

PROJECT REPORT ON

“Digital Payments Book”

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1. INTRODUCTION

1.1 Overview:

The world is digitalizing and every firm in every industry is looking for a digital alternative for their needs. For a retailer shop which is not as big as super markets, maintaining modern systems for billing and storage the purchases log is a burden and they need a better low cost alternative way to track their customers, their payments etc.

This is where our application “DIGITAL PAYMENTS BOOK” comes in. It helps a retailer to maintain his/her customers, view their pending payments and can send alerts to the users having dues for longer period of time. The users are the customers of the store and they can login into the application using their credentials and they can view their purchase history and pending payments.

I think now you got an idea on the project and you think it is more beneficial for the retailer i.e. beneficial in the sense the scope of the project is more towards the retailer and user is given less number of functionalities. Then your assumption is wrong, our “Digital Payments Book” tracks the monthly expenses of the customers spent at that store. Tracking one's expenses has become a part and parcel of everyone's life and digitizing it is very much useful.

1.2 Purpose :

The whole purpose of this application is to track the customers of a store through a software application. So what actually is the need of it and what it means actually. The whole point of running a business is to gain profit. A business personnel must have a track of all of his customers and the profits he gets through them in order to compare it with his cost of business and to check if the business is running safe or not.

For the same purpose a store owner must have all his customers at a single platform to maintain all of their purchase logs and to track their dues. A user i.e. a customer of that particular store wishes to buy in that store as every purchase is digitally entered and he himself can view the purchase history and compare it with his actual purchases which allow transparency. The application even helps the users to track their expenses. Well, is this the whole purpose? No, just imagine a festival is coming in a few days and all the stores over there kept their stock that goes well in that festive season. Our retailer who maintains the “Digital Payments Book” app can announce the arrival of stock, any discount running on them, anything regarding the products as an announcement in the application. The users get attracted and the sales of that store increases thus we can expect heavy returns. Generating a lump sum amount of revenue is and will be the whole purpose of any business and it is achieved here.

2. LITERATURE SURVEY

2.1 Existing Problem:

Once a problem is noticed several developers come up with several solutions and every solution is good in its own way. But, considered a purpose, there will be some loop holes in every project that need to be corrected and the existing system need to be modified in terms of schema or the functionalities or anything which causes the problem.

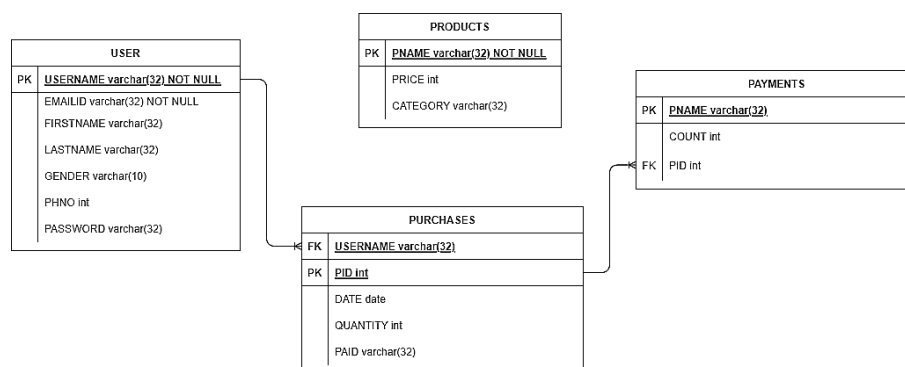
The following problems are identified in earlier versions of solutions

1. Admin cannot have a right on users accounts.
2. A purchase can only include one product.
3. Even though a purchase can include multiple products, a purchase cannot be entered if the product is not present in the products list.
4. Users expense tracking is absent.
5. Products are not categorized.
6. Products cannot be modified easily
7. Easy removal of pending payments is not possible after clearing them.

