A PROPOSED DESIGN AND WORKING PORTAL FOR RENTING OXYGEN CYLINDER

A PROJECT REPORT

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BONAFIDE CERTIFICATE

Certified that this project report titled **"OXYGEN RENTAL SYSTEM"** is the bonafide work of "**ANANYA SHARMA (20BCE10218), ARJITA CHOURASIA (20BCE10319), MANISH PRASAD (20BCE10009), MUSKAN LALWANI (20BCE10293)"** who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported at this time does not form part of any other project/research work based on which a degree or award was conferred on an earlier occasion on this or any other candidate.

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LIST OF ABBREVIATIONS

Abbreviations	Meaning
REF:	Reference to
GUI	Graphic user interface
.PY	Python file
BBC	British broadcasting corporation
SARS-covid –19	Severe acute respiratory syndrome
APP	Application

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ABSTRACT

The covid times have made touch-free access to things via online resources. One of the major requirements during the lockdown was oxygen cylinders. Making an online portal for renting oxygen cylinders would make it easier for sellers and buyers. The customer can rent cylinders from an easy interactive portal created using python language, according to their requirement of number of cylinders they want to rent, the renting time and option of hourly, daily, weekly renting with bill generation at the end.

Uniform prices to all customers are maintained. Automatic updating of the stock of cylinders after every rented item, this keeps away from unnecessary hoarding of cylinders during the time of crisis.

We propose that small scale businesses take advantage of the app developed using python, conversations can be organized by only user defined inputs .The portal which we are going to exhibit generates a receipt with details of customers and for the time the cylinder is to be rented , it would be home –delivered or on the address provided by the renter, and the cylinder will be returned back through the same process mentioned in the portal by the customer .Charges timely are already mentioned in the portal site while renting .This would save time and even resources and might manage to overcome the deficiency of oxygen cylinders occurring in the economy right at these covid-19 times.

To create such portal, a main class was created where user interacted and gave input as their choice of renting which further interacted with the customer and rental class for network

information of the stock like the interaction between the rental shops and the customers.

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PROJECT DESCRIPTION AND OUTLINE

1.1 Introduction

This project deals with the oxygen cylinder rental system which aims at providing a helping hand to the small-scale dealers of oxygen cylinder. It is a self-help system where people can themselves see the availability of cylinders and rent them on hourly, weekly, and daily basis. They can also hire multiple cylinders at the same time.

1.2 Motivation for work and Problem Statement

In India hospitals ran out of oxygen in April and May during a deadly second wave- there were daily reports of people dying from lack of oxygen. The second wave hit the country hard and spread devastatingly quickly. As the number of infections rose, the severity of the second wave soon became apparent. The most pressing issue was an acute shortage of oxygen which created a scrabble not only in the hospitals but in the streets with black market oxygen prices soaring, leaving people in devastating situations as they tried to save their loved ones. These incidents motivated us to make this project. All small scale and remote providers are in need of a way and means to communicate with their consumers with ease. During the times of peak in number of covid cases, they get thousands of calls and messages to which they are not able to respond. We propose an online platform in which a person can rent the oxygen cylinders on hourly, daily, and weekly basis. The app

automatically reduces the ‘In stock’ value by the number of cylinders hired and provides uniform prices for all users.

1.3 Objective of the work

The main objectives of this project are to solve the problem of customer provider interaction in oxygen cylinder rental. To provide the consumers to decide how many cylinders they want and the number of hours for which they want to rent the cylinders. It helps in providing uniform prices to all consumers and to generate bills without the need of human intervention and to speed up the rental process.

1.4 Organization of the project

A fully-fleshed oxygen cylinder rental system is implemented in python using object oriented. Since classes are used various customers and oxygen cylinder rental shops can be instantiated as needed. For simplicity we assume that any customer requests rentals of only one type that are hourly, monthly, and weekly but is free to choose the number of cylinders he/she wants. However, requested cylinders should be less than available stock. This code will be written in python and to run this code we can use python main.py.

CHAPTER-02

RELATED WORK INVESTIGATION

2.1 Introduction

A lot of work related to the oxygen system rental system is in full swing in many of the institutes in societies. Understanding the need of a well-functioning, full-fledged oxygen system rental, many organizations have played a crucial role in development of an app where not only oxygen but even medicines in beds are provided. Though these apps are efficient in their own manner, we find that the development of an app which is small-scale dealers of oxygen and is also convenient for the customers to use was important to develop as a result we have tried our best to develop an app which satisfies our needs. In this chapter I would like to highlight a few of important works that have been done in this regard.

2.2 Core area of the project

- Our project that deals with oxygen cylinder rental systems aims at providing a helping hand to the small-scale dealers of oxygen cylinders. This is a self-help system where the people can themselves see the availability of cylinders and rent them on hourly and daily basis. They can also hire multiple cylinders at the same time.
- By automatizing the interactive process, the need for human intervention has been reduced. It is the need of the hour especially in dealing with the requirement of oxygen cylinders as people need oxygen cylinders mostly when they are suffering from covid-19 which is a communicable disease (even through air)

2.3 Existing Approaches/Methods

2.3.1 Existing Approach-1

Manan Gandhi teamed up with an app developer named Amit Sarda along with a few others and created an online app dubbed ‘Covid Resource,’ on the online app platform Glide. - the app updates information regarding the availability of Covid-19 hospital beds, oxygen cylinders or medicine for people to access and update to help people. The app also helps to notify the users about the possible danger of getting infected from the disease while near a person infected from COVID-19 it raises a notification informing the person that you have been contacted by an already infected person. It also helps in knowing the availability of crucial resources around.

