

EASTERN RAILWAY

STATION MASTER PORTAL

A SUMMER TRAINING REPORT

Submitted by

Rupam Ganguly

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73, Abinash Chandra Banerjee Ln, Subhas Sarobar Park,

Phool Bagan, Belegkata, Kolkata, West Bengal 700010

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ABOUT THE PROJECT

The Eastern Railway is among the 18 zones of the Indian Railways. It has 579 stations spread across its 4 divisions, viz. , Howrah, Sealdah, Malda, Asansol.

Each Railway Station in Eastern Railway is managed by a Station Manager or a Station Master. For the purpose of his knowledge & to apprise general public or passenger he needs information about various facilities or amenities available in each station. The information should be presented in an organized manner which can be viewed by the station master and is required to be updated, as and when necessary.

The project “EASTERN RAILWAY STATION MASTER PORTAL” is conceived to provide a portal, developed with an objective to enable a single window access to information and services being provided in each station by the Eastern Railway. The content in the portal can be viewed or updated by the station master through an Admin login.

ABOUT THE COMPANY-EASTERN RAILWAY

The East Indian Railway (EIR) Company was incorporated in 1845 to connect East India with Delhi.

Eastern Railway was formed on 14th April, 1952 by integration of the East Indian Railway consisting of Sealdah, Howrah, Asansol and Danapur Divisions and the entire Bengal Nagpur Railway. Later on, the portion of BNR stretching from Howrah to Visakhapatnam in the South.

After the Government of India took over the management of EIR in 1925, it was splitted into six divisions — Howrah, Asansol and Dinapore known as the lower divisions and Allahabad, Lucknow and Moradabad known as the upper divisions.

The **Eastern Railway** is among the 18 zones of the [Indian_Railways](#). Its headquarters is at Fairley Place, [Kolkata](#) and comprises four divisions: [Howrah](#), [Malda](#), [Sealdah](#), and [Asansol](#). Each division is headed by a Divisional Railway Manager (DRM). The name of the division denotes the name of the city where the divisional headquarters is located. On 1 October 2002 a new zone, the East Central Railway, headquarters at Hajipur, was carved out by separating the Eastern Railway's Danapur, Dhanbad and Mughalsarai divisions from it.

Later, the portions of BNR stretching from Howrah to Visakhapatnam in the South, Howrah to Nagpur in the Central area and upto Katni in the North Central Region were separated from Eastern Railway and formed as “South Eastern Railway” with effect from 1st August 1955.

Asansol Division was formed in 1925, Dhanbad Division in 1964, Mughulsarai Division in 1975 and Malda Division in 1984 as part of ER.

After redistribution and construction of new lines over a period of time, Eastern Railway as on 30th September 2002, stretched over 4245.61 kilometres.

On 01-10-2002, three divisions viz. Dhanbad, Mughal Sarai and Danapur were separated from Eastern Railway to create new *East Central Railway* zone with headquarters at Hajipur. Eastern Railway now consists of 2500 Route Kilometres spread over **four**

divisions viz. Sealdah, Howrah, Asansol and Malda out of which 1424 route kilometres are electrified on 25 KV AC traction.

ACKNOWLEDGEMENT

The success and final outcome of this project required a lot of guidance and assistance from many people and I am extremely privileged to have got this all along the completion of my project. All that I have done is only due to such supervision and assistance and I would not forget to thank them.

I respect and thank the Senior System Manager/IT Mr. Suman Maitra of Information Technology Centre /HQ/Eastern Railway, for providing us the opportunity to do the project work at IT Centre/HQ and giving us all the support which helped us in completing the project duly.

I owe my deep gratitude to our project guide **Mr. Sujit Das (SE/IT), Mr. Rakesh Kumar Meena (SE/IT) and Mr. Anup Lal Das (JE/IT)**, who took keen interest on our project work and guided us all along, till the completion of our project work by providing all the necessary information for developing a good system.

I would not forget to remember **Mr. Sujit Das** of **EASTERN RAILWAY** for his encouragement and more over for his timely support and guidance till the completion of our project work.

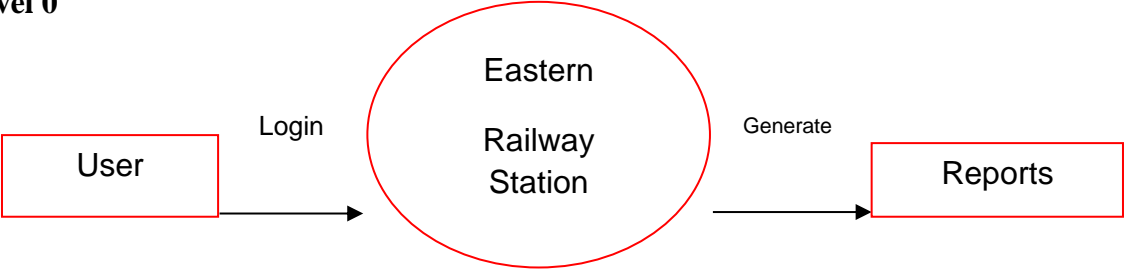
I heartily thank my parents without whom I wouldn't even get the chance to get trained from this esteemed company.

I am thankful to and fortunate enough to get constant encouragement, support and guidance from all Teaching staffs of **IT Centre** which helped us in successfully completing our project work. Also, I would like to extend our sincere esteems to all staff in laboratory for their timely support.