2.2 Proposed Solution:

A 4 table schema (USER, PRODUCTS, PURCHASES, PAYMENTS) is used.

User table stores the User data. Product table stores the product data. Purchases table stores records of purchases with an invoice number. All the products purchased are entered into payments table as product name, no of items, invoice number. If multiple products get purchased in a single purchase, all those records will contain the same invoice number.



We try to explain the proposed solution as a set of points that solve the problems mentioned above.

1. Admin can view his users and delete the users if he want, he can track their payment history and pending payments

2. A purchase can include any number of items any number of times. The price is calculated using the data we already have.

3. We need not worry on wrong product name entry as it is not specified as a foreign key, because the product name can only be selected from the drop down containing existing products. The use of not specifying product name as foreign key is discussed below.

Imagine if a product is a new stock and still the product details are not entered into the database but in the meanwhile, a purchase is made. That purchase should not be avoided as every record is important. So we include a special purchase entry where admin can enter the purchase description as new product name or whatever and can enter the purchase by providing necessary inputs like total quantity, price.

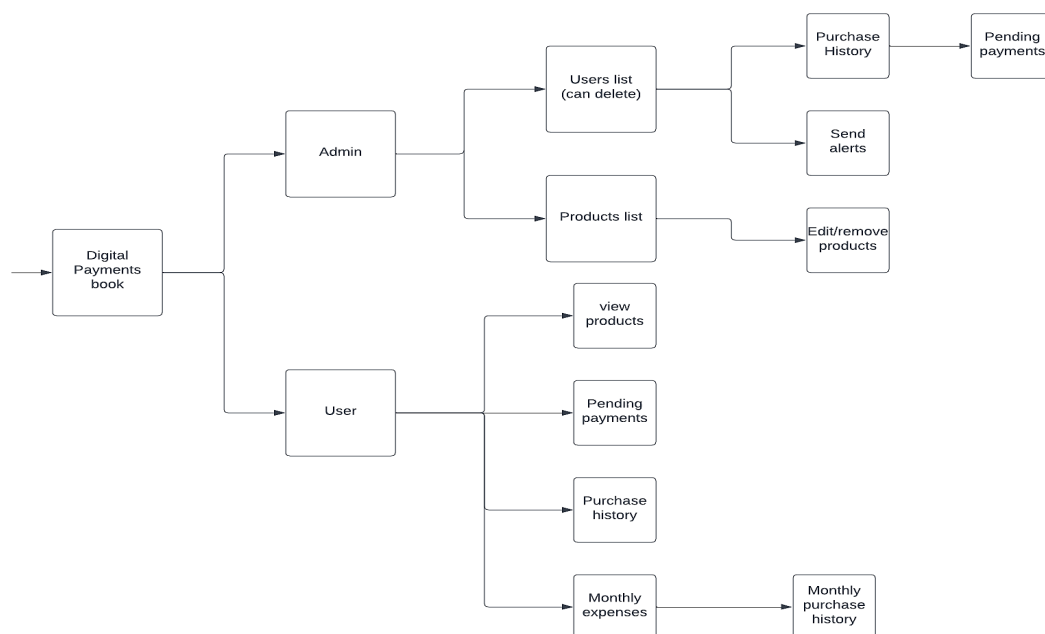
4. We track the expenses of users on a monthly basis and user can track his expense and purchase history over a particular month in a particular year.

5. We provide an edit option at the display of products to the admin and he can easily change the details regarding the product such as price as they are dynamic in nature.

6. Pending payments cannot be removed easily after clearing them if there are more number of pending payments. So we include invoice number in the alerts sent and we can remove them simply by searching the records on the basis of that number. Searching is available across data.

3. THEORITICAL ANALYSIS :

3.1 BLOCK DIAGRAM :



- Only major functionalities are specified in the block diagram.
- Overall functionality includes many more use cases.

3.2 HARDWARE/SOFTWARE REQUIREMENTS:

HARDWARE:

This web application doesn't need any extra hardware components in addition to the default version. The basic computer components are enough to make a good use of this application. This is a software project.

SOFTWARE:

We talk about the software components in detail. We categorize them based on their usage and we describe the stack we used

FRONT END : Front end is nothing but designing user interface of the application.

TECH STACK : Html, CSS, Javascript, Bootstrap

BACK END: Back end is designing the overall logic behind the workflow of the project. It is a place where all the use case functionalities were written

TECH STACK : Python Flask

DATABASE: Database is a place where we store the required data in the tabular format by forming some schemas based on Relational Database Management System (RDBMS). Whenever the storage platform is a cloud platform. We call it as a cloud database. We are using cloud database in this project

TECH STACK: IBM DB2

DEPLOYMENT : Our project is deployed in pod format. We create a container image which contains all the requirements of our project and we push that image into a pod.

We use OpenShift to deploy our application. But if the pod is not responding or some error occurs. We use Heroku.

TECH STACK : Docker, OpenShift dedicated or Heroku

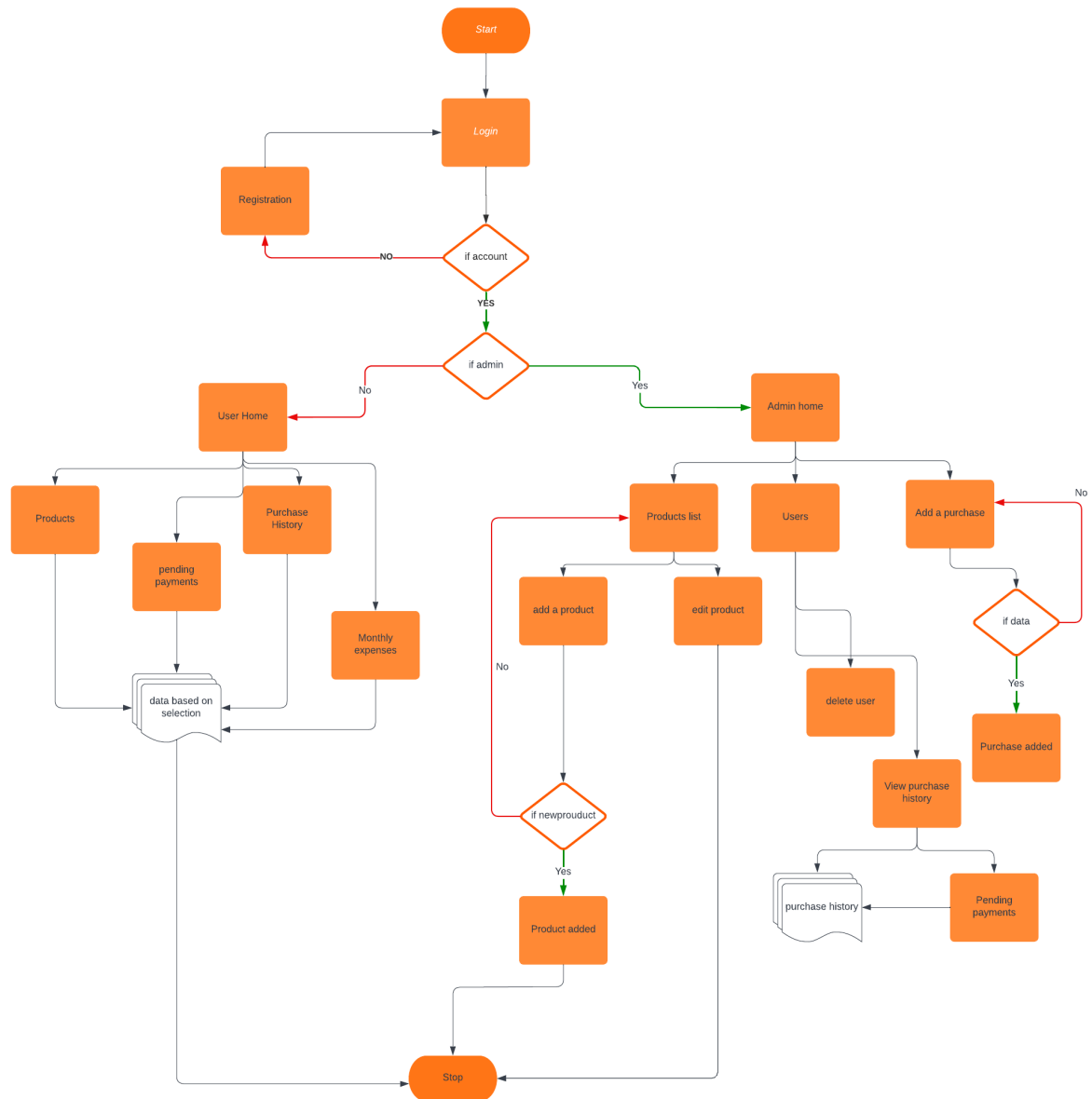
4. EXPERIMENTAL INVESTIGATIONS

We made a survey at the local store owners regarding digitalization of their purchase logs. As the world is evolving, everyone is getting updated. We can witness the phenomenal increase in UPI payments in India in the last 2-3 years. Even street and roadside vendors are adopting it to survive in the market.

The whole point of this discussion is, everyone is now aware of computers and they can operate it with ease if we provide a user-friendly interface. So in this modern era, the need for digital payments is very much higher as many stores cannot record their purchase logs. Even if they record in a book, it may get lost after some period of time. So a well-structured format is required by the store owners to maintain purchase logs of their customers. We even referred some internet sources across the web to actually decide the price of the products that match with the real life. Many store owners are glad if we can provide them a good easy-to-maintain system to track their users' purchases, pending payments

etc.,Our “Digital Payments Book” satisfies every single need of the store owners.

5. FLOWCHART:



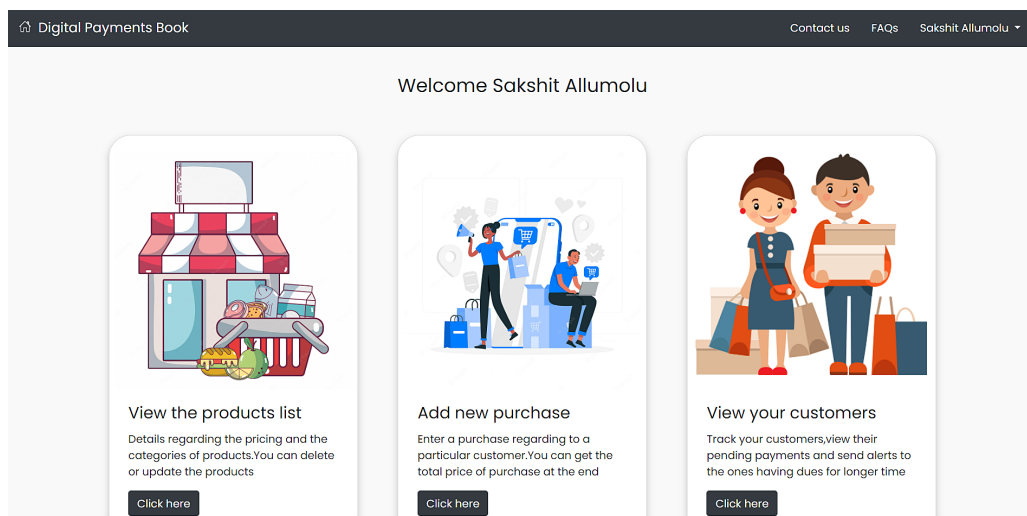
6. RESULT :

The outcomes of both user and admin are shown along with screenshots.

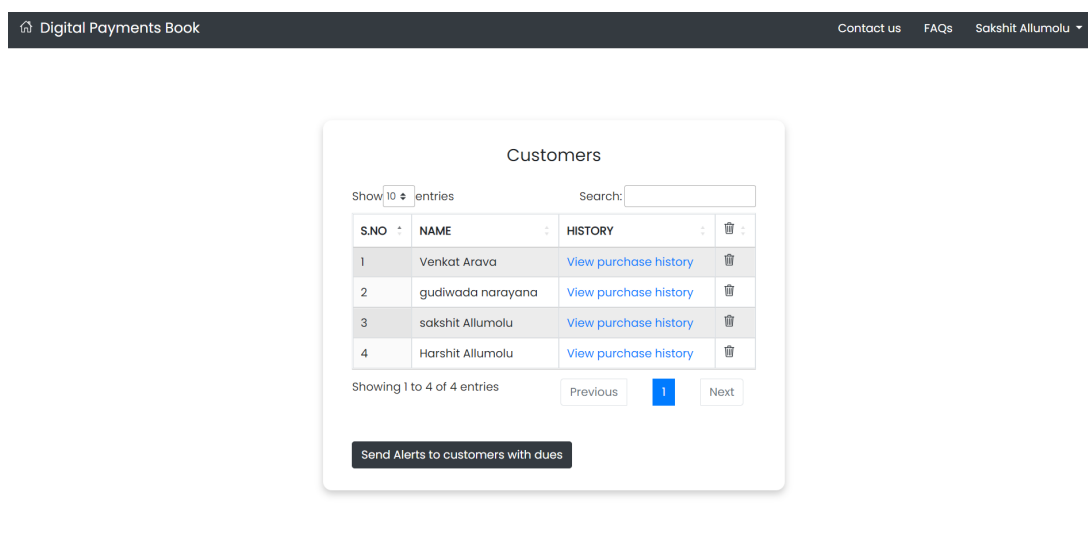
Much more pages are present such as login,signup,profile,reset password etc.,But only the home page and outcomes are shown.

ADMIN:

- Admin Homepage



- Admin viewing his customers, can send alerts to the users with dues



- Admin entering a purchase

Digital Payments Book
Contact us
FAQs
Sakshit Allumolu

Enter Purchase Details

Username *

Sakshit319

Product *

Sakshit319

No of items *

chandini

harshit

narayana

venkat_7

Add other product

Finish Purchase

Add special purchase

- Multiple entries in a purchase

Digital Payments Book
Contact us
FAQs
Sakshit Allumolu

S.NO	PRODUCTS	NO. OF ITEMS	TOTAL PRICE
1	Cashew 1kg	2	1600

Enter Purchase Details

Username *

Sakshit319

Product name *

Choose...

No of items *

Enter quantity

Add other product

Finish Purchase

- Finish Purchase

Enter Purchase Details

Username *

Sakshit319

Product name *

Ariel 1kg

No of items *

2

Add other product

Finish Purchase

Paid

no

Purchase Date

16-10-2022

Submit

- Adding Special purchase

Digital Payments Book
Contact us
FAQs
Sakshit Allumolu

Enter Special Purchase

Username *
Sakshit319
Purchase name *
Enter product name

No of Items *
Enter quantity
Total Price *
Enter Price per unit

Paid *
yes
Purchase Date *
16-10-2022

Submit

- Admin viewing purchase history(Total cost is displayed after purchase entry)

Digital Payments Book
Contact us
FAQs
Sakshit Allumolu

Purchase added successfully,Total price=1900

Purchase History of Sakshit319

Show 10 entries
Search:

ID	DATE	PRODUCTS	NO. OF ITEMS	TOTAL PRICE	PAID
152	2022-10-15	Ariel 1kg*2, Badam 1kg*1	3	1200.0	yes
153	2022-10-15	pens*4	4	40.0	yes
155	2022-10-15	Ariel 1kg*2, lux 100gm*2	4	376.0	yes
156	2022-10-15	pencils*4	4	20.0	yes
160	2022-10-16	Cashew 1kg*2, Ariel 1kg*2	4	1900.0	no