2.3.2 Existing Approach-2

To help the people, the Delhi government has made the Oxygen availability status available on the Delhi Corona app. Chief Minister Arvind Kejriwal launched a special app on Tuesday to show if beds are available in both private and state hospitals in the city. He said the Delhi Corona app would be of immense help in bridging the information gap he calls the availability of hospital beds in the city. According to Kejriwal, the app is used not only to provide bed information, but also to handle complaints related to the hospital's refusal to accept coronavirus-positive patients.

2.3.3 Existing Approach-3

Milan Roy, Swapnil Sharma and Ganvir, three graduates of IIT Delhi made the app CovRelief that went online on April 23 2021. The CovRelief app is a simple user interface that provides a lot of valuable information. They track hospital bed availability in real time, list oxygen suppliers, share doctor videos, and provide an updated list of state hotline numbers. There is also an "urban stress meter" that shows how stressed the city's health infrastructure is. They also recently shared a list of people or retailers preparing meals for COVID 19 patients who are isolated at home. All information

is collected from two sources and updated hourly. Sources are the official government website and two crowdsourcing networks (Corona Safe Network and Covid Fight Club) that provide certified real-time information. The data covers 32 cities, including Ahmedabad, Gandhinagar, Dehradun and Jaipur, and manufacturers are working on more.

2.4 Pros and cons of the stated approaches/methods

1. Though there are many aids available for a consumer, the providers have no aid.
2. For an efficient system of oxygen cylinder availability, not only the transparency in the numbers related to stocks needs to be maintained but also the prices at which the resources are consumed needs to be fixed.
3. Lifesaving things like oxygen cylinders need to be made available to the local dealers to make it available easily to the market.
4. In times of workforce crisis during the pandemic, refill stations find it hard to negotiate with each needy person and the result is delays in the provision of such an essential commodity where even minutes can be responsible for taking lives.
5. Till the consumers do not find a fair and effortless way to hire oxygen cylinders and the providers do not find it easy to rent their stock at the terms of the customer taking into consideration the no. of hours for which the cylinder is hired and price it accordingly, a good system cannot be devised for oxygen provision in times of crisis.

2.5 Issues/Observation from the investigation

The investigation puts to rest the fact that a lot of work has been done in the field of making resources related to COVID-19 available to the consumers or the patients at ease. Not only the deli go wrap but all the apps that are mentioned above in this chapter provide a helping hand to all those needy people who are suffering from a life-threatening disease. It is observed from the investigation that though a lot of software and mechanisms are available to help the people most of the facilities from the management are lacking for example the app is available to show the information about the availability but there is no mechanism to make oxygen cylinders available. When India experienced

its second COVID-19 wave the acute shortage of oxygen took the lives of many people. Thus, it can be concluded that not only the software but software along with all the government mechanisms running at its best could only ensure the safety of the lives of millions of people.

2.6 Summary

A few apps have been developed by Manan Gandhi along with Amit Sarda Updates information regarding the availability of COVID-19 hospital beds, oxygen cylinders or medicine for people to access and update to help people. The Delhi government has also launched its own Delhi corona app helping the citizens of Delhi who were the hardest hit of the disease. All these apps track real time availability of oxygen suppliers' hospital beds, share videos from doctors and have an updated list of state helpline numbers. One of them has a city stress meter that provides an indication of how stressed the city's health care infrastructure is. Their plans are also to share a list of people of outlets that prepare meals for COVID-19 patients isolated at home.

CHAPTER-03

REQUIREMENT ARTIFACTS

3.1 Introduction

This is a requirement specification report status for the oxygen rental Portal construction. This portal rents oxygen cylinders on customer input with bill generation and database maintenance using Python language for coding classes and modules. The portal will update the stock in inventory after a booking and completely available cylinder rental shops online. This report describes requirements of all elements required while organizing this portal into working. This report states the hardware and software requirements, functional requirements, classes and modules, security checking and design requirements of the portal GUI to reach the target status of the project discussed earlier.

3.2 Hardware and software requirements

The minimum hardware requirements depend on the language and software the project code will be using, since our project is written in Python computer language these are the specifications we require. Applications that need to store large arrays and objects in memory will require more RAM whereas to perform calculations or quicker option selection we require a faster processor. Here at the specifications of a computer setup required:

A modern OS: Windows 7/ 10, Mac OS X 10.11 64bit, Linux 64 bit

X86 64-bit CPU (Intel/ AMD architecture)

4GB RAM with processor

5GB free disk memory

3.3 Function requirements

It should provide stock of cylinders available at the time selected, at the shops. Also, it should generate a bill at the end of the operational input by the user with the total amount to be paid. The stock should be updated after one booking of cylinder secure and managed facilities for users at the

time of name input function. Function should display the number of cylinders in inventory, number of cylinders available at the time the customer requested and at the return time of the rented cylinder. Our project code using classes for various customer and rental shops also requires a Test module for rigorous testing of classes and for error and validation is required.