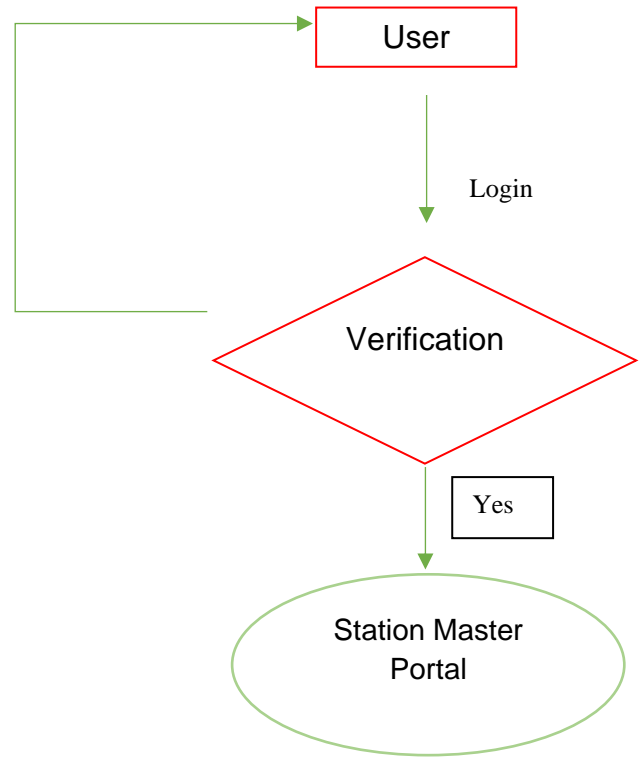
Name: Rupam Ganguly

DATA FLOW DIAGRAM

Level 0



Level 1



ABSTRACT

Building a web interface with the help of HTML/CSS for front-end designing, PHP for back-end scripting and MySQL for connecting with database and managing it.

The goal of this application is to create the foundation for a web-based record keeping system for the number of stations and their respective information, existing within a particular division of Eastern Railway and managing those information efficiently.

We have coded the web pages as it appears in the browser with the help of HTML and styling of the web page is done with the help of CSS. Further we have made use of the pre- built library - “bootstrap.css” which is open source and readily available online for styling web pages.

The back-end programming for the web pages is implemented with the help of PHP which is the server side scripting language to manipulate and control the flow of data and functions. PHP is also used for security - verification and session tracking.

The database is present on the server computer and data is stored, retrieved and update or deleted from the database with the help of MySQL queries which is operated with the help of an SQL based software that is run at the server computer. Even though SQL queries are used to manipulate the database, but the flow of control is managed with PHP only.

STATION MASTER PORTAL project's main idea is to implement an offline portal for organization through which users can manage and control information related to stations and information of other facilities at one place. Using this application in any organization can save time and no cost of human resource. This application covers different functionalities like user login, search stations and availability of services, updation, deletion and we can also search for further details required.

It mainly searches the names of the Ministers of Parliaments and Ministers of Legislative Assemblies under every particular station category. These MPs and MLAs can be contacted whenever there is huge discrepancy with the controlling and facilities of any station, it also allows the admin to get a clear idea about the working conditions of each and every station and the areas of development. It's completely an offline source of information and hence no cost is involved. We can also change the name of MPs and MLAs according to the elections.

As soon as the user logs in to the portal, he gets seven options to perform, which are:

1. HOME - Displays the home screen with all all the seven options and a welcome message with the user's name.
2. SEARCH - Helps in searching any station and its division.
3. ADD – Adds new station along with its details, it's categories and facilities provided
4. UPDATE – Updates necessary changes when necessary such as, name of any MPs or MLAs or any additional facilities provided to a station after renovation.
5. DELETE – If any mistakes have been performed then, this option helps in deleting those information or sometimes name and details of an entire station if it has become obsolete and non-functional.
6. REPORTS - Generates reports based on certain criteria and gives results showing the station name and category.
7. LOGOUT – After successful completion of the entire process the user can logout of the portal.

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LIST OF TABLES

- **Database** used for the project – station_master

Table 1- **stations**

Sl.No.	Field	Type	Null	Key	Default	Extra
1	station_id	int(11)	NO	PRI	<i>NULL</i>	auto_increment
2	station_code	varchar(10)	NO		<i>NULL</i>	
3	Station_name	varchar(150)	NO		<i>NULL</i>	
4	Station_category	varchar(10)	NO		<i>NULL</i>	
5	Division_code	varchar(10)	NO		<i>NULL</i>	
6	Division_name	varchar(150)	NO		<i>NULL</i>	
7	State_code	varchar(10)	NO		<i>NULL</i>	
8	State_name	varchar(100)	NO		<i>NULL</i>	
9	name_mp	varchar(150)	NO		<i>NULL</i>	
10	constituency_mp	varchar(100)	NO		<i>NULL</i>	
11	party_code_mp	varchar(10)	NO		<i>NULL</i>	
12	party_name_mp	varchar(100)	NO		<i>NULL</i>	
13	name_mla	varchar(150)	NO		<i>NULL</i>	
14	constituency_mla	varchar(100)	NO		<i>NULL</i>	
15	party_code_mla	varchar(10)	NO		<i>NULL</i>	
16	party_name_mla	varchar(100)	NO		<i>NULL</i>	

Sl.No.	Field	Type	Null	Key	Default	Extra
17	is_active	enum('y','n')	NO		<i>NULL</i>	
18	active_year	varchar(10)	NO		<i>NULL</i>	
19	remarks	varchar(100)	YES		<i>NULL</i>	
20	created_by	varchar(10)	NO		<i>NULL</i>	
21	created_on	datetime	NO		current_timestamp()	
22	fob	enum('y','n')	NO		<i>NULL</i>	
23	rr	enum('y','n')	NO		<i>NULL</i>	
24	divyang	enum('y','n')	NO		<i>NULL</i>	
25	hlp	enum('y','n')	NO		<i>NULL</i>	
26	trolley	enum('y','n')	NO		<i>NULL</i>	
27	wh	enum('y','n')	NO		<i>NULL</i>	
28	ps	enum('y','n')	NO		<i>NULL</i>	
29	lifts	enum('y','n')	NO		<i>NULL</i>	
30	escalator	enum('y','n')	NO		<i>NULL</i>	
31	dcd	enum('y','n')	NO		<i>NULL</i>	
32	illumination	enum('y','n')	NO		<i>NULL</i>	
33	indication	enum('y','n')	NO		<i>NULL</i>	

Table 2 – **users**

Sl. No.	Field	Type	Default	Key	Extra
1	<u>user_id</u>	int(11)	Null	PRI	<i>None</i>
2	username	varchar(100)	Null		<i>None</i>
3	password	varchar(100)	Null		<i>None</i>
4	is_active	enum('y', 'n')	Null		

LIST OF FIGURES

Table 1 – ‘**stations**’ 15 records and 7 fields

Sl. No.	Station ID	Station Name	Station Code	Station Category	Division	State
1	21	Asansol	ASN	NSG-2	Asansol	West Bengal
2	49	Ballygunge	BLN	SG-3	Sealdah	West Bengal
3	71	Barrackpur	BP	SG-2	Sealdah	West Bengal
4	81	BBD Bag	BBDB	SG-3	Sealdah	West Bengal
5	98	Bhagalpur	BGP	NSG-1	Malda	Bihar
6	124	Budge Budge	BGB	SG-3	Sealdah	West Bengal
7	154	Dankuni	DKAE	SG-3	Howrah	West

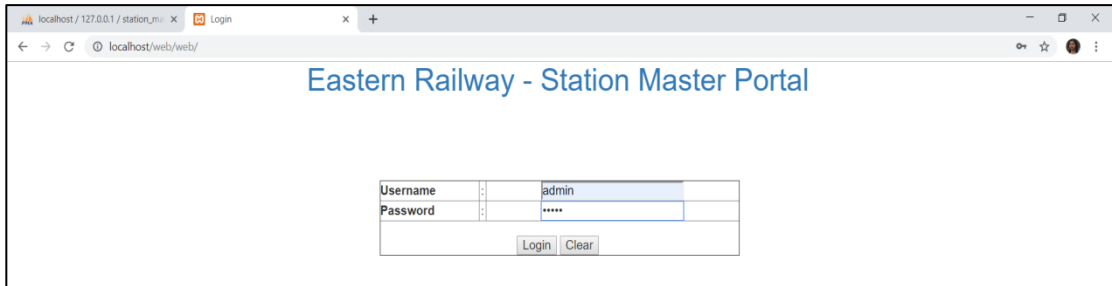
						Bengal
8	179	Dumdum Jn	DDJ	SG-2	Sealdah	West Bengal
9	183	Durgapur	DGR	NSG-3	Asansol	West Bengal
10	235	Hooghly	HGY	SG-3	Howrah	West Bengal
11	238	Howrah	HWH	NSG-1	Howrah	West Bengal
12	255	Jasidih	JSME	NSG-3	Asansol	Jharkhand
13	370	Majherhat	MJT	SG-3	Sealdah	West Bengal
14	372	Malda Town	MLDT	NSG-3	Malda	West Bengal
15	515	Sealdah	SDAH	NSG-1	Sealdah	West Bengal

Table 2 – ‘users’ 5 records 4 fields

user id	username	password	is active
1	rupam	rupam	y
2	urmi	urmi	y
3	admin	admin	y
4	dipen	dipen	y
5	oishee	oishee	y

LIST OF PHOTOGRAPHS

Login Page:

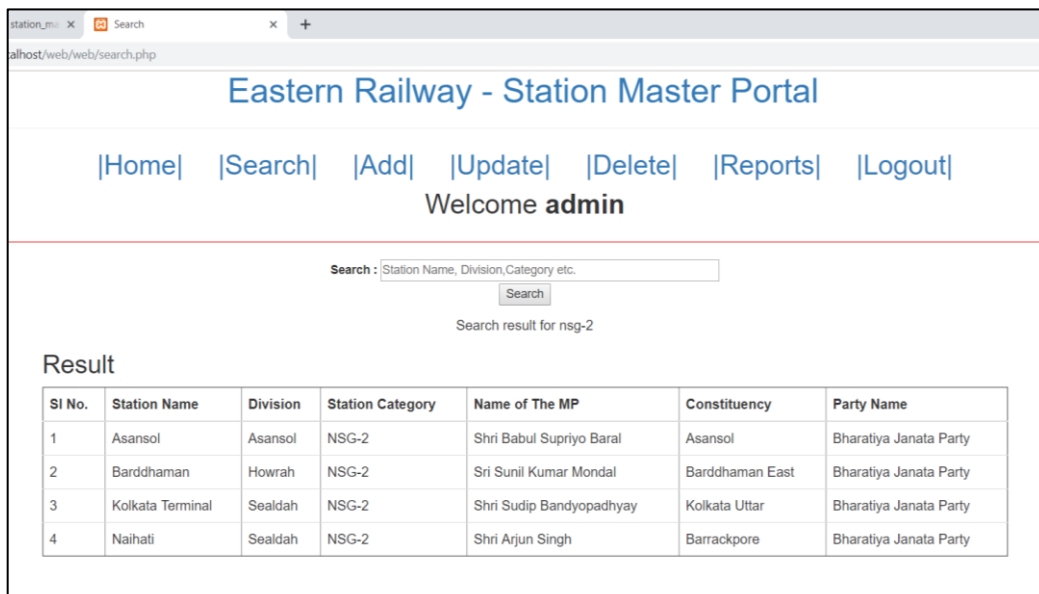


Eastern Railway - Station Master Portal

Username	:	admin
Password	:	*****

Login Clear

Home Page (after successful log in):



Eastern Railway - Station Master Portal

[Home](#) [Search](#) [Add](#) [Update](#) [Delete](#) [Reports](#) [Logout](#)

Welcome admin

Search : Station Name, Division, Category etc.

Search result for nsg-2

Result

SI No.	Station Name	Division	Station Category	Name of The MP	Constituency	Party Name
1	Asansol	Asansol	NSG-2	Shri Babul Supriyo Baral	Asansol	Bharatiya Janata Party
2	Bardhaman	Howrah	NSG-2	Sri Sunil Kumar Mondal	Bardhaman East	Bharatiya Janata Party
3	Kolkata Terminal	Sealdah	NSG-2	Shri Sudip Bandyopadhyay	Kolkata Uttar	Bharatiya Janata Party
4	Naihati	Sealdah	NSG-2	Shri Arjun Singh	Barrackpore	Bharatiya Janata Party

Search Result for Dum:

host / 127.0.0.1 / station_ma x Search

localhost/web/web/search.php

Eastern Railway - Station Master Portal

[|Home|](#) [|Search|](#) [|Add|](#) [|Update|](#) [|Delete|](#) [|Reports|](#) [|Logout|](#)

Welcome admin

Search :

Search result for dum

Result

SI No.	Station Name	Division	Station Category	Name of The MP	Constituency	Party Name
1	Dumdum Cantt	Sealdah	SG-3	Prof. Saugata Roy	Dum Dum	All India Trinamool Congress
2	Dumdum Jn	Sealdah	SG-2	Prof. Saugata Roy	Dum Dum	All India Trinamool Congress
3	Dumka	Asansol	NSG-5	Shri Sunil Soren	Dumka	Bharatiya Janata Party
4	Dumurdaha	Howrah	SG-3	Smt. Locket Chatterjee	Hooghly	Bharatiya Janata Party

To Add a new station(filling up all the fields):

0.0.1 / station_ma

Add

localhost/web/web/add.php

Eastern Railway - Station Master Portal

|Home|

|Search|

|Add|

|Update|

|Delete|

|Reports|

|Logout|

Welcome admin

Add Station

Station Code	Station Name	Division Code	State Code	State Name
test	test	HWH	WB	West Bengal
Name MP	Constituency MP	Party Code MP	Party Name MP	Name MLA
test1	test	BJP	Bharatiya Janata Party	
Constituency MLA	Party Code MLA	Party Name MLA	Remarks	Active year
Division Name	Station Category	Retiring Room	Foot Over Bridge	
Howrah	NSG-1	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Divyang	High Level Platform	Trolley	Waiting Hall	Platform Shelter
<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
Lifts	Escalators	Digital Chart Display	Illumination	Coach Indication Board
<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
<div>AddCancel</div>				

Create Window
Go to Settings to activate

When the new station is added successfully:

localhost/web/web/add.php?msg=Station%20Added%20Successfully

Eastern Railway - Station Master Portal

[|Home|](#) [|Search|](#) [|Add|](#) [|Update|](#) [|Delete|](#) [|Reports|](#) [|Logout|](#)

Welcome **admin**

Station Added Successfully

Add Station

Station Code	Station Name	Division Code HWH	State Code WB	State Name West Bengal
Name MP	Constituency MP	Party Code MP BJP	Party Name MP Bharatiya Janata Party	Name MLA
Constituency MLA	Party Code MLA	Party Name MLA	Remarks	Active year
Division Name Howrah	Station Category NSG-1	Retiring Room <input type="radio"/> Yes <input checked="" type="radio"/> No	Foot Over Bridge <input type="radio"/> Yes <input checked="" type="radio"/> No	
Divyang <input type="radio"/> Yes <input checked="" type="radio"/> No	High Level Platform <input type="radio"/> Yes <input checked="" type="radio"/> No	Trolley <input type="radio"/> Yes <input checked="" type="radio"/> No	Waiting Hall <input type="radio"/> Yes <input checked="" type="radio"/> No	Platform Shelter <input type="radio"/> Yes <input checked="" type="radio"/> No
Lifts <input type="radio"/> Yes <input checked="" type="radio"/> No	Escalators <input type="radio"/> Yes <input checked="" type="radio"/> No	Digital Chart Display <input type="radio"/> Yes <input checked="" type="radio"/> No	Illumination <input type="radio"/> Yes <input checked="" type="radio"/> No	Coach Indication Board <input type="radio"/> Yes <input checked="" type="radio"/> No

To check in search whether the ‘test’ station is added successfully or not:

localhost/web/web/search.php

Eastern Railway - Station Master Portal

[|Home|](#) [|Search|](#) [|Add|](#) [|Update|](#) [|Delete|](#) [|Reports|](#) [|Logout|](#)

Welcome **admin**

Search : Station Name, Division,Category etc.

Search

Search result for test

Result

Sl No.	Station Name	Division	Station Category	Name of The MP	Constituency	Party Name
1	test	Howrah	NSG-1	test1	test	Bharatiya Janata Party

To Update station any station(here ‘test’, which is user input):

Eastern Railway - Station Master Portal

|Home| |Search| |Add| |Update| |Delete| |Reports| |Logout|

Welcome **admin**

Search : Station Name, Division etc.

Search result for test

Result

SI No.	Station Name	Division	Station Category	Update ?
1	test	Howrah	NSG-1	

Update confirmation:

Eastern Railway - Station Master Portal

|Home| |Search| |Add| |Update| |Delete| |Reports| |Logout|

Welcome **admin**

Search : Station Name, Division etc.

Station Updated Successfully

Search for delete (here 'test'):

Eastern Railway - Station Master Portal

|Home| |Search| |Add| |Update| |Delete| |Reports| |Logout|

Welcome **admin**

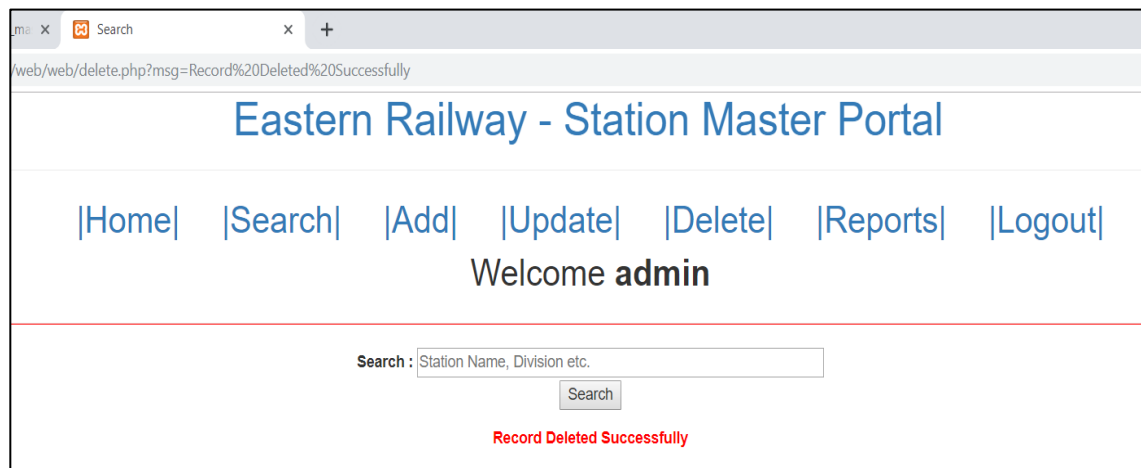
Search : Station Name, Division etc.

Search result for test

Result

SI No.	Station Name	Division	Delete ?
1	test	Howrah	

Deleted Successfully:



INTRODUCTION

This project's aim is to give us information about all the different categories of railway stations present within the Eastern Railway zone which is divided into four major divisions namely - HOWRAH, MALDA, SEALDAH and ASANSOL.

This system is basically concerned with the management and manipulation of data pertaining to different stations present within different categories and divisions.

To be more specific, there are basically 4 tasks that are undertaken within this project. These tasks are as follows:-

- ❖ Function for Addition or Insertion of data within the database. This is administrative privilege which can only be accessed by the admin.
- ❖ Function to Search for data according to certain keywords from the database.
- ❖ Function to Update data about a particular station in the database.
- ❖ Function to Delete data from the database with the help of Primary Key.

- ❖ Function to generate Report based on different categories and sub-categories and function to print those tables.

There are certain additional tasks which need to be taken care of while we are performing these basic tasks. These tasks are as follows:-

- ❖ Function for Login, and username & password verification.
- ❖ Function for Logging Out by destroying all global variables and redirecting to index page.
- ❖ Function for session tracking and destroying session variable when the web page is closed.

THEORY

Facilities/Systems trained on –

1. XAMPP

XAMPP stands for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P) and Perl (P).XAMPP is a free and open source cross-platform web server solution stack package developed by Apache Friends.

-> The Apache HTTP Server, colloquially called Apache, is the world's most used web server software.

-> MariaDB database-MariaDB is a community-developed fork of the MySQL relational database management system intended to remain free under the GNU GPL.It's made by the original developers of MySQL and guaranteed to stay open source. Notable users include Wikipedia, WordPress.com: Create a website or blogand Google.

-> There are interpreters for scripts written in the PHP and Perl programming languages.

It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file.

Alternatives –

☐ WAMP

Acronym for Windows/Apache/MySQL/PHP, Python, (and/or) PERL

The acronym WAMP refers to a set of free (open source) applications, combined with Microsoft Windows, which are commonly used in Web server environments.

☐ EasyPHP

EasyPHP is a complete software package allowing to use all the power and the flexibility that offers the dynamic language PHP and the efficient use of databases. Package includes an Apache server, a MySQL database, a fully PHP execution, as well as easy development tools for your web site or your applications.

2. MySQLDatabase

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons –

- ❖ MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
- ❖ MySQL uses a standard form of the well-known SQL data language.
- ❖ MySQL works very quickly and works well even with large data sets.
- ❖ MySQL is very friendly to PHP, the most appreciated language for web development.
- ❖ MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
- ❖ MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

Alternatives –

☐ PostgreSQL

PostgreSQL is a powerful, open source object-relational database system that uses and extends the SQL language combined with many features that safely store and scale the most complicated data workloads.

☐ MongoDB

MongoDB is an open source database management system (DBMS) that uses a document- oriented database model which supports various forms of data. It is one of numerous nonrelational database technologies which arose in the mid-2000s under the NoSQL banner for use in big data applications and other processing jobs involving data that doesn't fit well in a rigid relational model. Instead of using tables and rows as in relational databases, the MongoDB architecture is made up of collections and documents.

3. HTML

HTML was first created by Tim Berners-Lee, Robert Cailliau, and others starting in 1989.

It stands for Hyper Text Markup Language.

Hypertext means that the document contains links that allow the reader to jump to other places in the document or to another document altogether. The latest version is known as HTML5.

A Markup Language is a way that computers speak to each other to control how text is processed and presented. To do this HTML uses two things: tags and attributes.

The definition of HTML is HyperText Markup Language.

- ☐ HyperText is the method by which you move around on the web — by clicking on special text called hyperlinks which bring you to the next page. The fact that it is hyper just means it is not linear — i.e. you can go to any place on the Internet whenever you want by clicking on links — there is no set order to do things in.
- ☐ Markup is what HTML tags do to the text inside them. They mark it as a certain type of text (italicised text, for example).
- ☐ HTML is a Language, as it has code-words and syntax like any other language.

Advantages of HTML:

1. First advantage it is widely used.

2. Every browser supports HTML language.
3. Easy to learn and use.
4. It is by default in every windows so you don't need to purchase extra software.

Disadvantages of HTML:

1. It can create only static and plain pages so if we need dynamic pages then HTML is not useful.
2. Need to write lot of code for making simple webpage.
3. Security features are not good in HTML.
4. If we need to write long code for making a webpage then it produces some complexity.

