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“JNANA SANGAMA”, BELAGAVI - 590 018



A MINI PROJECT REPORT  
on  
“BROADBAND BILLING SYSTEM”

*Submitted by*

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*In partial fulfillment of the requirements for the V semester*

DBMS LABORATORY WITH MINI PROJECT  
of  
BACHELOR OF ENGINEERING  
in  
INFORMATION SCIENCE & ENGINEERING

*Under the Guidance of*

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at



**SAHYADRI**

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2021 - 22

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**CERTIFICATE**

This is to certify that the **Mini Project** entitled “**Broadband Billing System**” has been carried out by **Shrikanth (4SF19IS099)** and **Srivatsa Nayak (4SF19IS106)**, the bonafide students of Sahyadri College of Engineering & Management in partial fulfillment of the requirements for the V semester **DBMS Laboratory with Mini Project (18CSL58)** of **Bachelor of Engineering in Information Science & Engineering** of Visvesvaraya Technological University, Belagavi during the year 2021 - 22. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The mini project report has been approved as it satisfies the academic requirements in respect of mini project work.

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**DECLARATION**

We hereby declare that the entire work embodied in this Mini Project Report titled **“Broadband Billing System”** has been carried out by us at Sahyadri College of Engineering and Management, Mangaluru under the supervision of **Mr. Ganaraj K** as the part of the V semester **DBMS Laboratory with Mini Project (18CSL58)** of **Bachelor of Engineering in Information Science & Engineering**. This report has not been submitted to this or any other University.

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# Abstract

As the name suggests, broadband internet service is the wide bandwidth data transmission that transports various signals and traffic types. Thus, broadband internet service is a widely used form of internet access due to its high access speed. The broadband once installed, the connection is always on and the connection is maintained with the use of the some modem. The multiple devices can be accessed with this broadband service. All the daily official or internet work becomes easier and faster due to this broadband. But this scenario worsens, when the customer forgets to pay the bill on time or the deadline is near.

# Acknowledgement

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# Chapter 1

## Introduction

In this digital era, where everything is available online, the internet is one of the most crucial parts of peoples lives. Especially since all are locked in the home due to the global pandemic, the internet has become more important than ever before. Therefore, it becomes absolutely necessary that broadband bills have to be paid on time, so that customer doesn't face any inconvenience with the internet.

Broadband is high speed internet connection enabled through different mediums. Broadband bill payment can be easily done online in an instant. Online broadband bill payment ensures instant bill payment and uninterrupted internet services.

### 1.1 Purpose

Paying bills every month can be quite hectic at times, especially when customer is running short of time or are busy with umpteen other things. Sometimes customer might even end up paying a late fee due to a missed deadline and now the customer simply can't pay it as the bill payment office is closed. Hence, online bill payments come as a big relief! and broadband bill payment is definitely not an exception.



## 1.2 Scope

Now there is no need to stand in the long queue to pay their broadband bills for hours. Whether it be online classes, work-from-home, or just entertainment purposes, having uninterrupted internet is a must. To keep that going, people need to pay the broadband bills on time. This can be done easily on any of the online payment platforms.

## 1.3 Overview

The main objective of the mini-project is to propose and develop broadband billing system for use by Internet service providers to charge Internet users according to their network usage. Generally, if the user is ready to pay, the admin will issue the bill based on the plan chosen by the customer. This system will allow customer to select best plans. Admin can add new plans, edit current plans. Customer can give any number of feedback based on the service received.

# Chapter 2

## Requirements Specification

### 2.1 Hardware Specification

- Processor :Intel(R) Core(TM) i5-5200U CPU @ 2.20GHz, 2201 Mhz
- RAM : 8GB
- Hard Disk : 1TB
- Input Device : Standard keyboard and Mouse
- Output Device : Monitor

### 2.2 Software Specification

- Database : MySQL 5.6.17
- Markup Language : HTML 5
- Scripting Language: PHP 5.1.1
- IDE :Visual Studio Code 1.63.2

# Chapter 3

## System Design

### 3.1 ER Diagram

ER Model is used to model the logical view of the system from data perspective. In this, ER Diagram consist of 6 entities namely, Customer, Account, Plans, Feedback, Bill and Admin. The entities with their attributes and relation between the entities are as shown in Figure 3.1.