3.4 Safety and security requirements

If there is intensive damage to a wide portion of the database stock due to catastrophic failure such as a disk crash the recovery method restores a past copy of the database that was backed up to the storage and reconstruct a more current state by reapplying or redoing the operations of customer option selection on the portal for renting the cylinders from backlog, up to the time of failure. Security systems need database storage just like other applications and website portals; however, specific requirements of the security market mean that the seller or the rental shops must choose their database partners and platforms carefully. The system we are trying to cover should maintain authentic rental shops and meet the needs of maximum users.

3.5 Look and feel requirements

The portal is made available for all the users at any of the local areas situated through their Internet accessible device. It should be easy and simple to use and approachable so that the users do not hesitate to avail the rental benefits. Reliability and authenticity of the rental shops so that the customers can trust their purchase. Attractive user interface, innovative and appearing art state. The portal should also look professional at the same time with a sense of attraction and good appearance with the use of GUI portal.

3.6 **Summary**

These are the mentioned requirements for generating the online oxygen rental portal code for our project inclusive of the hardware and even software materials needed. The code we created was hit and trial with a lot of error detection and correction with the validation of the test results. The overall requirements that came out of the testing and conclusion of the code have been discussed in this overall report.

CHAPTER-04

DESIGN METHODOLOGY AND ITS NOVELTY

4.1 Goal and methodology

The goal of our project is to develop a user interface where renting an oxygen cylinder is convenient and easily monitored with bill generation at the end. Development of the oxygen rental system started with first finding motivation for our project like other projects, initially looking at the present crisis of oxygen cylinders and it is an important and urgent need made us think of such an idea. Several other portals were already available on the Internet for such purposes but making our project different started our thought process on creating it. First, we decided that the computer language we should use came out of the majority, i.e, Python, which is the language of future computers.

Pre-processing of data:

Distributing classes and variables. We decided a number of classes and variables namely customer, rental and main class were decided on to be developed. Variables which we decided to use were the exact name of the work or option the customer would generate or will be displayed to. Next we decided to generate modules to start over our advanced portal. We created the architectural design of our portal and as in review-I when we highlighted our idea and pre-processed data. Approaching review -II we started linking the modules and created a database for stock maintenance, bill generation with total amount to be paid by customer, return status, and return of cylinders after due time. Approaching review-III we created a graphic portal as a sense of advanced interesting and attractive online portal for customers. Testing and validating our idea multiple times for a chance of error correction. Discussing the feasibility of the project under the three main subtopics: operational: whether the portal we created solves the objective problem discussed Technical: weather will technology to require to make the project is available and select the correct one from various Economical feasibility scale decided on whether the input cost is higher or not than the output work worth.

4.2 **Novelty of our project**

There are many portals on Internet generated which provides information about the number of oxygen cylinders providing centres that are available in the area and the timings for refilling of oxygen cylinders though these portals were helpful in COVID times for finding nearby oxygen centres but the idea of our project that makes it stand out of the others available on Internet is it's convenient data processing work and easy data generation since it's been written with advanced language of Python. The project idea which we highlight is the need of the hour which makes renting easy for customers and touch free service. To make it attractive and functioning especially in a competitive market the customer and rental shops are directly contacted and there is no in between managers. The portal is just the linkage between the small rental shops and customers in need which makes it authentic and fast. There will be a huge introduction of each rental shop available at the time of renting. The customers can easily contact and inquire. There is no other page linkage or options which may mislead the customer's directly selected options are provided one after the other for convenient and fast booking.

4.3 **Functional module design and analysis**

The three modules being used in our project are described as the rental, customer and the main. The rental class maintains a stock of cylinders to customers and prepares a bill then the cylinder is returned, and the rental constructor function instantiates the rental class with object variables. Stop variable which counts available cylinders in the rental class, Display stock function prints and returns stock of available cylinders further based on options selected by user in the menu displayed rent hourly basis, rent weekly basis, or rent daily basis functions are executed depending on the value augmented by user. The return function in the rental class prepares a bill for requested return by customer which uses three variables: rental time rental basis and quantity of cylinder for build generation. Customer class deals with the request of hiring arts and number of cylinders to be hired and the return time here the constructor function instantiates the customer class with object variables and the cylinder variable keeps count of cylinders customer rented. Rental time variable indicates what time the cylinder was rented for. Rental basis indicates hourly weekly daily renting base the bill of the customer is stored in a variable bill and exit shows the return off the menu. The main class initializes rental and customer class and links to carry out proper operations. It creates the actual end rental shops within the rental class and the stock available of the cylinder it takes data as customer name on customer action.

4.4 User interface design

The characteristics of the user-friendly interface which makes it convenient are: It is simple and not overly complex instead it is straightforward providing quick access to common features and commands and options. It is well organized making it easy to locate different options. It is a user -friendly interface that makes sense to the average user and requires minimal explanation for how to use it so even an average customer can access the service. An unreliable product is not considered since it causes undue frustration for the customer. Also the portal is made reliable and does not malfunction or crash at any time after several testing and validation. The graphic user interface which we created is pleasant and easy to navigate with attractive designing.

