Development of RESTful service using MEAN Stack for real time big data architecture

Ronit Salunkhe[1], Sandeep Telang[2], Prachi Shrigondekar[3], Amruta Tanpure[4]
[1, 2, 3, 4] Department of Computer Engineering
[1, 2, 3, 4] PVPIT, Pune, Maharashtra, India

Abstract- *- Restful web services are used to use the native operations of http Get, Post, Put, Delete to map database operations create, read, update, delete. MEAN is an open source platform to develop RESTful web Services. Representational State Transfer (REST) is an architectural style that specifies constraints, such as the uniform interface, that if applied to a web service induces desirable properties, such as performance, scalability, and modifiability that enable services to work best on the Web. We have developed a Restaurant Table Booking System using Angular 2 as Front-end developing tool. We have used MongoDB as a back-end which is NOSQL database and suitable with Big Data.*

Keywords- MEAN Stack, API, Angular2, Mongodb, REST.

I. INTRODUCTION

Restaurant is a kind of business that serves people all over the world with ready-made and on demand food. People feel more pleasant with lot of variations in the selection and consumption of their food in their busy life.

We get on the beam on booking sector in a restaurant. In the traditional booking system , A customer has to making a phone call for order to get his demanded meal to be reserve. If luckily the phone call get connected, then the customer does some formal conversation like hello, hi, etc. then the customer demands for today's menu and do some dispute over the menu items then the customer order's and the customer has to give some of the identification specification. This discussion takes 5-8 minutes to complete. On the restaurant management side there is hardly one phone line and one operator. So the operator can obtain as extreme as 15-20 orders in an hour.

For each and every booking the operator has to register manually on the paper and puts order in a queue with specific priority according to time and quantity , and then a chef as assigned for the particular order to get them done.

There are multiple sectors to be solved for current restaurant management system using modern IT world. Many areas comes under it like Human Resource Management , Account Management , etc. But our point at issue lies within the domain of end customer , restaurant meal and table reservation.

To overcome these problems we are developing a RESTful service using the MEAN Stack. RESTful service means easy to use for customers. We are using the RESTful API , So the customer can easily reserve table in the restaurant and also order the meal. For storing purpose we are using the latest NOSQL Database called as MongoDB. For the better performance of the website we are using the third-party website as IMGBB for storing the images, We are simply put the URL of the image in the website. This project is Scalable because we are using it for Big Data. This is a Single Page Application (SAP) which can be make by using the latest technology called as Angular2 which is used by Google. The main aim of this project is to reduce the access time. This is achieved because it is the component based model. We are using Heroku as a development platform for this project. This is a popular, free of cost, and easy to use platform for developer for developing their projects.

II. PROJECT IDEA

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III. LITERATURE SURVEY

Now we will see the literature survey of our project

1. Mechanism for Change Detection in HTML Web Pages as XML Documents,Peep Kungas ,2014 IEEE

Explanation-The speed of MongoDB database operations in relation to number of documents in database is high.

2. Visualizing Class Diagram using Orientdb NOSQL Data StoreSawinder Kaur, Karamjit Kaur ,2015

Explanation- NoSQL databases and OrientDB which together provides better features by using both document and graph databases.

3. Using the MEAN Stack to Implement a RESTful Service for an Internet of Things ApplicationAndrew John Poulter, Steven J. Johnston, Simon J. Cox ,2015 IEEE

Explanation- MEAN Stack offers productivity,scalability and performance .

4. Using MEAN stack for development of GUI in real-time big data architecture Using MEAN stack for development of GUI in real-time big data architecture

Explanation- MEAN stack solution Support development of a GUI with quantitative and other types of charts that give some general information about the fraudulent.

5. Haviv, Amos Q. (2014). MEAN Web Development: Master real-time web appli-cation development using a mean combination of MongoDB, Express, Angular JS, and Node.js. Birmingham, UK: Packt Publishing. ISBN 978-1783983285.

