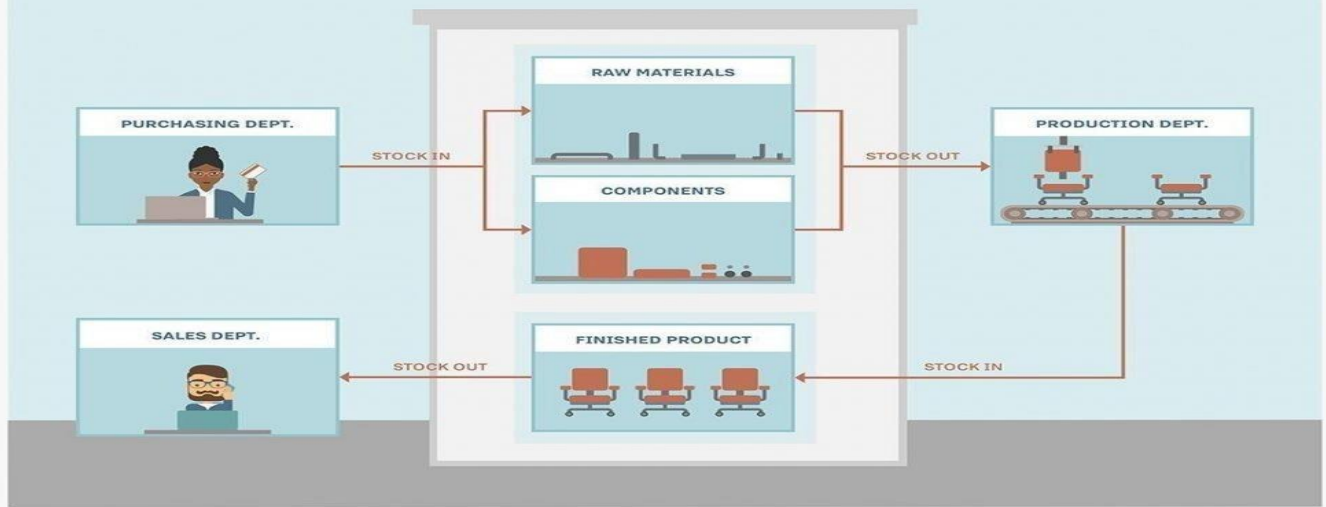## INTRODUCTION

Telecommunication companies need an effective and accurate inventory or catalogue system, to be able to assure that their business keeps on running non-stop. Catalogue systems process the usage of network equipment that is used during the service usage into a single Call Detail Record (CDR). This process involves receiving records of the products from the admin, aggregating these records periodically to generate invoices, sending invoices to be stored, and collecting payments received from the customer. An invoice or bill is an important stored or written log that indicates the details about a specific product to be stored or to be supplied to by one business to another business or consumer. It contains information about the particular information about a particular product, such as the brand, model, quantity, address of warehouse and cost.

OBJECTIVE OF THE PROJECT

Invoicing system is very complex starting from network elements that generate usage to the billing system to usage collection and invoicing. To simplify the process, I will introduce a simple system usage scenario as shown in the following figure. The system user navigates through the company log and views the product services, and he can check out the product's details. He has to login through the authorized credentials. Then the user is given options to enter a log, retrieve one or retrieve all, delete a log and to edit a log. The service may be prepaid where he or the organization has to pay to have credits to use the service, or it may be post-paid, where he has to pay if the service has installation or setup fees, and later on he will pay for his usage of each log cycle.
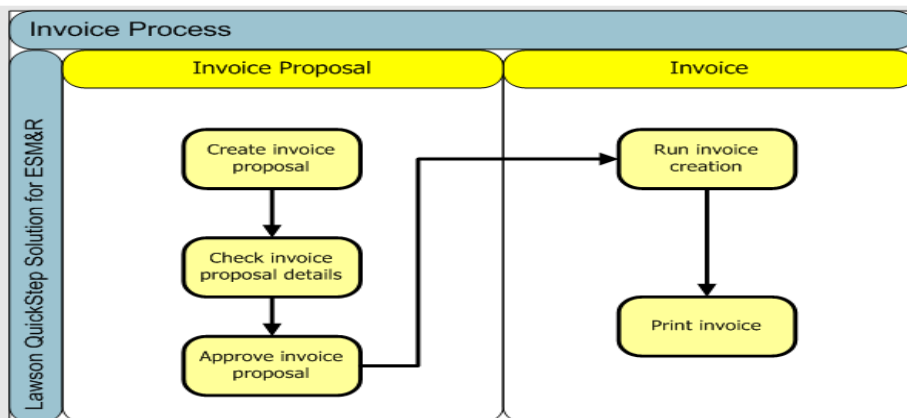
The billing system should provide service to the user, collect user usage records, and generate invoices of each credit expire, each billing cycle depends on the billing type, collect payments and adjust customers' balances as in the following figure:

PROPOSED SYSTEM

Since the advent of the computer era, people and businesses have found it easier to rely on electronic invoicing as an alternative to paper documents. Electronic invoicing, or e-invoicing, is a form of electronic invoicing to generate, store and monitor transaction-related documents between parties and ensure the terms of their agreements are fulfilled.

These e-documents may include invoices and receipts, purchase orders, debit and credit notes, payment terms and instructions, and remittance slips. Digital invoices are normally sent via email, web page or app E-invoicing includes several technologies and entry options and is used as a general term to describe any method by which an invoice is electronically presented to a customer for payment. Several e-invoicing standards, such as EDIFACT and UBL, have been developed around to world to facilitate adaption and Efficiency.

PACKAGE/MODULE USED IN THE PROJECT

MySQL Connector - enables Python programs to access MySQL databases, using an API that is compliant with the Python Database API Specification v2.0(PEP 249).

SYSTEM REQUIRMENTS

Hardware Requirement:

Components	Requirements
Processor	Intel® or AMD processor with 64-bit support;
RAM	2GB
Hard Disk	~500MB
Keyboard and Mouse	Required
Monitor Resolution	Minimum 1280 x 800 display

Software Requirement:

- Operating system: Windows 10 or later
- Python 3.8 or later versions
- MySQL 8.0 or later versions

EXECUTION AND OUTPUT

- **Authentication**

```
enter username: adithyaa
enter password: ace
  -----------      PRODUCT CATALOGUE   -----------

1:ENTER PRODUCT DETAILS

2:RETRIEVE ONE PRODUCT DETAIL

3:RETRIEVE ALL PRODUCT DETAILS

4:REMOVE PRODUCT DETAILS

5:EDIT PRODUCT DETAILS

Enter your choice:
```

- **Entering data**

```
-----------    PRODUCT CATALOGUE   -----------

1:ENTER PRODUCT DETAILS

2:RETRIEVE ONE PRODUCT DETAIL

3:RETRIEVE ALL PRODUCT DETAILS

4:REMOVE PRODUCT DETAILS

5:EDIT PRODUCT DETAILS

Enter your choice: 1
Enter the brand name= Nokia
Enter the model name= G01
Enter the product code= 5601
Enter the qty number= 100
Enter the address of storage= Warehouse 14C
Enter the price= 26000
The record has been added
Would you like to continue (y/n):
```

- **Retrieving one data**

```
1:ENTER PRODUCT DETAILS

2:RETRIEVE ONE PRODUCT DETAIL

3:RETRIEVE ALL PRODUCT DETAILS

4:REMOVE PRODUCT DETAILS

5:EDIT PRODUCT DETAILS

Enter your choice: 2
Enter the product code : 5601
Brand Name: Nokia
Model : G01
Product Code: 5601
Qty Number: 100
Storage Address: Warehouse 14C
Price: 26000
Would you like to continue (y/n):
```