The GUI module is created using Tkinter. It contains a top level class for creating the main GUI window and all other GUI elements of the application. The main function has been defined to create an instance of the top-level class which creates the main window for the application along with all the appropriate elements. The main window consists of three basic frames which are used to display the login page, customer rental page, shop information page. The required elements for all the pages are defined as object variables of the top-level class which are created along with the main window when the main Python script is run. Along with these variables appropriate functions are also defined within the top-level class which are called when some specific events are triggered using the elements will stop running the application presents the user with the login page where the user is asked to enter their shop details. These details are used to fetch appropriate information from the database which is created using objects and corresponding details are also performed within the application. Application is closed by closing the main window that is calling the right function all transactions performed using the application up committed within the connected database which is currently saved locally.

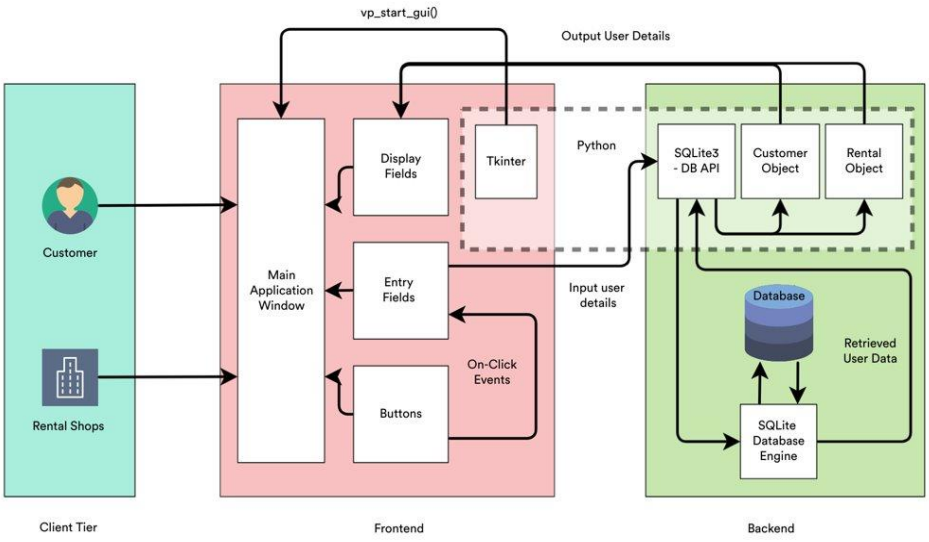


Fig. 1 Application Architecture

CHAPTER-05

TECHNICAL IMPLEMENTATION AND ANALYSIS

5.1 Outline

In this chapter we look into the technical implementation details of our project and analyse the performance and efficiency of our model. We will discuss how this project handles the modelling of customer and rental objects, and design a GUI that is intuitive, user-friendly and provides a unified platform to both the customers and rental shop owners for easy execution of all rental related processes. We will also investigate the design and implementation of a database system for the project which is used to store all the valuable information related to the rental process so that there is no discrepancy on either side, and analyse the proficiency of our model using some test cases and discuss the outcomes.

5.2 Technical coding and code solutions

For modelling the customer and rental shop objects we have taken help of python classes which provides a very intuitive way to translate real-world objects into computer language. These classes are created with variables and functions which reflect the real-world process of renting.

For customers, details like their name, no. of cylinders rented, from which shop they rented cylinders, rental basis, rental time, and the bill they must pay/ already paid are stored. Just like processes that a customer must go through for renting cylinders in real-life, methods are provided in the customer class to carry out those operations - the Rent Cylinder function which the customer uses to instantiate the rental process with the shop by providing the number of cylinders that they

want, the Return Cylinder function which is also instantiates by the customer when they want to return the cylinders to the appropriate rental shop.

For the rental shops, their name and stock of cylinders are stored. The functions for all diverse types of rental services that the shop provides, is contained in the class. After the customer instantiates the process, it is continued by the rental shops using these functions to successfully carry out and complete the transaction. The return Cylinder function of the rental class calculates and processes the bill which is provided to the respective customer. Both customer and rental classes also contain method Display Details which is used to share the various details stored for the customer and rentals classes to carry out the transaction.

All these methods are presented to the user through an easy-to-use GUI application which is implemented using Python's Tkinter library. The details of the customer and shops are stored in the form of tables in a database system. The database includes two tables each for the customers and shops. It is implemented using Python's sqlite3 library.

5.3 Working Layout of Forms

The application consists of three different forms in the form of panels that are defined in the same application window, but are shown one at a time depending on the state.

On starting the application, a login page is displayed where the user is asked to select if they want to continue as customer or a shop owner and enter their respective details. The details entered in this form are matched with those present in the database, and if matched are retrieved from the database and shown to the user along with some operations that they can perform. This is presented using two different forms depending on whether the user is a customer or rental shop owner.

For the rental shop owners, a rental object is created with the details they entered in the login page representing their shop. A form is displayed containing the details for their shop - name of the shop and total and available stock. The owners can increase or decrease the total stock of their shop. They can enter the amount by which they have to increase their stock and press the accompanying button to make the changes take effect. The rental object as well its entry in the database is updated on

pressing the button. A table is presented which displays the records of customers that have currently rented cylinders from their shop.