4. CSS

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.

CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects.

Advantages of CSS:

- CSS saves time – You can write CSS once and then reuse same sheet in multiple HTML pages. You can define a style for each HTML element and apply it to as many Web pages as you want.
- Pages load faster – If you are using CSS, you do not need to write HTML tag attributes every time. Just write one CSS rule of a tag and apply it to all the occurrences of that tag. So less code means faster download times.
- Easy maintenance – To make a global change, simply change the style, and all elements in all the web pages will be updated automatically.
- Superior styles to HTML – CSS has a much wider array of attributes than HTML, so you can give a far better look to your HTML page in comparison to HTML attributes.
- Global web standards – Now HTML attributes are being deprecated and it is being recommended to use CSS. So its a good idea to start using CSS in all the HTML pages to make them compatible to future browsers.
- Some of the advantages of using CSS are: Easier to maintain and update.
- Greater consistency in design.
- More formatting options.

- Lightweight code.
- Faster download times.
- Search engine optimization benefits.
- Ease of presenting different styles to different viewers.

5. JavaScript

JavaScript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities.

Advantages of JavaScript

The merits of using JavaScript are –

- Less server interaction – You can validate user input before sending the page off to the server. This saves server traffic, which means less load on your server.
- Immediate feedback to the visitors – They don't have to wait for a page reload to see if they have forgotten to enter something.
- Increased interactivity – You can create interfaces that react when the user hovers over them with a mouse or activates them via the keyboard.
- Richer interfaces – You can use JavaScript to include such items as drag-and-drop components and sliders to give a Rich Interface to your site visitors.

Limitations of JavaScript

We cannot treat JavaScript as a full-fledged programming language. It lacks the following important features –

- Client-side JavaScript does not allow the reading or writing of files. This has been kept for security reason.
- JavaScript cannot be used for networking applications because there is no such support available.
- JavaScript doesn't have any multi-threading or multiprocessor capabilities.

6. PHP

PHP started out as a small open source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994.

- PHP is a recursive acronym for "PHP: Hypertext Preprocessor".
- PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.
- It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.
- PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 added support for Java and distributed object architectures (COM and CORBA), making n-tier development a possibility for the first time.
- PHP is forgiving: PHP language tries to be as forgiving as possible.
- PHP Syntax is C-Like.

Common uses of PHP

- PHP can handle forms, i.e. gather data from files, save data to a file, through email you can send data, return data to the user.
- You add, delete, modify elements within your database through PHP.
- Access cookies variables and set cookies.
- Using PHP, you can restrict users to access some pages of your website.
- It can encrypt data.

Five important characteristics make PHP's practical nature possible –

- ❖ Simplicity
- ❖ Efficiency
- ❖ Security
- ❖ Flexibility
- ❖ Familiarity

PROBLEM STATEMENT AND SOLUTION

The task or the problem to be undertaken is to maintain a database related to various station present under the jurisdiction of Eastern Railway zone.

We have adopted the following approach to solve this task and present the result in tabular form as fetched from the database.

So different stations are divided according to different Categories and among different Divisions. There are four such divisions according to geographical area and twelve such categories according to number of passengers that come and go within a single working day.

Following are the 4 main divisions under Eastern Railway under which all the stations are grouped together:

- ❖ Howrah
- ❖ Malda
- ❖ Sealdah
- ❖ Asansol

The stations have been segregated based on the type and clubbed into 3 groups i.e. non- suburban (NS), suburban (S) and Halt (H). Further these groups have been put in grades ranging from NSG1 - NSG6, SG1 - SG3 and HG1 - HG3 respectively.

Each station is given a unique station id which can be used to identify that particular station uniquely and then accordingly make amendments for that station. So the problem is easily tackled by grouping the station data according to different categories and allocating a unique id for each station to refer and make changes accordingly.

Following are the 12 categories according to which stations are divided while taking into account earnings, passenger footfall, and strategic importance:

Category of stations	Criteria of Earnings (in Rs.)	Criteria of outward Passengers handled
I. Non-Suburban		
NSG 1	More than 500 Crore	More than 20 Million
NSG 2	100 to 500 Crore	10 to 20 Million
NSG 3	20 to 100 Crore	05 to 10 Million

NSG 4	10 to 20 Crore	02 to 05 Million
NSG 5	01 to 10 Crore	01 to 02 Million
NSG 6	Upto 01 Crore	Upto 01 Million
Total of (I)		
II. Suburban		
SG 1	More than 25 Crore	More than 30 Million
SG 2	10 to 25 Crore	10 to 30 Million
SG 3	Upto 10 Crore	Upto 10 Million
Total of (II)		
III. Halts		
HG 1	More than 50 Lakh	More than 03 lakh
HG 2	05 to 50 lakh	01 to 03 lakh
HG 3	Upto 05 lakh	Upto 01 lakh
Total of (III)		
Total Number of stations (I+II+III) 582		

We are incorporating five different functions to help manage the database from the web interface. These functions are implemented with the help of PHP code and what appears on the web page is scripted in HTML and styled with CSS - Bootstrap and JavaScript.

The five primary functions are: Add, Search, Delete, Update, Report.

With the help of the search function we can fetch particular data from the database based on certain key values and then accordingly we have provided the options for deleting or editing the record, just right beside each row to make it more user friendly.

The delete and update functions are so made that it appears as if though the updation or deletion of data is happening in real time as it refreshes the tables after performing these functions and shows the updated records on the same page.

The add function takes input for all the fields that are present in the 'stations' table with the help of a form. It fetches data from the form and runs an SQL query to add a new record in the 'stations' table. However, if the station_id is already present in the table then it won't add a new record to the table as the station_id always has to be a unique positive integer. A unique ID or a primary key can help in identifying a row discreetly and also prevent duplicate rows from forming.