- **<u>Retrieving all data</u>**

```
1:ENTER PRODUCT DETAILS

2:RETRIEVE ONE PRODUCT DETAIL

3:RETRIEVE ALL PRODUCT DETAILS

4:REMOVE PRODUCT DETAILS

5:EDIT PRODUCT DETAILS

Enter your choice: 3
[('Samsung', 'S22', 13, 10, 'warehouse 4C', 125000), ('Apple', 'Iphone 14', 8, 200, 'warehouse 6A', 100000), ('Nokia', 'G01', 5601, 100, 'Warehouse 14C', 26000)]
Would you like to continue (y/n):
```

- **<u>Removing data</u>**

```
1:ENTER PRODUCT DETAILS

2:RETRIEVE ONE PRODUCT DETAIL

3:RETRIEVE ALL PRODUCT DETAILS

4:REMOVE PRODUCT DETAILS

5:EDIT PRODUCT DETAILS

Enter your choice: 4
Enter the product code: 5601
The following record has been removed
Would you like to continue (y/n):
```

- **Editing data**

```
1:ENTER PRODUCT DETAILS

2:RETRIEVE ONE PRODUCT DETAIL

3:RETRIEVE ALL PRODUCT DETAILS

4:REMOVE PRODUCT DETAILS

5:EDIT PRODUCT DETAILS

Enter your choice: 5
Enter the product code: 13
1-brand,2-model,4-qty,5-address,6-price
Which value would you like to change: 4
Enter the new qty number: 150
Records have been updated
Would you like to continue (y/n):
```

- **SQL Table data**

```
 MySQL 8.0 Command Line Client
Enter password: ******
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 166
Server version: 8.0.30 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use new
Database changed
mysql> select *from gadgets_log;
+---------+---------------+------+------+--------------+--------+
| brand   | model         | code | qty  | address      | price  |
+---------+---------------+------+------+--------------+--------+
| Samsung | S22           |   13 |  150 | warehouse 4C | 125000 |
| Apple   | Iphone 14 Pro |    8 |  200 | warehouse 6A | 100000 |
| Oneplus | 7T            |   23 |  125 | warehouse 8A |  49999 |
| Realme  | 10T           |   45 |  400 | warehouse 5D |  20000 |
| Oppo    | A13           |   98 |  160 | warehouse 7C |  25000 |
+---------+---------------+------+------+--------------+--------+
5 rows in set (0.00 sec)

mysql> _
```

BENEFITS USING THE SOFTWARE

- **_Secure, Fast, and Simple_**

  By using this catalogue solution, you will reduce your complexity of the entire inventory process, resulting in improving productivity. It provides a chance for the business owners to streamline the payment process.

- **Cost and Time Saving**

  If you generating invoice receipts for the products, any digital solution is recommended. If you generating manual receipts and managing unpaid bills it can take a lot of time and money. You reduce it by implementing an ideal retail solution. It can help you to manage the entire payment processes so that you can save huge time and money.

- **Customized Log**

  The feature of a customizable challan receipt that helps to you to create invoices in Excel, Google Docs, Word, PDF, and more. You can also send a customizable invoice to the customers or clients on their mail id.

- **Work Offline/Online**

  Online invoicing software has been built, keeping shop requirements in mind as you can do various business activities, even if you lose your internet connection. It automatically syncs data when you get back online.

- **Invoicing Reports**

  With this solution, you will be able to store invoice/bill reports through the cloud storage and access them anytime and anywhere. It is also allowed to access the records based on day, week, month, and year.

- **Establish Brand Identity**

  Customer satisfaction is paramount to making a business successful. By providing your customers with a tremendous experience, you can establish your brand identity in this competitive market.

- **Multi-Store Chains Management**

  All the main retailers and companies of different domains depend upon this solution to monitor their store-chains remotely. Small and medium-sized retailers having multiple stores can use this software to monitor whole activities running in their stores.

- **Increase Customer Engagement**

  All business owners have a desire to grow new customers. And it can often with the help of billing software. This billing software solution allows you to interact with the customers and provide the services that they expect from you.

ENHANCEMENTS:

- Adding Inventory Management System feature

- Improving The User Interface

- Including viewing and printing invoice real-time feature

- Making the software to prepare detail report on sales

- Including discounting feature to the software

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