For the customers, their details are used to create a corresponding customer and object and a list of all present rental objects are also created whose details are retrieved from the database. All the available rental shops are displayed to the customer in a list box where they can select the shop, they want to rent the cylinders from. The user is also asked to enter the number of cylinders as well as select a rental basis in case they want to rent cylinders from their shop. On renting the cylinders, both the customer and rental object associated with that transaction are updated so that the changes can take effect. The database entries of the respective customer and rental shop are also updated. After renting the cylinders or if the customer already has cylinders in rent, the rent button of this form is disabled and a return button is enabled. The rental details including, number of cylinders, rental basis and time of rent are displayed to the user and they can press the button whenever they want to return the cylinder. On pressing the button, the details are passed to the respective shop object which calculates the bill for the user which is then displayed to the user through the application GUI. After paying the bill the customer and rental shop object, as well as their database records are updated.

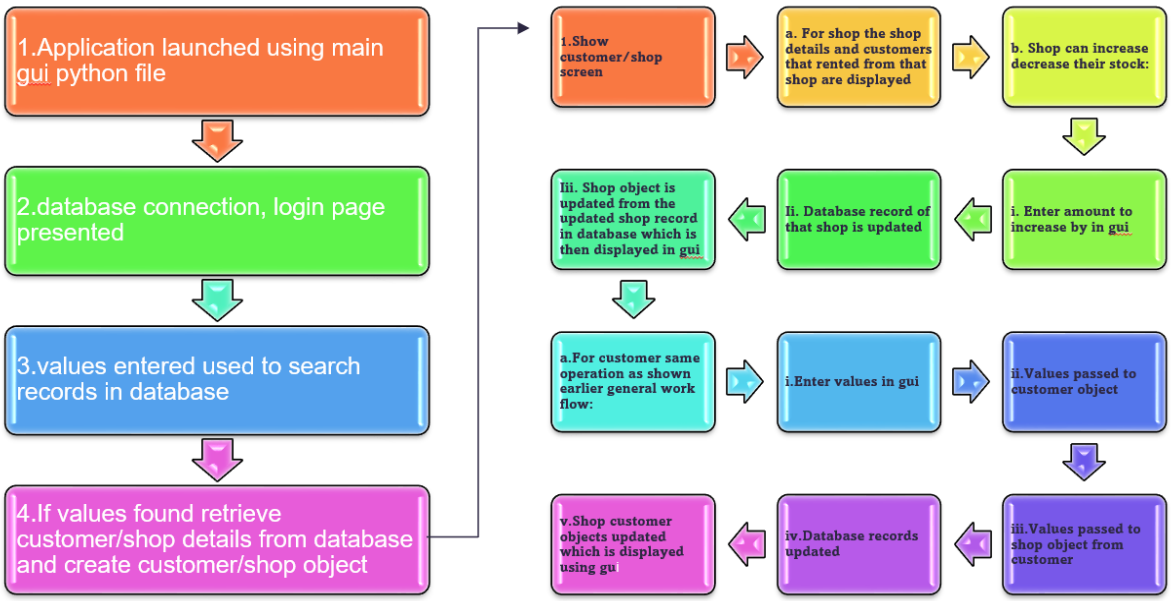
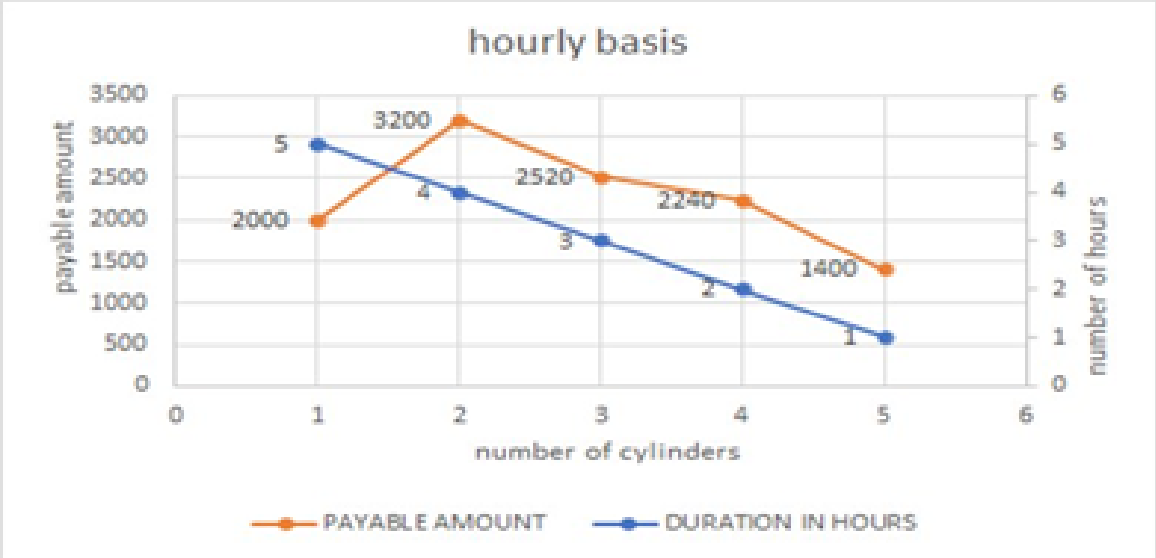


Fig. 2 Module Workflow

5.4 Test and Validation

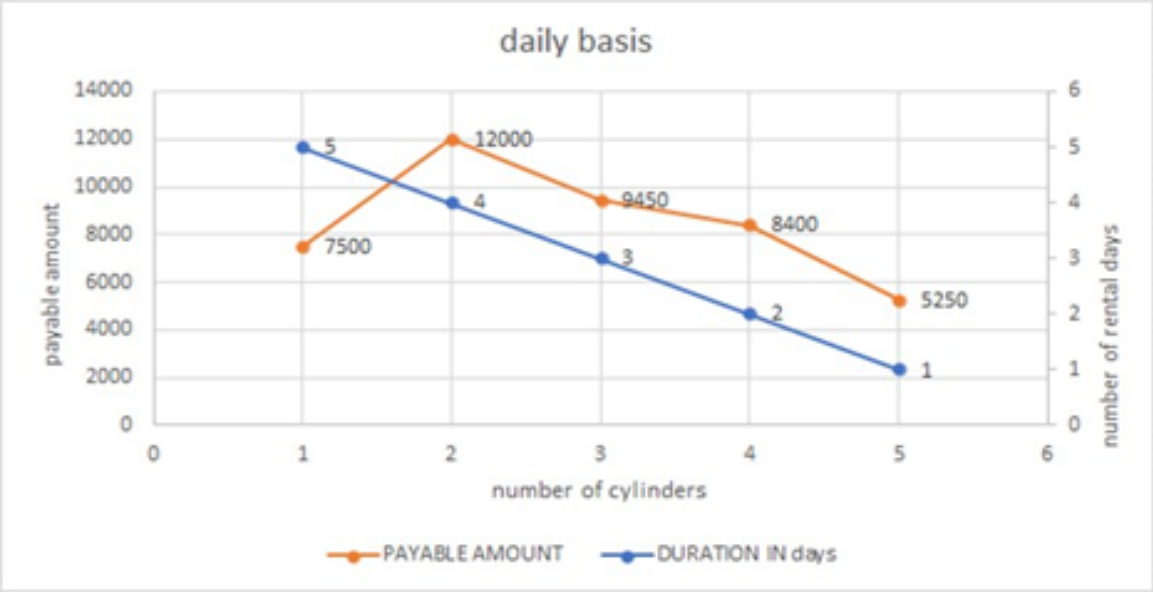
Trial-1 On Hourly Basis:

NUMBER OF CYLINDERS	DURATION IN HOURS	PAYABLE AMOUNT	DISCOUNT OF 70% APPLIED
1	5	2000	
2	4	3200	
3	3	2520	YES
4	2	2240	YES
5	1	1400	YES



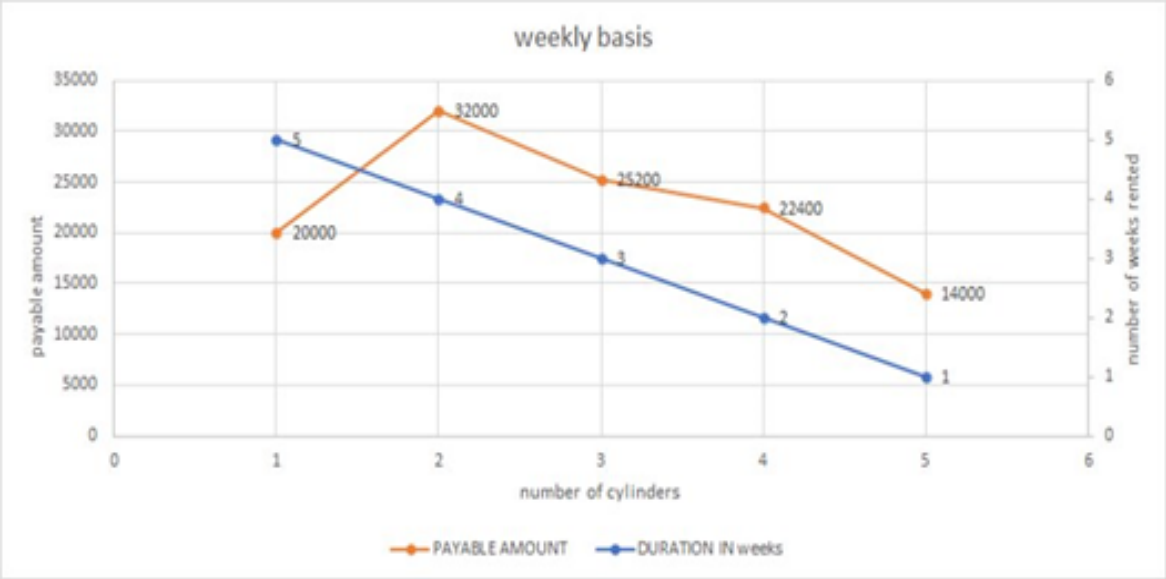
Trial-2 On Daily Basis:

NUMBER OF CYLINDERS	DURATION IN days	PAYABLE AMOUNT	DISCOUNT OF 70% APPLIED
1	5	7500	
2	4	12000	
3	3	9450	YES
4	2	8400	YES
5	1	5250	YES



Trial-3 On Weekly Basis:

NUMBER OF CYLINDERS	DURATION IN weeks	PAYABLE AMOUNT	DISCOUNT OF 70% APPLIED
1	5	20000	
2	4	32000	
3	3	25200	YES
4	2	22400	YES
5	1	14000	YES



5.5 Result Analysis

We took three cases of cylinder renting while plotting a graph and tabular summary , 5 customers rented cylinders with respective quantities of cylinders to be rented for the respective number of hours they wanted for. Bill is generated displaying the total amount to be paid after discount of 70% which can be availed only if the number of cylinders are in the range of 3 to 5 .

