DEVELOPING EVENT MANAGEMENT WEB APPLICATION

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ABSTRACT: Everything, whether education, money, administration, or events, is heading toward growing usage of technology as time passes. Currently, event administration is done out manually. Booking a meeting room/auditorium, informing all bureaus/members of meetings via email and SMS alerts, intimate canteen arrangements for refreshment/lunch/dinner, updating information on social media pages such as Facebook and Twitter, report generation, activity log checking, and a variety of other activities are examples of such activities. Furthermore, if we use several tools on the market to manage an event, we may find ourselves in a bind owing to disaster when arranging dissimilar information from distinct sources and communication slips while coordinating amongst organizers. The paper opens with an introduction to a scalable and customizable online application that is both an event management system and a market place. Our "Evento" web platform allows people to post their spaces or rent events, and these spaces can also be leased by other users. The web application also streamlines administrative activities like registering users, collecting entry money, creating event groups, sending email notifications, generating event reports, booking/offering event sites, providing payment options to users, and much more. The web-based application is easy to use and interesting, while also providing high levels of security for users and their critical data.

Index Terms- Event management, Authentication Security, Market Place, Email notification, Flexible and Scalable

I. INTRODUCTION

Event management applications are software platforms that help individuals and organizations plan, organize, and manage events. These applications typically provide a range of features and functionalities such as event registration, ticketing, promotion, networking, scheduling, and analytics. They can be used for a variety of events including conferences, festivals, trade shows, weddings, and sports events. Initially all these activities were done manually or using a combination of different services, which increase the difficulty and complexity to manage events and can become a hurdle to event success. Some needs for the event management platforms are listed below-

- ➢ Convenience: Event management application eliminates the need to use multiple tools or platforms, which can be time-consuming and confusing.

- ➢ Efficiency: Event management application can improve the coordination between activities under an event and can help save time and increase efficiency.

- ➢ Cost savings: Event management application can help save costs to purchase multiple tools or platforms for different aspects of event management, administrative and staffing costs by automating tasks such as registration and ticketing.

- ➢ Better attendee engagement: Event management application provides tools for better engagement with attendees before, during, and after the event such as networking, live polling, and real-time feedback.

> ➢ Data analytics: Event management application can track and analyse data related to event attendance, engagement, and feedback. This can help event planners make data-driven decisions and improve future events.

Hence event management applications are designed to simplify the overall event planning process and provide a centralized platform for all aspects of the event, from initial planning to post-event analysis. Also event management applications helps event organizers can save time, reduce costs, and improve the overall attendee experience. In this paper we propose an Event management and a market place platform named "Evento".

"Evento" is a marketplace and event management platform that allows businesses to easily plan events while also offering available Auditoriums/halls/conference rooms for rent. On the platform, organisations may also offer and sell event management services. Payments for all necessities, such as food vendors and other service providers, can also be made solely through the app. If there are any booking fees, they can only be paid through the app. As a result, all payment records are logged and can be accessed later if necessary.

Evento also provide different role to same users in different scenarios as in one scenario one user can be a part of event administration but on the other hand the person can also provide event spaces for rent and can rent spaces through the application. So Evento maintain these different roles very efficiently.

Apart from this all the listed problems above can be resolved using Evento as we have to use different application together for managing communication among admin team, participants, vendors but using Evento this can be done using the specific Event group provided to each event, where not only administration can provide information to participant but participants can also resolve their queries using Q/A section.

Also Evento deals with handling posting notification of events made by the admins using facebook posts and also notification updates are made to user using email also.

The sections that follow attempt to situate our research within the present landscape of theoretical and relevant research. Second, we present the design and execution of our platform, followed by a conclusion and future work views aimed at motivating designers wishing to create comparable apps.

II. LITERATURE REVIEW

[1] In this research the author says that real-time data transmission will undoubtedly become the norm for web-based information systems. Web socket is frequently employed for numerous significant actions carried out via the internet. The Web socket API and protocol are still under development.

