Universidad Técnica Nacional

Desarrollo de Software (ISW)

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Aqueduct System in Console

Indice:

Introduction:

In this project we are going to make a console application that can to simulate the basics operations in a aqueduct, for example: the all CRUD with the users that have a aqueduct by class, invoice inventory, users who consume more water in the aqueduct, users who pay more for water.

On the other hand console application is going to allow that administrator can to make a request for a new water meter and update, delete readings water meters that created by inspectors and also charge for water consumed. After we are going to work with the inspectors functions what are these water meter installation and make readings of meters.

Problem description:

Justification:

Through the years the human has been responsible for creating a new tool called technology that let us to develop with more efficient and this because nowadays we live in world where all things need more security and more optimization for to get a good job in our task and also is good to know about this tool, because now technology is indispensable in any business.

The aqueduct software is an example, due to in the past time the administrator of an aqueduct hadn't information in time real about he had sold and less to have back up. Through of this problem in the aqueducts and with help of technology tool we decided to develop a basic software system that can to take the control about of operations in an aqueduct in real time.

Technology Stack:

In this project was used python language that is let us to develop the software and also was used the Git Hub repository for to save the code of console application. These technologies focus in pillars of the project.

Then we used differents aspects that have each mentioned technology for example: in python we worked with object class and in Git Hub with work with Git.

What is Python?

“Python is a general-purpose language, which means it can be used to build just about anything, which will be made easy with the right tools/libraries.

Professionally, Python is great for backend web development, data analysis, artificial intelligence, and scientific computing. Many developers have also used Python to build productivity tools, games, and desktop apps, so there are plenty of resources to help you learn how to do those as well”(PythonOrg).

What is Git Hub?

“GitHub is a Git repository hosting service, but it adds many of its own features. While Git is a command line tool, GitHub provides a Web-based graphical interface. It also provides access control and several collaboration features, such as a wikis and basic task management tools for every project. “(TCCruncOrg)

Inspector functions:

In this part we are going to work with the logic part about basics functions that have the inspector in an aqueduct, specifically in these functions for example: water meter installation and readings about water meter.

Water meter installation consist in a list of request that was created by an administrator when a subscriber need a meter, and then the inspector take this list of request and he goes installing the water meter one by one.

When the inspector installed a new meter he save in a list the meter ID with its respective owner ID and cubic meters amount, because through of this way the inspector and admin will have more control of each water meter.

After the inspector can make the readings of water meter, for this reason we are going to make a new list that can to save all readings by meter. In the list we will have: watermeterID, date time of reading, inspectorID, cubic meters registered, and the status this means that if owner already paid the quota or else. Is very important to highlight that no one water meter that can to reset in cero.

Billing:

In this part will be discussed about billing process, for this reason will be present differents ways what each user can pay your own consumption, for example: by waterMeterID, by readingID and if the subscriber want to pay all bills the console application allows the subscriber pay all.

Is very essay to calculate of price by each reading, because only we need the write the cubic meters gotten and the system take the old reading and subtraction with the new reading and if this result is more higher than 80 we can multiply the result by 0,1 and then of this result add more $4 we are going to have final price, else final price will be $4. The final price will be put away in a space of each reading

Pay consume by waterMeterID, for this way we need to focus in get a list that have the reading water meters that present status in pending, after of have list got we search all readings that present the waterMeterID equals that subscriber want to pay and then the system will be able to cancel each bill with this water meter ID of a straightforward way.

Pay consume by readingID, through of this way only we need search in list of pending reading with specifical readingID and then we can pay one reading.

Queries:

Results:

|  |  |
| --- | --- |
| Sign Up and Login | Successful process \* |
| Administrators main menu  Inspectors main menu | Successful process \* |
| Subscribers CRUD | Successful process \* |
| Readings (administrators) | Successful process \* |
| Billing | Successful process \* |
| Meter Requests by Subscriber | Successful process \* |
| Queries | Could be better |
| Water Meter Installation  Reading water meters | Successful process \* |

Conclusion: