

Navigate In India

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Abstract-Indian Railways is one of the world's largest railway networks comprising 115,000 km (71,000 mi) of track over a route of 65,000 km (40,000 mi) and 7,500 stations. IR carries about 7,500 million passengers annually or more than 20 million passengers daily (more than a half of which are suburban passengers) and 2.8 million tons of freight daily.

Railways are divided into Zones Indian railways has 17 zones (SC, WCR, WR, NFR...). Zones are divided into divisions [Vijayawada division, Bhopal division Varanasi division, Moradabad division, Lucknow division etc.] Divisions are headed by a DRM [Divisional Railway Manager].

Under DRM each department has one officer as in-charge for maintenance of their equipment. Indian Railways has 68 divisions 17 zones.

IR NAVIGATION is a web based application which is developed for the purpose of easy identification of trains in different aspects. It is going to provide more useful information to the user regarding the journey (between a source station and a destination station) like connecting trains, type of the trains, fare and time of the journey reducing time complexity.

This is the project gathering information of Indian railways i.e., tracks routes, trains, stations, facilities in the station and trains to provide the information to the user effectively.

Keywords- DRM-Divisional Railway Manager,
SC-Secunderabad,
NFR-Northeast Frontier Railway,
WCR-West Central Railway,
WR-Western Railway

I. INTRODUCTION

While planning for a journey, a user generally checks for the availability of direct trains to travel from a particular source to destination. But if there are no direct trains available at the particular selected time (by the user), and the user has to travel definitely, he has to go for connecting trains. What are connecting trains? If a user wants to move from one place to another, where one of the places becomes the source station while the other becomes the destination station, the user can either travel directly from source to destination required or he can as well travel VIA some other stations. For instance, if a user wants to travel from Vijayawada to Bangalore, he can take a direct train or he can travel from Vijayawada to Chennai and Chennai to Bangalore.

II. EXISTING SYSTEM

In the existing system, information about both direct and connecting trains is provided. Only a list of trains from a place to place is provided, but it is not provided in a particular order efficiently.

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III. PROBLEMS IN THE EXISTING SYSTEM

When a user selects connecting trains, he should know about the path or the route in which the train travels, which would not be possible all the time. Even if the user knows one of the major stops like junction stations, it is not always possible to find out a connecting train from that point at that instance of time. So the user has to find out the connecting points and then search for the trains from that point to the destination; and even the user has to synchronize the timings with previous train timing. This is a very time consuming process and so is not user-friendly.

IV. PROPOSED SYSTEM

This system provides information about the connecting trains based on the neighboring stations. From one station to another, all trains travelling are provided as required by the user. It shows the graphical representation of routes provided by us in IRNAVIGATION TOOL. It also provides all details like distance, time, fare at a time without having the need to search them individually. This would be a user-friendly system, because it is creating a chance for the users to select a train according to their interest basing on all the parameters; because some give importance to fare whereas some others give importance to time, it depends on them for selecting a train particularly. The main goal is to provide all possible railways to reach the destination from the required source. In the Indian railways, we have different categories of trains that travel from and to various places. The user will be provided with more information about the route in which user is travelling, distance, type of the train like Durunto, Rajadhani, the speed of the train and direction halts; map assistance is also provided to the user.

V. DESIGN

Algorithm

The main modules of this project are four (4) in number which are to be used for designing the algorithm. They are:

- Trains names
- Train numbers
- Routes
- Stations

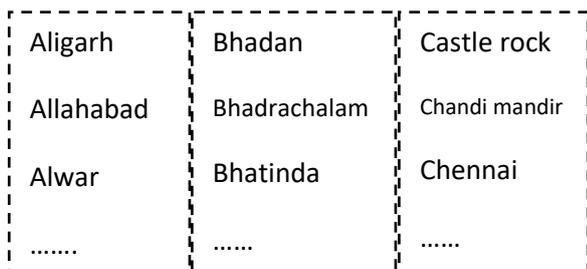
An algorithm design requires 4 steps. They are:

1. To store the data in a database.
2. To load the whole data into a buffer.
3. To process the data in the buffer as per user's request.
4. To display the required information to the user effectively.

The data is stored using Oracle 11g database and the whole data is loaded into a buffer at once. The main part of the algorithm is to process to the data as per the user's request. The processed information is displayed to the user immediately.

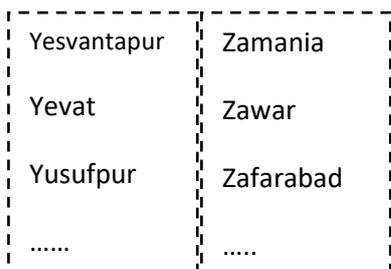
Algorithm for processing data as per required

The data in the buffer are saved in alphabetic order of the station names i.e., station names starting with A, B, C...X, Y, Z are each stored in a buffer.



In the individual buffers, data can be stored using the concept of circular buffers.