The first trail booking was based on hourly basis with the maximum amount paid was of Rs3200.

The second trial was based on a daily basis with the maximum amount paid of Rs 12000.

The third trial was based on a weekly basis with the maximum amount paid was of Rs 32000.

Here it can be concluded that the bill is correctly generated with the specified amount on hourly, daily and weekly basis of renting.

CHAPTER-06

OUTCOME AND APPLICABILITY

6.1 Outline

The chapter deals with the outcomes achieved through this project and the real-world applicability of the developed project. The chapter deals with key implementation outlines of the system, the deadlines by which the main implementations were considered to get over by, the research conduction and the milestones scheduled.

It also highlights the significant project outcomes and the project applicability in the real-world scenario. The benefits provided by this app to the customers, the shops and the targeted social groups are also included in the chapter. Outlining the outcomes expected out of a project always helps in scheduling the criteria at the correct time, it also helps in the overall success of the project by availing for excellent team coordination.

6.2 Key implementation outline of the system

The key implementation outlines of the project were focused by our team as the goals and the goals were as follows:

1. provide an aid to small scale oxygen dealers- though the better off and the rich dealers find many options for trading and doing business the small-scale dealers are left out especially when it comes to purchasing an app this cheaply developed app will help small scale dealers in many purposes by automating the renting and the bill calculation process the budget.
2. develop an app where customers can specify the number of cylinders required- the customers who choose to buy or rent a cylinder from a shop can not only specify the number of

cylinders required but can also specify the criteria of their rental. It could be on a weekly, daily, hourly, or even monthly basis.

3. Avail for multiple requirements of cylinders by the customer- in the times when there is no shortage of oxygen cylinders the customers could even be given a chance to rent multiple cylinders at the same time in case a need arises.
4. Update the stock before renting- the shops have an option to update the stock before the renting starts this updating will help the customers to have a look at the available stock of the cylinders the stock available cannot be changed by a customer and can only be changed by changing the value in the Python code itself, this would provide data security.
5. Update the stock after renting- each time after a customer has rented the cylinder the stock can be automatically updated this is done by updating or editing the value present in the database that works along with the Python code this automatic updating of the available cylinders for the help the other customers to rent from the available stop it also helps the shops as the need of workforce reduces and the need to maintain records of available cylinders also reduces. Black marketing of oxygen cylinders could also be avoided by automatizing the number of available cylinders.
6. Prepare an appropriate bill- based on the criteria of renting and the number of hours for which the cylinders are rented along with the number of cylinders of rental, a bill is calculated appropriately it also automates the process of giving discount if applicable.
7. Develop a database to hold the information about each customer and each shop- since the database exists two hold the values with respect to the shop and the customer customers do not need to enter the information repeatedly, just by logging in by their respective ID and password they can see the status of their oxygen cylinder rental also they can choose to directly rent more cylinders or to return the cylinders and pay the bill.
8. Keep on updating the values in the database after every billing - as mentioned earlier a database with a self-updating mechanism of editing the values is made to work.
9. prepare a GUI so that it is easy to interact with the shop- a graphical user interface helps the customer to easily hire A cylinder. It is also an interactive method where the customers can interact with the shop with the help of a software.
10. The GUI must contain a panel displaying the menu from which a customer can select and the status of the current rental.

6.3 Conduct Research

It was a task to read latest news articles to identify the need of the app, the news articles running in the time of April where India was experiencing a second wave and an acute shortage of oxygen supply the idea of building an app where it is where it becomes easy for customers to rent oxygen cylinders as an idea came to our mind. The pathetic conditions of the hospitalized people, the hospital is running out of oxygen, the associates of patients lining up in a queue to just get oxygen for the survival of their known or loved ones created an enormous sympathy and the need in our minds to work for such people who were facing such difficulty in their lives.

It was important for us to identify the focus groups which came out to be widely divided into two parts first were the small scale dealers were finding it difficult to have manpower as a communicable disease always put an end or at least an obstruction in the path of people traveling, meeting or working together we thought that it was essential to optimize the process of these small scale dealers by developing a cheaply developed app so that its benefits could be used by the small scale dealers. Secondly we have the needy customers what actually on the verge of getting hospitalized or have been recommended to get hospitalized but do not get a bed at any hospital, such people fighting for each and every breath in order to stay alive to carry out the responsibilities in the future were in such a feeble condition that they could not even travel to the oxygen cylinder refilling centres their family members who could travel had even either recovered from the disease or were on the verge of getting infected by the disease as they were queuing up in closely packed lines this was the motivation to work for the project.

6.4 Significant project outcomes

The project aims to provide for an easy-to-use graphical user interface. The wide use of graphical user interface in each technology of daily life has proved to be one of their key important aspects in the development and acceptance of technology all over the globe it clearly indicates that occurred is simply not enough for customers to get attracted that is why a graphical user interface was put in place to not only attract the customers but also to ease out the process of oxygen rental. Database holds information of all customers where only by logging in using ID and password all prior

purchase history is generated customers cannot hide any information about their rental while the bill calculation remains an automated process.