[2] In this research the author says that for all firms handling sensitive data, security and privacy are crucial. Client sensitive data is self-contained in JWT, which lowers database overhead, and is used to address this issue. To make authentication, authorization, and security easier, JWT offers a lightweight method for data sharing between parties. Additionally, they are base 64 UTF 8 encoded but not encrypted. The advantages, disadvantages, and weaknesses of JWT are also covered in this work.

[3] In this research the author provides a procedure for designing database schemas utilising subschemas, which ensures the creation of a formally sound database. Additionally, a standard algorithm for verifying constraint consistency between databases and schemas is described.

[4] In this research the author describes overview of Web sockets and its comparison to some alternatives. Web sockets make it possible for real-time full-duplex web applications to connect with one another wirelessly across the internet. When compared to other technologies it minimises latency and HTTP header load, Apart from these it also describes shortcomings for web sockets.

[5] In this research the author says that even if events are planned and all settings of events are controlled, but the events will always deliver the physical experience that is entirely fresh and different from the prior ones.

[6] In this research the author demonstrate the dimensions used while managing and marketing a successful special sport event, and it will make several contributions for sport event managers and sport marketing managers on how to use event management dimensions effectively and shape strategies based on this perspective. Data in the study was acquired from primary as well as secondary data sources (observations, internet resources, press and visual media).

[7] In this research the author provides a flexible online booking system that allows administrators of small hotels to regulate room bookings, manage sales from their own website, and facilitates and guarantees bookings for their potential guests. Additionally, the online system can be automatically visualised in multiple mobile devices, following the responsive web design pattern.

[8] In this research the author provides, a novel OTP technique using the random digit method and improved Ping Pong stream cypher algorithm has been proposed. Generally, the One Time Password (OTP) system implement stream cyphers and many kinds of one-way hash functions such as MD4, MD5, and SHA.

Table-1 Literature Review Technologies and Tasks

Technologies/ Paper/Application	Web Socket	JWT	Database Schema	Event Management	Event Marketing	OTP	Booking Spaces
Research of Web Real-Time Communication Based on Web Socket	✓						
Insights of JSON Web Token		✓					
A Methodology of a Database Schema Design Using The Subschemas			✓				
An Overview of Web Sockets: The future of Real-Time Communication	✓						
a Case Study Approach to Understanding Event Dimensions				✓			
Special event management and event marketing: A case study of TKBL All Star2011 in Turkey					✓		
A_Customisable_and_Responsive_ Design_Online_Booking_System							✓
A study on efficient OTP generation using stream cipher with random digit						✓	
Evento	✓	✓	✓	✓	✓	✓	✓

III. PROPOSED WORK

People regularly utilise social networking platforms. It offers a more effective and helpful form of communication as well as a variety of services. Our suggested event management platform provides event management tool, services that enables users to list their spaces or rent events, and these spaces can also be leased by other users. The web programme also automates administrative tasks such as user registration, entry fee collection, event group creation, email notification, event report generation, booking/offering event sites, user payment options, and much more. It also facilitates event administration by handling communication, ticket purchases, and a notification system.

Our application offers a marketplace where users may purchase or rent space for a variety of business events.