Showing 1 to 5 of 5 entries
Previous
1
Next

- Admin Viewing Pending payments

Digital Payments Book
Contact us
FAQs
Sakshit Allumolu

Pending Payments of Sakshit319

Show 10 entries
Search:

ID	DATE	PRODUCTS	NO. OF ITEMS	TOTAL PRICE	Remove if paid
160	2022-10-16	Cashew 1kg*2, Ariel 1kg*2	4	1900.0	

Showing 1 to 1 of 1 entries
Previous
1
Next

- Admin viewing products

Digital Payments Book

Contact usFAQsSakshit Allumolu

List of products

Show 10 entries

Search:

S.NO	PRODUCT	PRICE	CATEGORY		
1	Sugar 1kg	45	food		
2	salt 1kg	40	food		
3	chilli powder 250g	30	food		
4	Cinthal 100gm	37	soap		
5	Santoor 100gm	40	soap		
6	Margo 100gm	37	Soap		
7	colgate 100gm	50	toothpaste		
8	fogg 150ml	275	perfume		
9	ponds 400gm	80	talcumpowder		
10	Jaggery 1kg	60	food		

Showing 1 to 10 of 53 entries

Prev

1

2

3

4

5

6

Next

- Admin adding a product

9

ponds 400gm

80

talcumpowder

10

Jaggery 1kg

60

food

Showing 1 to 10 of 53 entries

Prev

1

2

3

4

5

6

Next

Add new Product

Enter Product Details

Product name*

Enter product name

Price per unit*

Enter Price per unit

Category*

Enter Category of product

Submit

USER:

- User Homepage

Digital Payments Book

Contact usFAQsChandini Undavalli

Logged in successfully

Welcome Chandini Undavalli

View the products list

Look at the wide range of products we sale and get a view on the pricing and the categories of products.

[Click here](#)

Pending payments

Track your dues here, Clear the dues before 1 month from the purchase date to avoid alerts from our side.

[Click here](#)

View purchase history

You can track your total purchases here. It helps in tracking your expenses that you have spent at our store.

[Click here](#)

- User viewing products

Digital Payments Book

Contact us FAQs Chandini Undavalli

List of products

Show 10 entries

Search:

S.NO	PRODUCT	PRICE	CATEGORY
1	Sugar 1kg	45	food
2	salt 1kg	40	food
3	chilli powder 250g	30	food
4	Cinthal 100gm	37	soap
5	Santoor 100gm	40	soap
6	Margo 100gm	37	Soap
7	colgate 100gm	50	toothpaste
8	fogg 150ml	275	perfume
9	ponds 400gm	80	talcumpowder
10	Jaggery 1kg	60	food

Showing 1 to 10 of 53 entries

Previous

1

2

3

4

5

6

Next

- User viewing purchase history

Digital Payments Book

Contact us FAQs Chandini Undavalli

Purchase History

Show 10 entries

Search:

ID	DATE	PRODUCTS	NO. OF ITEMS	TOTAL PRICE	PAID
161	2022-10-16	Parle g 150gm*4	4	200.0	yes
162	2022-09-15	Ariel 1kg*2	2	300.0	yes

Showing 1 to 2 of 2 entries

Previous

1

Next

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- User viewing pending payments(displays same as history if exists)

Digital Payments Book

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No Pending payments to show

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- User viewing monthly expenses

Digital Payments Book

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Monthly expenses

Show 10 entries Search:

S.NO	YEAR	MONTH	NO OF ITEMS	EXPENDITURE	HISTORY
1	2022	Sept	2	300.0	View purchase history
2	2022	Oct	4	200.0	View purchase history