Explanation- The MEAN stack is a collection of the most popular modern tools for web development; it comprises MongoDB, Express, AngularJS, and Node.js. Start-ing with MEAN core frameworks, this project-based guide will explain the key con-cepts of each framework, how to set them up properly, and how to use popular mod-ules to connect it all together. By following the real-world examples shown in this tutorial, you will scaffold your MEAN application architecture, add an authentication layer, and develop an MVC structure to support your project development. Finally, you will walk through the different tools and frameworks that will help expedite your daily development cycles.

6. Schmerken, Ivy (May 15, 2008), Deciphering the Myths Around Complex Event Processing, Wall Street and Technology

Explanation-complex event processing is event processing that combines data from multiple sources to infer events or patterns that suggest more complicated circum-stances.

IV. ARCHITECTURAL DESIGN

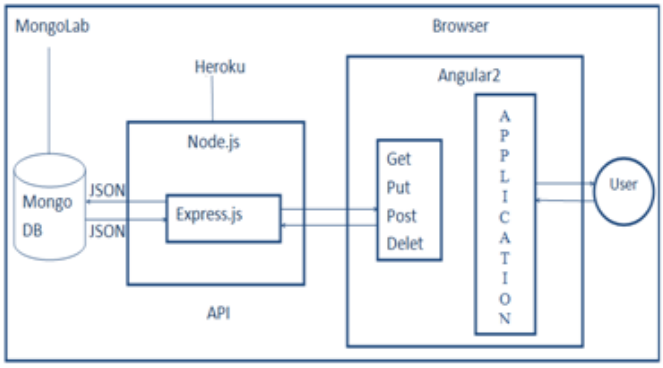

Figure 1. Architecture Diagram.

In an architecture design We are using the latest technology MEAN stack. We are devel-oped the Front-end of the website using Angular 2, which is the framework for Single Page Application (SAP) and it is the front-end Javascript framework. Customer can interact to Website for booking purpose through the Angular 2. Actually Angular 1 was used in normal MEAN Stack. Angular 2 includes various

services and controllers. This applica-tion is run as online as well as offline. User/customer can book table or order meal through Application on the browser. User can clicked on anywhere as he want on the application then only that particular component is loaded so this will reduces the access time.

We are developed the RESTful Service. In general Internet has four nouns such as GET(), PUT(), POST(),DELETE() but only two i.e. GET() an PUT() is used. In RESTful API it permitting all these operations on all the data. In general On Internet user searching anything then that full page is loaded so it will causes as it take more time and unnec-essary memory loaded. But in RESTful API only searched component has been loaded so it reduces the wastage of time and memory. In this first API is to be called and then the component is loaded. It take input in JSON format and also generate output in JSON format. The Node.js and Express.js is used in the API. The API has different models and controllers. The two way data binding possible between browser and Angular 2. We areusing the Heroku as development platform. Heroku is used for the web application devel-opment model. It is supported for many different Programming languages. Heroku is one of the first cloud platform for web application development and also easy to use, free of cost, etc. Heroku is used here for making the website online. Application development in Heroku is primarily done through GitHub.