The sole objective of this project was to maintain a database of stations and their respective information broken down into different divisions and categories. By doing so we can easily get the set stations within a particular division or category and

generate a report out of it. We have also included fields for different facilities that are essential for any station, like whether there is ramp facility for wheel chair or if there is lift or not, if there is platform shelter or not; waiting rooms available or not or foot over bridge is there or not, etc. We can group all those stations that have a particular facility or not and then generate a report out of it.

The overall scope of this project is to keep the record of all the stations in a database in proper format and make the management of information regarding these stations more efficient and cost effective.

METHODOLOGY ADOPTED

☐ **XAMPP:**

Version Used: 7.3.6

It is an easy to install open-source, cross-platform Apache distribution containing MySQL, PHP and Perl. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server possible.

☐ **PHP:**

Version Used: 7.2.20

PHP (recursive acronym for *PHP: Hypertext Preprocessor*) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

☐ **MySQL:**

Version Used: 8.0

MySQL is an open-source relational database management system. Its name is a combination of "My", the name of co-founder Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language

☐ **Apache:**

Version Used: 2.4.39

Apache is free and open-source cross-platform web server software, released under the terms of Apache License 2.0. Apache is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation.

☐ **WYSIWYG Web builder: Version**

Used: 15.0.3

WYSIWYG Web Builder is an all-in-one software solution that can be used to create complete web sites. What-You-See-Is-What-You-Get (WYSIWYG) means that all elements of the page will be displayed on the exact same position (fixed layout) as in the designer unlike fluid (dynamic) layouts (generated by traditional HTML editors) where the position of objects depends on the position and size of the objects surrounding it.

- **Web Browser (Chrome): Version Used:**
75.0.3770.100

A web browser, or simply "browser," is an application used to access and view websites. The primary function of a web browser is to render HTML, the code used to design or "mark up" webpages.

- **Operating System (Windows): Version Used:**
10

An operating system is system software that manages computer hardware and software resources and provides common services for computer programs.

RESULTS AND DISCUSSION

The following results were obtained upon report generation based on –

- i) Division
- ii) Category,
- iii) Having different amenities (like retiring rooms, foot over bridge, divyang, waiting halls and so on).

The following tables contain records of user generated **Reports**:

1. According to Division Howrah

Eastern Railway - Station Master Portal				
Home Search Add Update Delete Reports Logout				
Welcome admin				
Stations Reports				
--Select--				
Generate Back				
Showing result for stations according to Division Howrah				
Sl No.	Station Name	Station Code	Division	Station Category
1	Adalpahari	ALPD	Howrah	HG-3
2	Adisaptagram	ADST	Howrah	SG-3
3	Agradwip	AGAE	Howrah	SG-3
4	Ahmedpur Jn.	AMP	Howrah	NSG-5
5	Amarun	ARNB	Howrah	HG-2
6	Ambajora Shikaripara	SKIP	Howrah	NSG-6
7	Ambalgram	ABGM	Howrah	HG-3

Activate V
Go to Setting

and so on...for 192 results

2. According to Category NSG-3:

station_m... Reports

localhost/web/web/reports.php

Eastern Railway - Station Master Portal

|Home|

|Search|

|Add|

|Update|

|Delete|

|Reports|

|Logout|

Welcome admin

Stations Reports

--Select--

GenerateBack

Showing result for stations according to Category NSG-3

Sl No.	Station Name	Station Code	Division	Station Category
1	Bandel	BDC	Howrah	NSG-3
2	Durgapur	DGR	Asansol	NSG-3
3	Jamalpur	JMP	Malda	NSG-3
4	Jasidih	JSME	Asansol	NSG-3
5	Malda Town	MLDT	Malda	NSG-3
6	Rampurhat	RPH	Howrah	NSG-3

Activate Window
Go to Settings to activate

3. According to amenities Retiring Room (rr)

<div> <div>station_m</div> <div>Reports</div> <div>+</div> </div> <div>localhost/web/web/reports.php</div> <div>Eastern Railway - Station Master Portal</div> <div> Home Search Add Update Delete Reports Logout </div> <div>Welcome admin</div>				
<div>Stations Reports</div> <div>List of Stations having Amenities</div> <div>Retiring Room</div> <div>Generate Back</div>				
Showing result for stations according to Amenities rr				
SI No.	Station Name	Station Code	Division	Station Category
1	Asansol	ASN	Asansol	NSG-2
2	Baidyanathdham	BDME	Asansol	NSG-4
3	Barddhaman	BWN	Howrah	NSG-2
4	Belur	BEQ	Howrah	SG-3
5	Berhampur Court	BPC	Sealdah	NSG-4
6	Bhagalpur	BGP	Malda	NSG-1
7	Bolpur - Shantiniketan	BHP	Howrah	NSG-4
8	Chittaranjan	CRJ	Asansol	NSG-5

CONCLUSION AND FUTURE SCOPE OF STUDY

The goals and objectives set forward with respect to the ‘Eastern Railway – Station Master Portal’ were successfully implemented with the tools provided. The purpose of the Portal was to offer seamless operations over hundreds of records related to stations under EasternRailway.

The designed web portal uses HTML, CSS and JavaScript for rendering its front end while back end development was done using PHP. The portal was secured using a login page, upon successful entry of which, a wide range of operations could be performed.

The Station Master portal equips features like search and addition of records, deletion of records, updating records with appropriate results and a report generation page that offers the option for quickly producing a hard copy of the obtained report through a print button.

Clearly evident from the list of photographs (pages 8-12) and results of reports (pages 25- 35), the web portal created runs bug-free, without undesirable errors and is quite simple and user-friendly to operate on. The additional functionality of session security and user verification makes the system more secure. The overall interface is minimalistic yet robust and serves the purpose of the desired project successfully.