A customer does not need to enter information again as it is already stored in the database. Bill calculation is automatically reducing the need of the workforce. Various criteria for renting cylinders are possible which are hourly, weekly, daily, and even monthly basis.

6.5 Project applicability/real world application

Small scale dealers can make use of the app by logging into the app, keeping an auto updated database, reducing the workforce need, reducing the workforce need for build calculation, customer identification and maintaining records.

The app may help a lot in times of breakout of the communicable disease such as COVID-19 when workforce is less and risk of disease transmission is more in case of direct physical contact.

Customers are benefited by ordering from home by using the app, order multiple cylinders at a time, specify a criterion for renting depending upon their needs and resources where they have an option to choose from hourly or weekly or daily or even monthly basis; it also depends upon the temporary or permanent requirements as directed by a doctor. The app may also help to save time for the customers as they do not have to stand in queues or do not have to travel to oxygen refilling centres.

6.6 Inferences

Thus, it can be concluded that the developed app provides all the necessary facilities needed in an oxygen rental app, the app is in the preliminary phase where a lot of improvement is possible which would not be highlighted in the further chapter. On a basic level it is a phenomenally successful app as it achieves all the objectives which were meant to be satisfied.

CHAPTER-07

CONCLUSION AND RECOMMENDATION

7.1 Outline

The chapter deals with many important topics such as the limitations of the app which we have developed, it also answers many questions such as what are the possibilities of future enhancements in this project. The limitations in a project also pave the way for betterment in the future. We would like to highlight a few points which we consider as limitations of our project and would also like to suggest the future scope of improvement and the betterment of the developed app. The app developed by us deals with the rental of oxygen systems where only two shops can participate in the choice making process of the customer. Furthermore, the graphics design is amazingly simple and has got an exceptionally good scope for development in the future. Eye catchy articles can also be placed in the GUI to make it appear attractive. We also feel that the app can be transformed to an online portal where the stocks of various shops can be centralized such centralization of shop will not only prevent corruption but will also be a better portal to make the available to make the availability of stock displayed everyone who wants to rent making an online portal of the app would also lead to the publicity of the app and increased shops attaching themselves to the portal.

7.2 Limitations/Constraints of the project

The constraints in our project:

1. The number of shops for the customer to choose the cylinder from which are possible at a time are only two number of customers that can access the system at a time is only one though multiple user can access the system in a sequential fashion a simple graphics user

interface has been made to make the app user-friendly which has a lot of scope of development in the future.

2. The delivery system is not a waled in the app it means that there is no facility for home delivery of the same cylinders such apps which are useful in only the times of hardship must avail for a delivery system so that the intended users may get the benefit of using the app and not have to carry the cylinders from the shops to their homes.
3. Because of the non-availability of a proper delivery system in place the popularity of the app may decrease in such a time of tough competition where so many apps have been developed to serve the purpose of oxygen cylinder rental the competitive apps not only provide a forum for the rental of oxygen cylinders they also provide a centralized view of the available beds and medicines in the nearby hospitals, the coverage of such abs it's not only local but also hospitals all over the world participate in such apps .
4. In a developing country like India, where the Internet services are still growing, a country which has a multitude of terrains from mountains to coastal areas from deserts to wetlands from rivers to deltas the availability of Internet off required speed has not been available in all regions. Moreover, the socio-economic prospect of the country that shows growing signs which is a positive indicator is not up to the mark to make every intended social group get the benefits of the app.
5. First, even if the app is user-friendly, the availability of smartphones or other gadgets which may make access to the Internet possible is not available to everyone in the country. Internet service providers are still improving their services and are trying to reach out even the most isolated masses of the country but their projects are still in the process it is a common sight in many places of the country where electricity is not available for a large part of the day, in such scenarios in the non-availability of electricity no gadgets can operate which may make the access to the Internet possible. In times of pandemic when the app can be brought into maximum use people cannot reach out for help to access the app because of the fear of a communicable disease nor can they go to cyber cafes when lockdown is imposed in the country in such a scenario and Internet based portal or an application that needs to be downloaded cannot prove to be a success.
6. Real time editing which is multiple users updating the database at the same time has still not been availed in the application.

7. With the possibility of real time editing of the database at multiple locations the popularity of the application could be enhanced. As of the current scenario no real time editing of multiple users is possible in an online portal such as that of IRCTC or many other online portals used for reservations such limitations have been removed, we expect to see the same changes soon.

7.3 Future Enhancements

We see every constraint or limitation in the project as a possibility of future enhancement it is a scope of development which we would like to highlight as follows calling

Real time access by multiple users can be made possible, along with the availability of oxygen cylinders and the availability of medicines and beds. We also made possible in the app by combining various databases a user-friendly online portal can be developed which can be advertised to help in the success of the app. Pharma companies can take the sponsorship of the app.

7.4 Inference

We conclude that the app which is a particularly good forum for oxygen cylinder rental system which makes displaying the availability of stock easy for the users it is a particularly good platform for small scale owners to centralise the process of the rental system which may help immensely in the time of pandemic with the requirement of the product.

Some of the limitations highlighted above may come to a better solution in the future by enhancing the app. It can also be concluded that the app which involves the simultaneous execution of a database, graphics user interface and a Python code can be easily run-on feasible machines, thereby reducing the complications and the efforts required in the oxygen cylinder rental system.

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