V. IMPLEMENTATION RESULT AND ANALYSIS

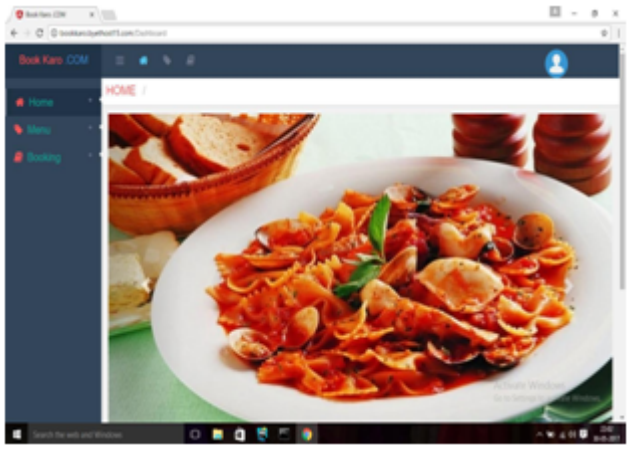

Figure 2. Home Page

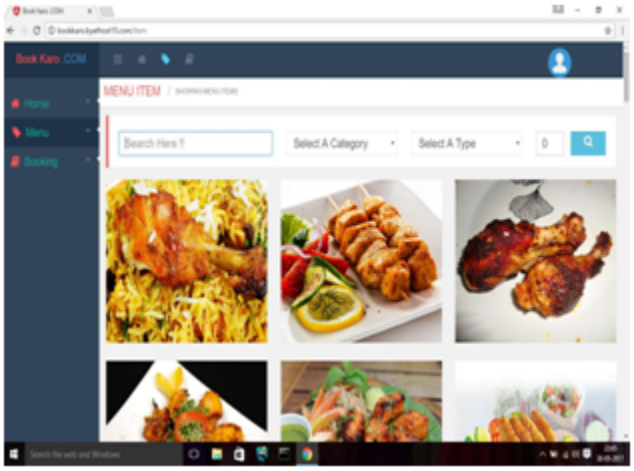

Figure 3. Menu's

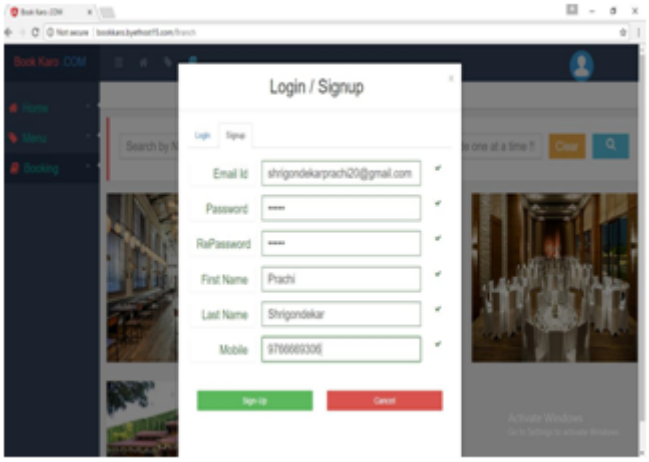

Figure 4.Booking Window

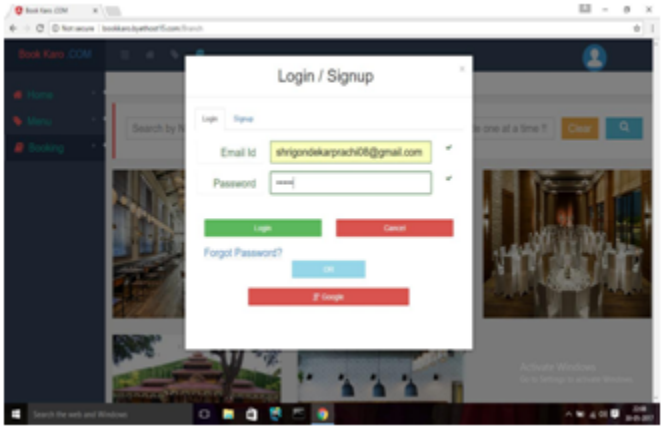

Figure 5.Sign up Window

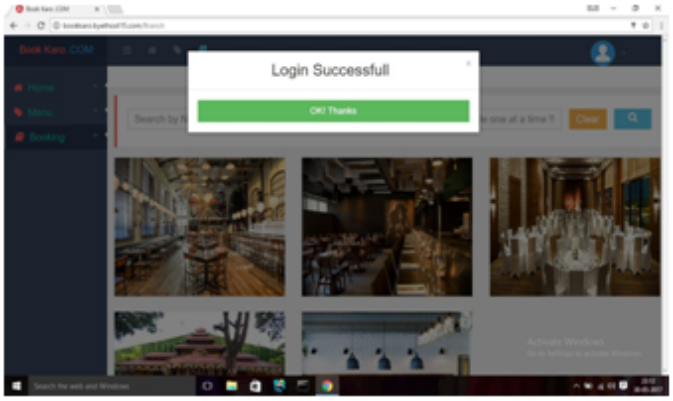

Figure 6. Login Window

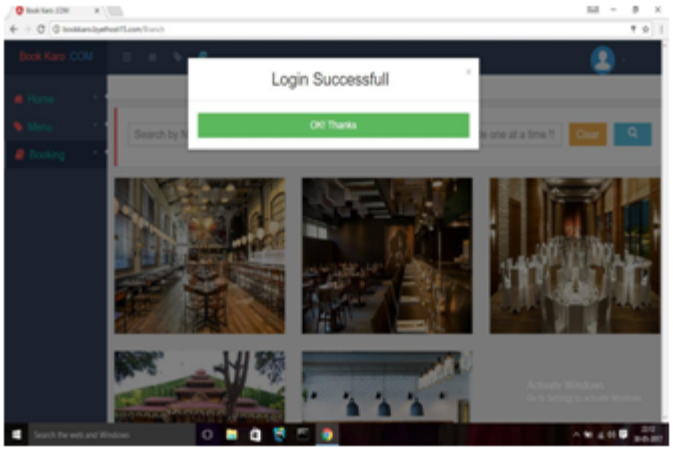

Figure 7. Login Successfully Window

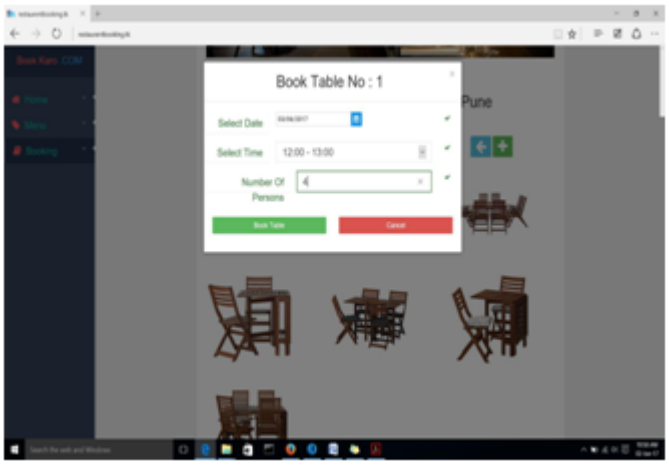

Figure 8. Booking Table

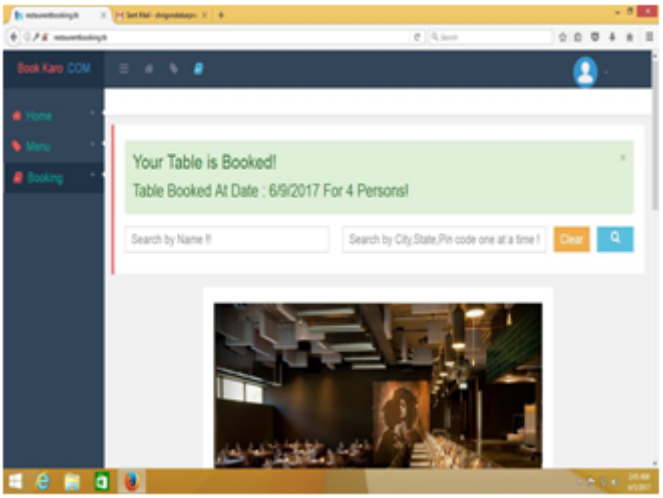

Figure 9. Successfully Book a table

VI. CONCLUSION

We are developing a RESTful Service using MEAN Stack. RESTful service means cus-tomer can handle and understand it Very easily. We are using the latest technology called as MEAN Stack. We are developing a component based model. In case , we are searching anything on Google the whole page is to be loaded. So that this will take more time and loading of unnecessary memory. But in this Project only the demanded component is to be loaded so it will take less time. We are using the latest development platform called as Heroku for developing this project. For storage purpose we are using the MongoDB which is latest NOSQL Database and also it more popular. We are developing a SPA (Single Page Application) using the latest technology Angular2 used by Google , which is more popular in todays world. We are save the customers valuable time of standing outside of restaurant and waiting for get in. In this way we are developing a Restaurant Table Booking and Food Ordering Website using latest Technology. This Website is easy to use, reliable and scalable.

VII. ACKNOWLEDGMENT

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