RCLOCK
Requirements document
A digital terminal clock for POSIX platforms

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Chapter 1. Document purposes

The purpose of this document is to define all necessary requirements for the software that is being developed, helping to keep the track on this project as the developers work on it. The public of this document is any person who wants to contribute or even study the project for learning purposes. Here is a list of what this document may be used for:

- Study the software requirements
- Learn about project planning
- A guide for external collaboration
- A good starting point for features suggestions

Chapter 2. Definitions

Here is all definitions that will help understand the document for those who don't know what something means

2.1. Ncurses

Ncurses is a library used to design user interfaces on terminal, with this library is possible to have total control over the buffer and design the digital clock without further issues

2.2. Command-line arguments

Command-line argument is a piece of data that the user gives to the program to execute something. This data may be used to enable/disable features and be used as a kind of input, allowing the software to work using this information. These arguments usually use positional and optional arguments, that are read by their position and by their existence respectively.

$ introduceyourself john –age 23 developer

The above example is a program call.
The green piece is the program.
The brown pieces are positional arguments.
The blue piece is the optional argument, resulting in '23' after the parse.

Reading this example, it is possible to notice that to introduce yourself, you have to say your name and your job, but your age is optional.
The position of the optional argument doesn't affect the positional arguments.

Chapter 3. Scope

The Rclock is a software that will offer a highly customizable clock for terminal, with this is possible to make more attractive setups, discarding default clocks that are usually ugly compared to the setup itself

3.1. Benefits

- As the environment that is being used is the terminal, any zoom-in or zoom-out also changes the clock size
- A nice-looking way for show the time

3.2. Goals

- Make a user-friendly software
- Mak a highly customizable software

Chapter 4. Organization

This chapter will store the information of how the rest of the document is organized, in general, requirements will be split by groups, targeting specific features for that group

4.1. Requirements

The chapter 5 of this document contains all the requirements for this software, the groups are the following:

- User, that describe all requirements that the user can use to modify the software behavior
- Clock, that describe all requirements that will be the technical software features
- Project, that describe how the project shall be structured

Chapter 5. Requirements

5.1. User

1. The system shall offer a way for the user to pass configurations flags through the command-line arguments
2. The system shall be able to make the users choose the zoom of their preference
3. The system shall exit when the user press Enter

5.2. Clock

1. The system shall show the current date beyond the clock itself
2. The system shall give the possibility of hide the current date
3. The system shall have the feature of change the clock color
4. The system shall have the feature of change the date color
5. The system shall have the feature of change the color of each clock digit
6. The system shall have the feature of change the color of the colons that split the digits pairs
7. The system shall offer the customization of the date format using a string
8. The system shall offer a way to set a custom time for the clock, for hours, minutes and seconds
9. The system shall use the current time for those segments (hours, minutes and seconds) that weren't set by a custom time flag
10. The system shall offer a way to set a custom time using the format: xx:xx:xx
11. The system shall offer a way to set a custom date for day, month and year
12. The system shall offer a way to set a custom date using the format: DD/MM/YYYY
13. The system shall use the current date for those segments (day, month and year) that weren't set by a custom time flag
14. The system shall have the feature of hide the seconds of the clock
15. The system shall realign the clock to the center when the terminal be resized
16. The system shall hide the seconds if not hidden yet in the case of the terminal be very small horizontally
17. The system shall show an error message aligned to the center if the terminal is extremely small to support the clock
18. The system shall show an error message aligned to the center for any error that may occur to the program
19. The system shall resize the error message as the user resizes the terminal

20. The system shall hide the date if not hidden yet in the case of the terminal be very small vertically
21. The system shall calculate the elapsed time when the computer sleeps and update the clock with this value

5.3. Project
1. The system shall implement each clock digit and colon on a separate Ncurses window
2. The system project shall have a well structured file system