

Installation Instructions required only if we need to do something else other than invoke `make` in your project's top directory

- If you use files, avoid using absolute paths in your code. Use instead relative paths.

Project Report: Final Recommendations

- Remember, the project report is worth 20% of your project grade
- Do not leave it for the last minute:
  - Start writing the report **now**
  - Write it incrementally
    - Most of the information we ask for, is available rather early in the project
  - You can always review it, if later you change something already mentioned in the report
    - I.e. you can use an iterative approach
  - You can leave "refinements" to closer to the deadline
    - For example, do not worry much with the writing style in early versions
- You can use a different report structure, but:
  - Make sure you have a good reason for that
  - Include the information I asked
  - Include a table of contents before the main text, to make it easy navigate through your report