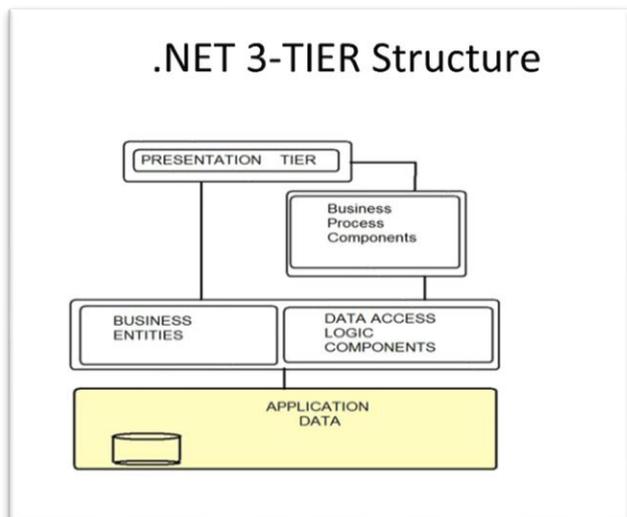
VI. ARCHITECTURAL FRAMEWORK



VII. IMPLEMENTATION

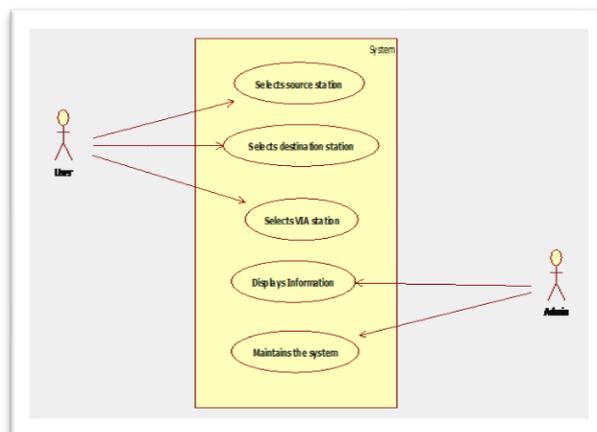
Functional requirements

The functions that are performed by the proposed system are as follows:



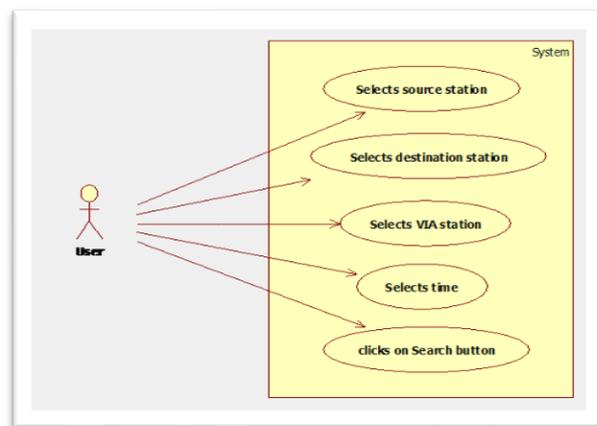
1. Whenever a user selects the source and destination stations, the system should provide the details of direct trains (if available) between them.
2. If a user selects the single connecting trains, then the system should provide the possible ways to points where the user can get down and take another connecting train to reach the required destination.
3. It should also provide the total journey time to the user so that the user will be able to take a decision.
4. If a user wants to break the journey with specific time intervals, even then the system should provide the details of the trains to reach the destination from the break point.
5. If a user wants a specific kind of train, the system should display that kind of trains only.

6. The system should display the amenities of trains to the user like 1AC, 2Ac...
7. The system should provide reliable information to the user.



Non-functional requirements: They are 5 in number. They are as follows:

- Performance**
The performance should be better than the existing systems.
- Reliability**
All the data like trains, schedule and paths being provided on the website should be reliable at any instance of time.



- Availability**
The application should be available to all the users who have access to the internet in their networking devices.
- Security**
As we do not entertain or request any information regarding the users, there is no issue in providing security.

- Maintainability**
Our project provides high flexibility and maintainability; we can add any new features to this project as and when required.
The following details are to be updated to maintain this project
 - Data regarding the trains and their timings are to be updated every year.
 - If new tracks are constructed, that data is also to be included in our database.
 - If any gauge information is changed, that data should also be updated in our database.
 - Train amenities are also to be updated.

Portability

It is portable as it can be used in any system where the specified requirements are satisfied.

Technologies used

- Delphi.net
- Oracle 11g
- JQuery
- AJAX
- JavaScript

VIII. CONCLUSION

The project will provide benefits to all the users for booking tickets online for reservation in trains. It provides the information about both the direct and connecting trains from a particular station to different stations as per specified by a user. It also helps the users to check all the trains starting from or even arriving at a particular station which is a replacement for the charts showing trains in different directions in the railway stations.

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I was born in Gudivada, a small town near Vijayawada on 9th of February in the year 1992. I am currently pursuing my bachelor's degree at KLUniversity, Guntur which would be completed by June,2013. My technical skills are Delphi prism, Delphi, c, Java. My other skills are singing,dancing for which I have won district and state wide prizes.

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He is currently an Assoc. Professor at KLUniversity currently working for the computer science dept. He is good at technical skills. He is the one who has guided me on this journal.