Showing 1 to 2 of 2 entries

Previous 1 Next

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- User contacting admin

Digital Payments Book

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Contact us

Feel free to contact us for any query

Email ID * Username *

chandiniundavalli@gm chandini

First name * Last name *

Chandini Undavalli

Subject *

Specify the issue in a line

Message *

Enter your query

Submit

- User view month wise purchase history

Digital Payments Book

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[Chandini Undavalli](#)

Purchase history of Oct,2022

Show 10 entries Search:

ID	DATE	PRODUCTS	NO. OF ITEMS	TOTAL PRICE	PAID
161	2022-10-16	Parle g 150gm*4	4	200.0	yes

Showing 1 to 1 of 1 entries

Previous 1 Next

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7. ADVANTAGES AND DISADVANTAGES

ADVANTAGES:

1. USER FRIENDLY INTERFACE:

Digital Payments Book is designed with a simple user interface to allow users to work with ease. With a simple glance at the software, users can understand how to use it. No formal training is required for the employees as the software can be installed and operated without technical knowledge.

2. SECURE:

Digital payments Book provides a safe and secure medium to save your data. The billing application uses cloud-based servers to store the information. Data safety is taken utmost care of by saving it on anonymous servers. Even when a user loses the device, the data can be restored on any new device by using the same login credentials

3. LOW COST:

Maintenance of Digital Payments book doesn't cost you much. You just need to have a cloud database plan in IBM DB2 which is available at reasonable prices. Hosting can be done through almost free of cost hosting websites as the data is less

4. FAST:

You can enter the records into this application with ease by simply selecting the options present over there without any effort. You can do it anytime anywhere even when you are sitting in your lawn having a cup of coffee

DISADVANTAGES:

1. CONFINED TO SINGLE STORE:

This is the only disadvantage for our "Digital Payments Book". But with some changes in the schema, we can extend this application to multiple stores.

8. APPLICATIONS:

- It can be used in the small scale stores. Any kind of store like grocery, electricals, electronics everything.
- It can be used in restaurants which cannot afford high range software. Technology is everybody's thing, we are serving the tech to the needy.
- In spite of the stereotype store, any individual who sell their homemade products or any other products without any store can make use of this application and can maintain the records of their customers, their sales and the profit they get from that business.

9. CONCLUSION:

So,as everyone has a right to run their business effectively by adopting to the emerging technology,we help them by our “Digital Payments Book” application as one cannot build it by their own.We help the retailers to maintain the records of their customers,the purchases made by them and overall profit they get.We help the users by showing them their purchase history thus ensuring transparency.

Many customers in a store may have dues so that the retailer may not remember everyone and if the pending log is missed,then it results in a huge loss to the retailer.By using “Digital Payments Book” one can maintain every single entry of data without loss thus ensuring a safe business.

Coming to user,any user will have a common store to buy the goods.If it is a grocery shop,all the grocery expenses may be almost from that store alone.So,if they have a record of expense they spent at the store,they can get the grocery expense value for a particular month.Maintaining record of expenses is a necessary thing in every middle class family and our “Digital Payments Book” makes it easier and efficient.

In this way,the application is two way beneficial,both for the user and the retailer.”Digital Payments Book” is a quick,easy,low cost,robust method of storing the purchase logs of customers of a particular retail store.

10. FUTURE SCOPE:

We can extend this application for larger number of stores i.e imagine a retail store is present in an area and his son migrated to another place for livelihood and he setup a store over there.Now these 2 shops can be like a chain of stores and they can maintain their own customers and their own purchase logs.This can be done by correct modification of schema and we can build it in the future.

11. BIBILIOGRAPHY :

REFERENCES:

<https://www.techwithtim.net/>
<https://getbootstrap.com/>
<https://smartinternz.com/>
<https://www.ibm.com/academic/>

APPENDIX:

SOURCE CODE:

Github: https://github.com/SakshitAllumolu/Digital_Payments_Book