The records are safely stored on a server machine, which in this case is our own PC, and is maintained and manipulated with the help of MySQL Database. All queries are written in SQL and are executed by MySQL Software. Apache is the server side software which handles the requests on the server side and communicates with the client computer.

Future prospects of the project can be listed as follows:

- 1) Enriched GUI with more interactive drop down menus and buttons.
- 2) More operations to expand the domain of the web portal beyond just the station master.
- 3) Making the portal mobile (and other portable platforms) compatible.

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Books:

- [1] Programming PHP by Rasmus Lerdorf
- [2] Head First PHP and MySQL by Lynn Beighley & Michael Morrison

APPENDICES

The table ‘stations’ which has 582 records and 23 fields was shortened in some places throughout the project. For reference, all 23 fields and some records of the table are shown below:

station_id	station_code	station_name	station_category	division_code	division_name	state_code	state_name	name_mp	constituency_mp	party_code_mp	party_name_mp	name_mla	constituency_mla	party_code_mla	party_name_mla	is_active	active_year	remarks	created_by	created_on	retiring_rooms	pwd
1	AHA	Abhaipur	NSG-5	MLDT	Malda	BH	Bihar	Shri Lalan Singh	Munger	JD(U)	Janata Dal (United)					y	2019	ported	admin	0000-00-00 00:00:00	n	n
2	AJUG	Abjuganj	HG-2	MLDT	Malda	BH	Bihar	Shri Ajay Kumar Mondal	Bhagalpur	JD(U)	Janata Dal (United)					y	2019	ported	admin	2019-03-26 13:01:02	n	n
3	ALPD	Adalpahar	HG-3	HWH	Howrah	WB	West Bengal	Smt. Satabdi Roy	Birbhum	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:02	n	n
4	ADST	Adisaptagram	SG-3	HWH	Howrah	WB	West Bengal	Smt. Locket Chatterjee	Hooghly	BJP	Bharatiya Janata Party					y	2019	ported	admin	2019-03-26 13:01:02	n	n
6	AGAE	Agradwip	SG-3	HWH	Howrah	WB	West Bengal	Sri Sunil Kumar Mondal	Bardhaman East	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:02	n	n
7	AHN	Ahiron?	HG-3	MLDT	Malda	WB	West Bengal	Shri Khalilur Rahman	Jangipur	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:02	n	n
8	AMP	Ahmedpur Jn.	NSG-5	HWH	Howrah	WB	West Bengal	Shri Asit Kumar Mal	Bolpur	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:02	n	n
9	AKIP	Akaipur	HG-3	SDAH	Sealdah	WB	West Bengal	Shri Shantanu Thakur	Bangaon	BJP	Bharatiya Janata Party					y	2019	ported	admin	2019-03-26 13:01:02	n	n
10	AKN	Akbarnagar	NSG-5	MLDT	Malda	BH	Bihar	Shri Ajay Kumar Mondal	Bhagalpur	JD(U)	Janata Dal (United)					y	2019	ported	admin	2019-03-26 13:01:02	n	n
11	AQR	Akra	SG-3	SDAH	Sealdah	WB	West Bengal	Shri Abhishek Banerjee	Diamond Harbour	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:02	n	n
12	ARNB	Amarun	HG-2	HWH	Howrah	WB	West Bengal	Shri Sunil Kumar Mondal	Bardhaman East	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:02	n	n
13	SKIP	Ambajora Shikaripara	NSG-6	HWH	Howrah	JH	Jharkhand	Shri Sunil Soren	Dumka	BJP	Bharatiya Janata Party					y	2019	ported	admin	2019-03-26 13:01:02	n	n
14	ABGM	Ambalgram	HG-3	HWH	Howrah	WB	West Bengal	Shri Sunil Kumar Mondal	Bardhaman East	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:02	n	n

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station_id	station_code	station_name	station_category	division_code	division_name	state_code	state_name	name_mp	constituency_mp	party_code_mp	party_name_mp	name_mla	constituency_mla	party_code_mla	party_name_mla	is_active	active_year	remarks	created_by	created_on	retiring_rooms	pwd
575	URP	Udaipur	HG-3	SDAH	Sealdah	WB	West Bengal	Shri C M Jatua	Mathurapur	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:03	n	n
576	UKA	Ukhra	NSG-5	ASN	Asansol	WB	West Bengal	Shri Babul Supriyo Baral	Asansol	BJP	Bharatiya Janata Party					y	2019	ported	admin	2019-03-26 13:01:03	n	n
577	UKHT	Ukilerhat	HG-3	SDAH	Sealdah	WB	West Bengal	Shri C M Jatua	Mathurapur	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:03	n	n
578	UXN	Uren	NSG-6	MLDT	Malda	BH	Bihar	Shri Lalan Singh	Munger	JD(U)	Janata Dal (United)					y	2019	ported	admin	0000-00-00 00:00:00	n	n
579	UTN	Uttar Radhanagar	HG-3	SDAH	Sealdah	WB	West Bengal	Shri Abhishek Banerjee	Diamond Harbour	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:03	n	n
580	UPA	Uttarpara	SG-3	HWH	Howrah	WB	West Bengal	Sri Kalyan Banerjee	Srirampur	AITC	All India Trinamool Congress					y	2019	ported	admin	2019-03-26 13:01:03	n	n
581	VDS	Vidyasagar	NSG-5	ASN	Asansol	JH	Jharkhand	Shri S.S. Aluwalia	Dumka	BJP	Bharatiya Janata Party					y	2019	ported	admin	2019-03-26 13:01:03	n	n
582	OYR	Waria	NSG-6	ASN	Asansol	WB	West Bengal	Shri S.S. Aluwalia	Bardhaman-Durgapur	BJP	Bharatiya Janata Party					y	2019	ported	admin	2019-03-26 13:01:03	n	n

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