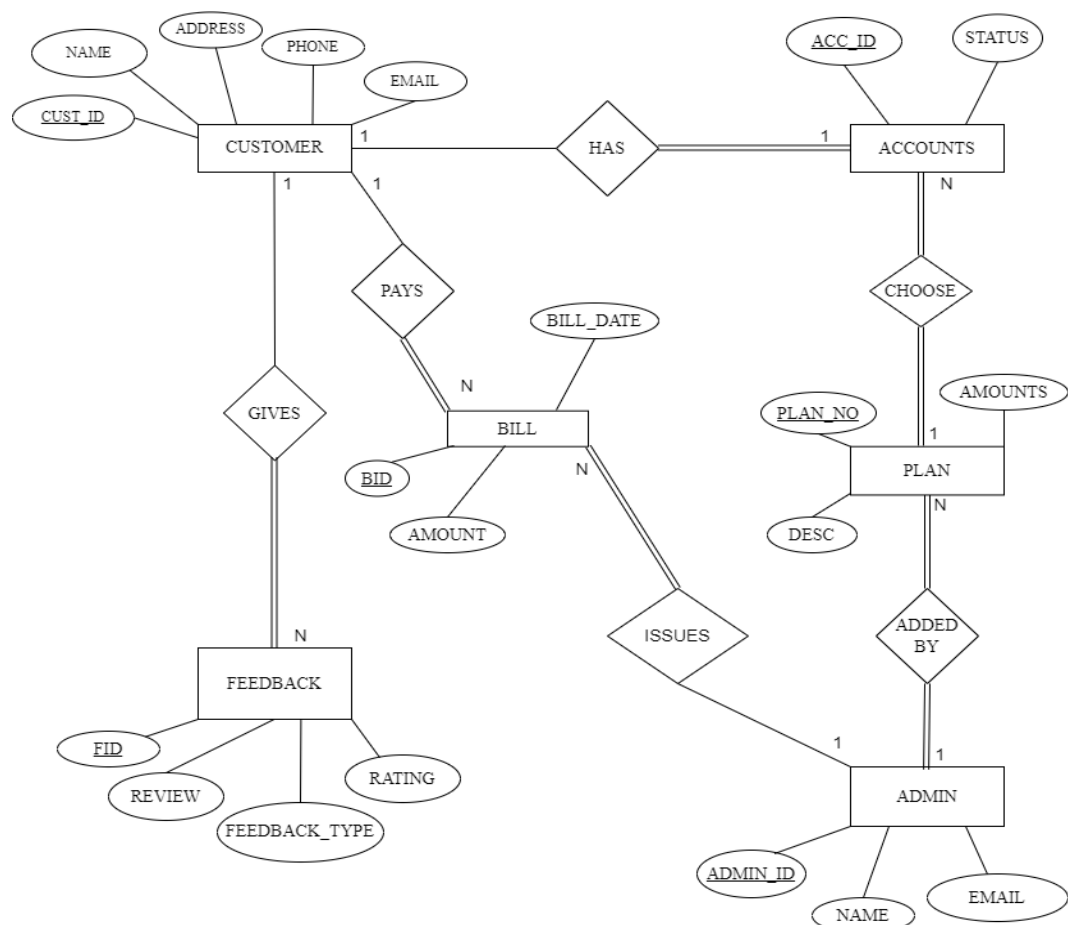


Figure 3.1: ER Diagram for Broadband Billing System

## 3.2 Mapping From ER Diagram to Schema Diagram

- **Mapping of Regular Entities:** This step involves mapping all the regular entity types to tabular format by identifying their primary keys.
- **Mapping of Weak Entity:** When mapping weak entity types along with other attributes the partial key and primary key of parent entity together will form their primary key of the new relation.
- **Mapping of 1:1 Relation:** In this step foreign keys are assigned using foreign key approach. The primary key of the participating relation R or S is added as primary key to second entity types by looking at the participating constraints.
- **Mapping of 1:N Relation:** Foreign key approach is used to add one sided primary key to the n sided entity at foreign key.
- **Mapping of M:N Relation:** Cross reference approach is used where the relationship is converted to a new relation within attributes on primary keys of both participating relation.
- **Mapping of N-ary Relation:** For mapping N array relationship a new relation is created with a relationship name in its attribute and primary keys of all participating entity types.
- **Mapping of Multi-valued Relation:** For multi-valued attributes a separate relation has to be created along with primary key of parent relation.

## 3.3 Assumptions

- One customer must have only one account and can choose a plan through the respective account.
- Customer can give any number of feedback.
- An admin can add many plans and also edit the plans.
- Admin will issue the bill for the customer based on the plan chosen.

### 3.4 Schema Diagram

A database schema, along with primary key and foreign key dependencies, can be depicted by schema diagram. Each relation appears as a box, with the relation name outside the box and the attributes listed inside the box. Primary key attributes are shown underlined. Foreign key dependencies appear as arrows from the foreign key attributes of the referencing relation to the primary key of the referenced relation. The schema diagram of this project is as shown in Figure 3.2.

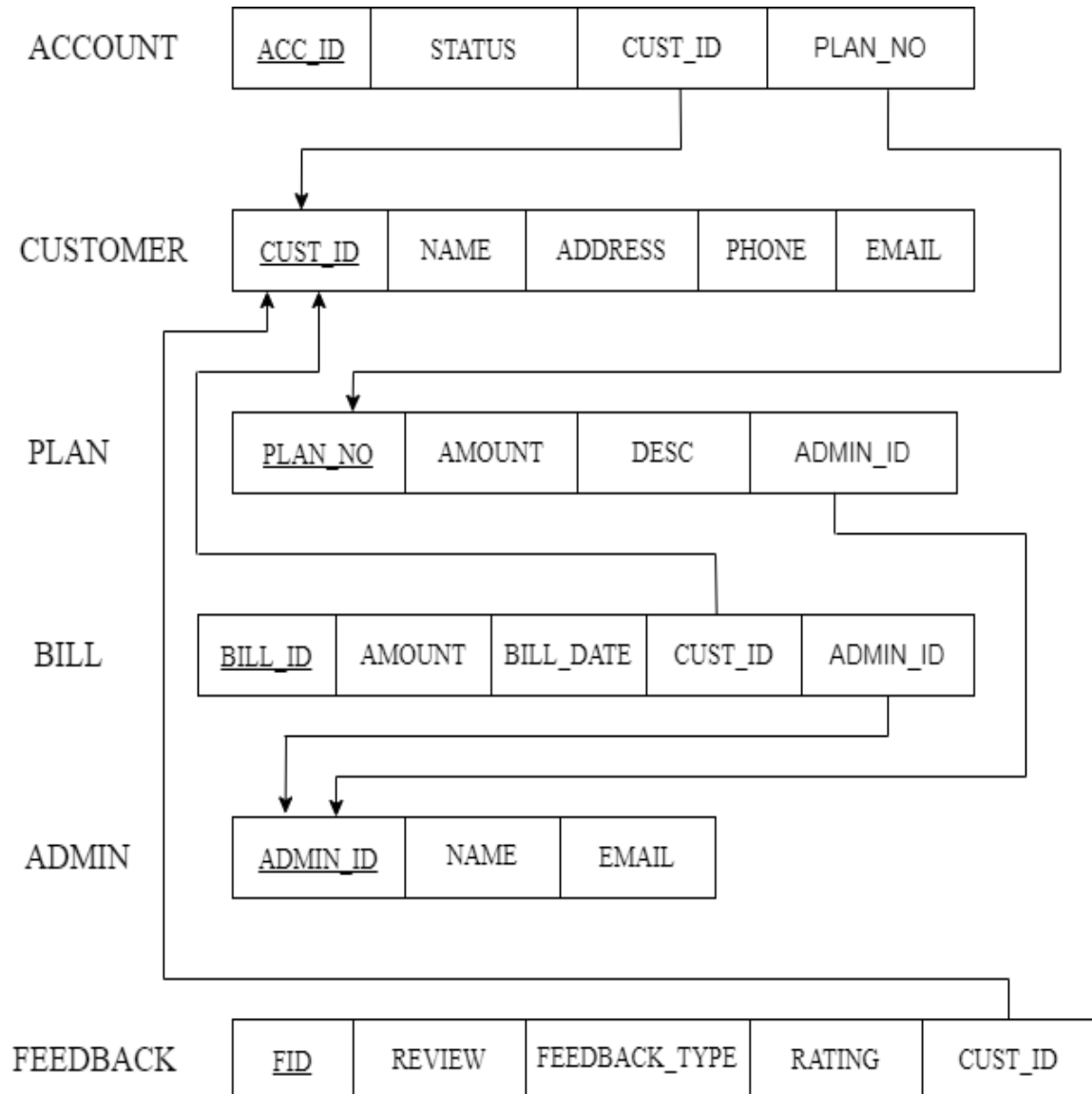


Figure 3.2: Schema Diagram for Broadband Billing System

# Chapter 4

## Implementation

### 4.1 Pseudocode for Broadband billing System

**Pseudocode for inserting values to the account:**

An insert query is written inside an if statement. If the user presses the submit button, then the values will be inserted into the account table and an alert message will be shown else it will show an error as shown in the Figure 4.1.

```
<?php
include 'connection1.php';

if(isset($_POST['submit']))){
    $Status= $_POST['status'];
    $Cust_id=$_POST['id'];
    $Plan_no=$_POST['number'];

    $insert_query=" insert into account(Status,Cust_id,Plan_no)
        values('$Status','$Cust_id','$Plan_no')";
    $res = mysqli_query($con,$insert_query);
    if($res){
        ?>
        <script>
            alert("Account has been setup and plan has been chosen!");
        </script>
        <?php
    }else{
        ?>
        <script>
            alert("Woops! error.");
        </script>
        <?php
    }
}
?>
```

Figure 4.1: Pseudocode for inserting values to the account

### Pseudocode for Deleting:

Here first a connection is established to the database and id of the customer is fetched from database. A delete query is written and passed to the variable \$query. If the query is executed successfully then an alert message to be shown else it will show an error as shown in the Figure 4.2.

```
<?php
include 'connection1.php';
$id = $_GET['id'];
$deletequery = " delete from customer where Cust_id=$id ";
$query =mysqli_query($con,$deletequery);
if($query){
    ?>
    <script>
        alert("Your account  has been deleted!")
    </script>
    <?php
}else{
    ?>
    <script>
        alert("Woops!, Something went wrong")
    </script>
    <?php
}
header('location: home.php');
?>
```

Figure 4.2: Pseudocode for Deleting

### Pseudocode for Updating:

First plan\_no is fetched from the database. Then query is written to fetch the plan details and passed to a variable \$showquery. Update query is written inside a if statement and passed to the variable \$query. If the query is executed successfully then an alert message should be shown else it will show an error as shown in the Figure 4.3.

```
include "connection1.php";
$ids = $_GET['id'];
$showquery = "select * from plan where Plan_no={$ids}";
$showdata = mysqli_query($con,$showquery);
$arrdata = mysqli_fetch_array( $showdata);
if(isset($_POST['submit'])){
    $idupdate = $_GET['id'];
    $Amount= $_POST['amount'];
    $Description= $_POST['desc'];
    $Admin_id= $_POST['number'];

    $query= " update plan set Amount='$Amount' , Description='$Description'
    where Plan_no='$idupdate' ";
    $res = mysqli_query($con,$query);

    if($res){
        ?>
        <script>
            alert("Plan has been updated!");
        </script>
        <?php
    }else{
        ?>
    }
```

Figure 4.3: Pseudocode for updating

## 4.2 Tables Used for Broadband Billing System

### Customer Table:

The structure of customer table is as shown in Figure 4.4. The customer table has attributes cust\_id, name, address, email, phone, password and cust\_id is the primary key.


#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
<input type="checkbox"/> 1	<b>Cust_id</b> 	int(255)			No	None		AUTO_INCREMENT
<input type="checkbox"/> 2	<b>Name</b>	text	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 3	<b>Address</b>	text	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 4	<b>Email</b>	varchar(255)	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 5	<b>Phone</b>	bigint(255)			No	None		
<input type="checkbox"/> 6	<b>Password</b>	varchar(255)	utf8mb4_general_ci		No	None		

Figure 4.4: Structure of Customer Table

### Admin Table

The structure of admin table is as shown in Figure 4.5. The admin table has attributes admin\_id, name, email, password and admin\_id is the primary key.


#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
<input type="checkbox"/> 1	<b>Admin_id</b> 	int(255)			No	None		AUTO_INCREMENT
<input type="checkbox"/> 2	<b>Name</b>	char(20)	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 3	<b>Email</b>	varchar(255)	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 4	<b>Password</b>	varchar(255)	utf8mb4_general_ci		No	None		

Figure 4.5: Structure of Admin Table



### Plan Table

The structure of doctor table is as shown in Figure 4.6. The plan table has attributes plan\_no, amount, description and admin\_id. The plan\_no is primary key. Admin\_id is the foreign key.



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
<input type="checkbox"/> 1	Plan_no 	int(255)			No	None		AUTO_INCREMENT
<input type="checkbox"/> 2	Amount	varchar(255)	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 3	Description	varchar(255)	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 4	Admin_id 	int(255)			No	None		

Figure 4.6: Structure of Plan Table

### Account Table

The structure of account table is as shown in Figure 4.7. The account table has attributes Acc\_id, Status, Cust\_id and Admin\_id. The Acc\_id is a primary key. The Cust\_id and Admin\_id are the foreign keys.




#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
<input type="checkbox"/> 1	Acc_id 	int(255)			No	None		AUTO_INCREMENT
<input type="checkbox"/> 2	Status	varchar(255)	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 3	Cust_id 	int(255)			No	None		
<input type="checkbox"/> 4	Plan_no 	int(255)			No	None		

Figure 4.7: Structure of Account Table

## Bill Table

The structure of bill table is as shown in Figure 4.8. The bill table has attributes Bill\_id, amount, bill\_date, cust\_id and admin\_id. The bill\_id is a primary key. The cust\_id and admin\_id are the foreign keys.




#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
<input type="checkbox"/> 1	<b>Bill_id</b> 	int(255)			No	None		AUTO_INCREMENT
<input type="checkbox"/> 2	<b>Amount</b>	varchar(255)	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 3	<b>Bill_date</b>	date			No	None		
<input type="checkbox"/> 4	<b>Cust_id</b> 	int(255)			No	None		
<input type="checkbox"/> 5	<b>Admin_id</b> 	int(255)			No	None		

Figure 4.8: Structure of Bill Table

## Feedback Table

The structure of feedback table is as shown in Figure 4.9. The feedback table has attributes Fid, review, feedback\_type, rating and cust\_id. The Fid is a primary key and cust\_id is the foreign key.



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
<input type="checkbox"/> 1	<b>Fid</b> 	int(255)			No	None		AUTO_INCREMENT
<input type="checkbox"/> 2	<b>Review</b>	text	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 3	<b>Feedback_type</b>	varchar(255)	utf8mb4_general_ci		No	None		
<input type="checkbox"/> 4	<b>Rating</b>	int(255)			No	None		
<input type="checkbox"/> 5	<b>Cust_id</b> 	int(255)			No	None		

Figure 4.9: Structure of Feedback Table

# Chapter 5

## Results and Discussion

### Customer account page:

Here the customer can choose the plan and how many months the customer wants that particular plan. Figure 5.1 shows the customer account page of this project.

**FILL THE DETAILS GIVEN BELOW**

Required fields are followed by \*

Status

--SELECT STATUS--

Customer ID:\*

31

Plan number\*:

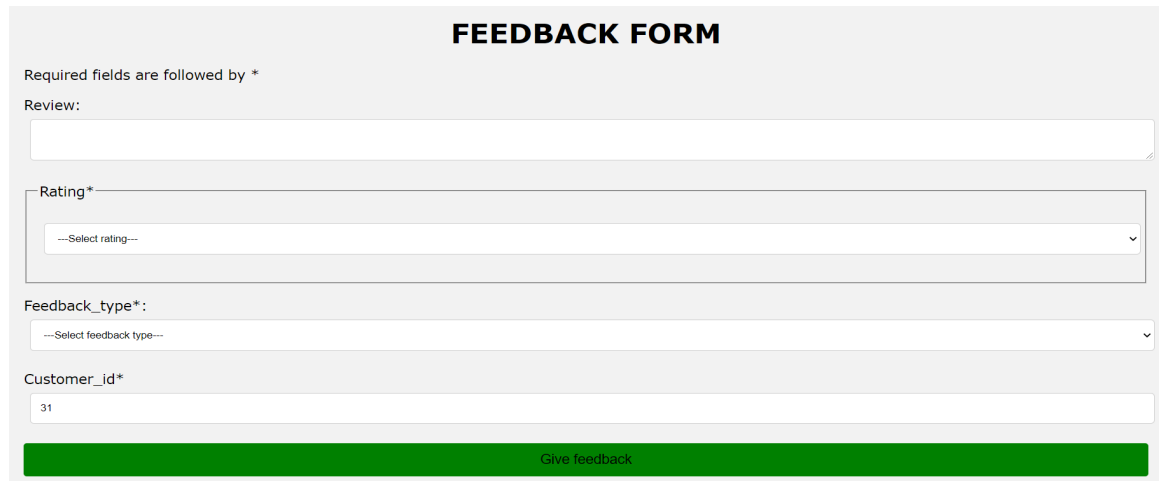
--SELECT PLAN--

Choose Plan

Figure 5.1: Customer account page

### Customer Feedback form:

The customer feedback form consists of review, rating and feedback type. Customer can give feedback based on the services provided. Figure 5.2 shows the customer feedback form of this project.



The screenshot shows a web form titled "FEEDBACK FORM". At the top, it says "Required fields are followed by \*". The form contains the following fields: a text input for "Review:", a dropdown menu for "Rating\*" with the placeholder "--Select rating--", a dropdown menu for "Feedback\_type\*" with the placeholder "--Select feedback type--", and a text input for "Customer\_id\*" containing the value "31". At the bottom of the form is a green button labeled "Give feedback".

Figure 5.2: Customer feedback form

### Bill view page:

Here the customer can view the respective bill based on the chosen plan. It also shows the date when the bill was issued as shown in the figure 5.3.

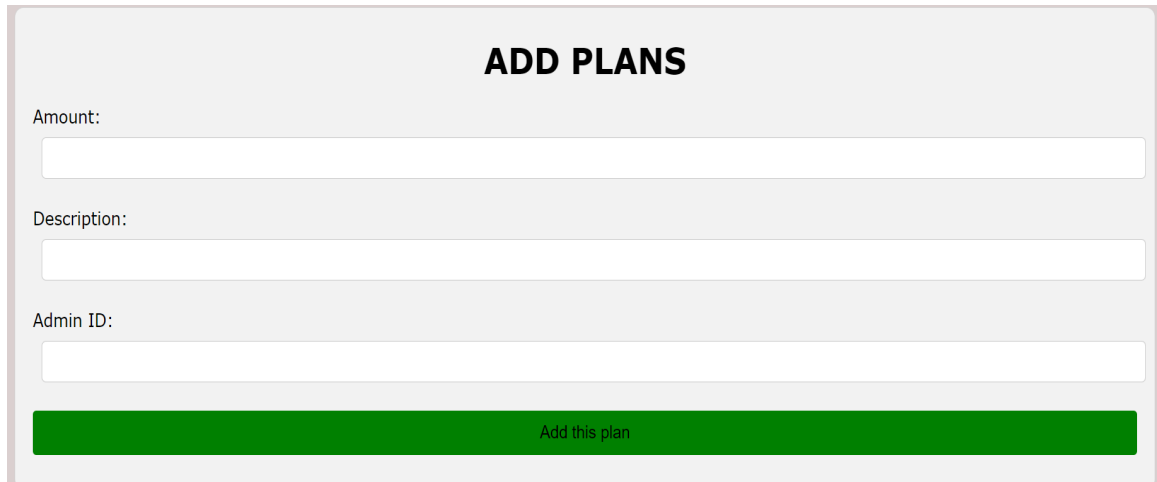


The screenshot shows a web page titled "Your Bill". It displays the following information in a structured layout: "Name: Swaroop", "Your Bill ID : 13", "Total Amount/month : Rs 699", "Bill date : 2022-01-17", and "Customer ID : 16". At the bottom of the page is a green button labeled "Pay now".

Figure 5.3: Bill view page

**Add Plans page:**

The add plans page consist of amount, description and admin id. The admin can add the amount along with its description as shown in the Figure 5.4.



**ADD PLANS**

Amount:


Description:

Admin ID:

Figure 5.4: Add plans


**Bill issuing page:**

Here the admin can issue the bill based on the plan chosen by the customer. Figure 5.5 shows the bill issuing page of this project.



**BILL**

Amount: \*

Bill\_date: \*  
 

Customer ID: \*

Admin ID: \*

Figure 5.5: Issue bill

# Chapter 6

## Conclusion and Future work

The "Broadband Billing System" has been developed to overcome the problems in the internet system. In this project the customer can register and login to the account, choose any plan and also give feedback. The admin is the one who will add the plans and also issue the bill to the respective customer. This system will help the customer to save time. This system has high speed internet connection enabled through different mediums. It is user friendly and works efficiently. The customer can give feedback based on the services provided by the internet provider. This project can further be improved by enabling the payment button for the customer on different platforms. Integrating this changes with the working project will make it even more efficient.

# References

- [1] Database systems Models, Languages, Design and Application Programming, Ramez Elmasri and Shamkant B. Navathe, 7th Edition, Pearson.
- [2] Database management systems, Ramakrishnan, and Gehrke, 3rd Edition, 2014, McGraw Hill.
- [3] Silberschatz Korth and Sudharshan: Database System Concepts, 6th Edition, McGraw Hill, 2013.
- [4] Coronel, Morris, and Rob, Database Principles Fundamentals of Design, Implementation and Management, Cengage Learning 2012.