



SoLong

And thanks for all the fish!

Summary: This project is a very small 2D game. It is built to make you work with textures, sprites. And some very basic gameplay elements.

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Chapter I

Foreword

Being a developer is a great thing for creating your own game.
But a good game needs some good assets.
for 2D games, you should search for tiles, tilesets, sprites, and sprite sheets.
Thankfully some talented artists are willing to share their works on platforms like:
itch.io

Whatever you do try to respect the works of others.

Chapter II

Goals

This project's objectives are similar to all this first year's objectives: Rigor, use of `C`, use of basic algorithms, information research etc.

As a graphic design project, `so long` will enable you to improve your skills in these areas: windows, colors, events, textures, etc.

Chapter III

Common Instructions

- Your project must be written in accordance with the Norm. If you have bonus files/functions, they are included in the norm check and you will receive a 0 if there is a norm error inside.
- Your functions should not quit unexpectedly (segmentation fault, bus error, double free, etc) apart from undefined behaviors. If this happens, your project will be considered non functional and will receive a 0 during the evaluation.
- All heap allocated memory space must be properly freed when necessary. No leaks will be tolerated.
- If the subject requires it, you must submit a **Makefile** which will compile your source files to the required output with the flags **-Wall**, **-Wextra** and **-Werror**, and your Makefile must not relink.
- Your **Makefile** must at least contain the rules **\$(NAME)**, **all**, **clean**, **fclean** and **re**.
- To turn in bonuses to your project, you must include a rule **bonus** to your Makefile, which will add all the various headers, librairies or functions that are forbidden on the main part of the project. Bonuses must be in a different file **_bonus.{c/h}**. Mandatory and bonus part evaluation is done separately.
- If your project allows you to use your **libft**, you must copy its sources and its associated **Makefile** in a **libft** folder with its associated Makefile. Your project's **Makefile** must compile the library by using its **Makefile**, then compile the project.
- We encourage you to create test programs for your project even though this work **won't have to be submitted and won't be graded**. It will give you a chance to easily test your work and your peers' work. You will find those tests especially useful during your defence. Indeed, during defence, you are free to use your tests and/or the tests of the peer you are evaluating.
- Submit your work to your assigned git repository. Only the work in the git repository will be graded. If Deepthought is assigned to grade your work, it will be done after your peer-evaluations. If an error happens in any section of your work during Deepthought's grading, the evaluation will stop.

Chapter IV

Mandatory part - so long

Program name	so_long
Turn in files	All your files
Makefile	all, clean, fclean, re, bonus
Arguments	a map in format *.ber
External functs.	<ul style="list-style-type: none">• open, close, read, write, printf, malloc, free, perror, strerror, exit• All functions of the MinilibX
Libft authorized	Yes
Description	You must create a small 2D game where a dolphin escapes earth after eating some fish. Or any hero collects any valuables before leaving the place.

The constraints are as follows:

- You must use the miniLibX. Either the version that is available on the operating system, or from its sources. If you choose to work with the sources, you will need to apply the same rules for your libft as those written above in Common Instructions part.
- The management of your window must remain smooth: changing to another window, minimizing, etc.
- examples are given with a dolphin theme but you can use anything you want.

- The **map** will be **constructed** with 3 components **walls**, **collectibles**, and **free space**.
- The **player's goal** is to **collect all collectibles** present on the map then **escape** with minimal movement.
- At every move the **current number of movements** must be **displayed** in the **shell**.
- The **player** must be able to **move**: **up, down, left, right**.
- You will **use a 2D view** (top-down or profile).
- The game doesn't need to be real-time.
- **player cannot move into walls**.
- The program displays the image in a window and respects the following rules:
 - The **W, A, S, and D keys** will be used to **move the main character**.
 - Pressing **ESC** must **close the window** and **quit the program** cleanly.
 - **Clicking on the red cross** on the window's frame must **close the window** and **quit the program** cleanly.
 - The use of **images of the minilibX** is strongly **recommended**.
- Your program must take as a first argument a map description file with the **.ber extension**.
 - The **map** must be **composed** of only **5 possible characters**: **0** for an **empty space**, **1** for a **wall**, **C** for a **collectible**, **E** for map **exit** and **P** for the **player's starting position**.

This is a simple valid map:

```
11111111111111
10010000000C1
1000011111001
1P0011E000001
11111111111111
```

- The **map** must be **closed/surrounded by walls**, if not the program must return an error.
- **Map** must have **at least one exit**, **one collectible**, and **one starting position**.
- You **don't** need to **check** if there's **a valid path** in the map.
- The **map** must be **rectangular**.
- You must be able to parse any kind of map, as long as it respects the rules of the map.

- Another minimal **.ber** map:

```
1111111111111111111111111111111111111111111111111111111  
1E00000000000000C00000C00000000000001  
1010010100100000101001000000010101  
1010010010101010001001000000010101  
1P0000000C00C00000000000000000000000C1  
111111111111111111111111111111111111111111111111111
```

- If any misconfiguration of any kind is encountered in the file, the program must exit properly and return "Error\n" followed by an explicit error message of your choice.

Chapter V

Bonus part



Bonuses will be evaluated only if your mandatory part is PERFECT. By PERFECT we naturally mean that it needs to be complete, that it cannot fail, even in cases of nasty mistakes like wrong uses etc. It means that if your mandatory part does not obtain ALL the points during the grading, your bonuses will be entirely IGNORED.

Bonus list:

- enemy patrols that cause the player to lose in case of contact.
- There's some sprite animation.
- Movement count is directly displayed on the screen instead of shell output.



You will be able to create better games later do not waste too much time!



Chapter VI

Examples

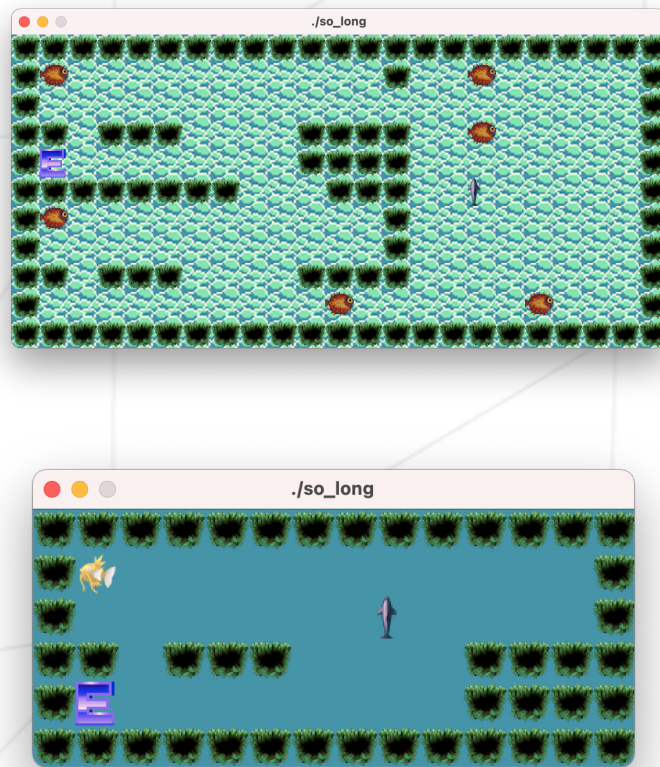


Figure VI.1: some `so_long` examples with some very bad (almost bonus worthy) taste in graphic design !