This platform necessitates both client- and server-side programming. React.js will be used to build the platform's client side [11] as React.js provide faster rendering, reusability of components with greater flexibility for developer for making scalable front end. While Node.js will be used for the platform's server side, [9]which is better and faster than previous server languages consuming less resources, also it is lightweight capable for handling multiple client requests. In addition to providing extra assurances like automatic reconnection or fallback to HTTP long-polling for real-time communication, the server leverages [1]Web Sockets for the full duplex paradigm and REST APIs for the request-response method. To prevent hackers from accessing application data, all data is kept in MongoDB and passwords are encrypted with the Bcrypt library. [10]MongoDB provides Document oriented storage(store JSON format data), auto-sharding and easy data maigrations. To confirm the user's registered email address, [8] a one-time password (OTP) will be given to that address. To authorise user requests, cookies contain a JSON web token saved on the user's device.
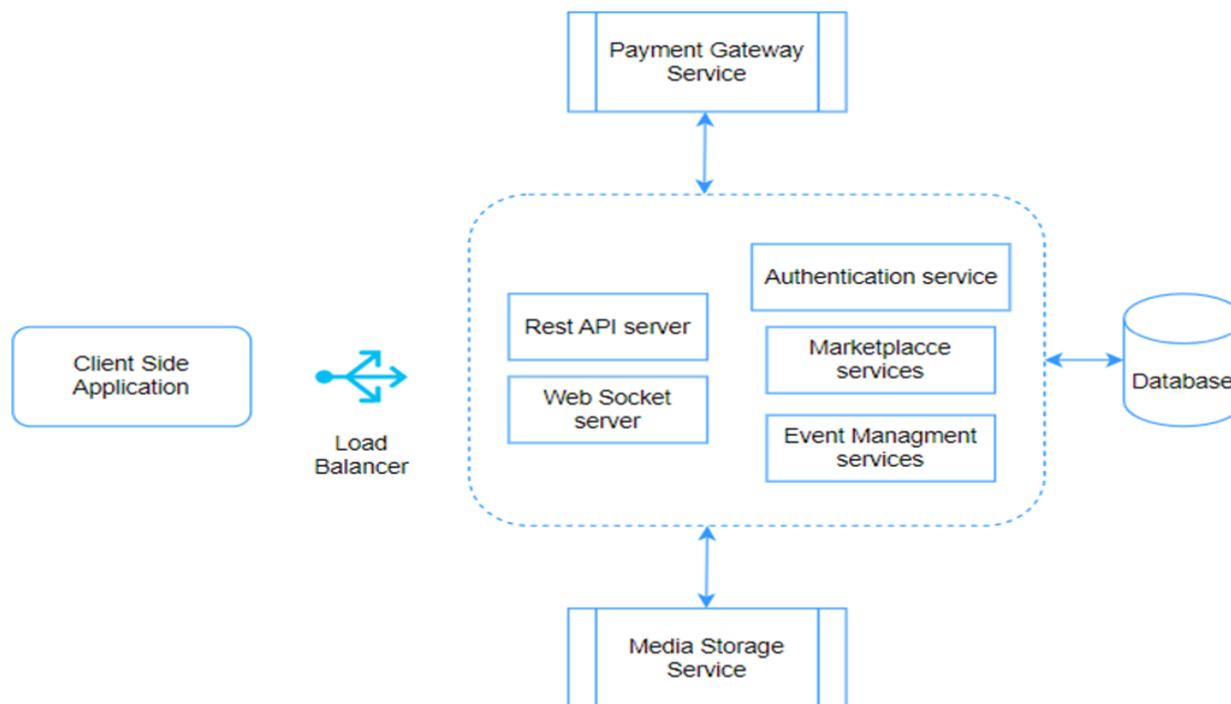
3.1 Evento Architecture-

Figure-1: Architecture

This section provides the high level architecture or 3 tier architecture for the Evento platform.

RestAPI is utilised in this case to interface with the client via HTTP requests in order to conduct normal database tasks such as creating, reading, updating, and deleting records. It offers a standardised interface for sending data in JSON format. REST requires less bandwidth and hence is more suited for efficient Internet use. To establish a real-time communication channel with the client, a web socket server is needed. Web Socket Server makes use of Socket.io. It is based on the WebSocket protocol and adds features such as HTTP long polling and automatic reconnection. The Web Socket Server handles all of the platform's real-time discussions and alerts.

The JSON Web Token technique is used for authentication. This is an open standard (RFC 7519) that offers a compact and self-contained technique for securely transmitting information in the form of a JSON object between parties. Because it is digitally signed, this information can be checked and trusted. JWTs can be signed with either a secret key (HMAC) or a public/private key pair (RSA or ECDSA). The Marketplace service manages all eventospaces operations and makes use of restAPI and WebSocket Server. The event management service controls all event-related processes and serves as a user communication interface. The media storage service is used to store photos of rooms and other platform images. Payment services on the evento platform provide a secure payment gateway for all forms of payments.

Steps-

1. Client Side or Presentation Layer- This includes the user interface and services provided to the user for communicating with the Evento. Some examples are log in/ register page, EventoSpaces page, EventoEvents Page.
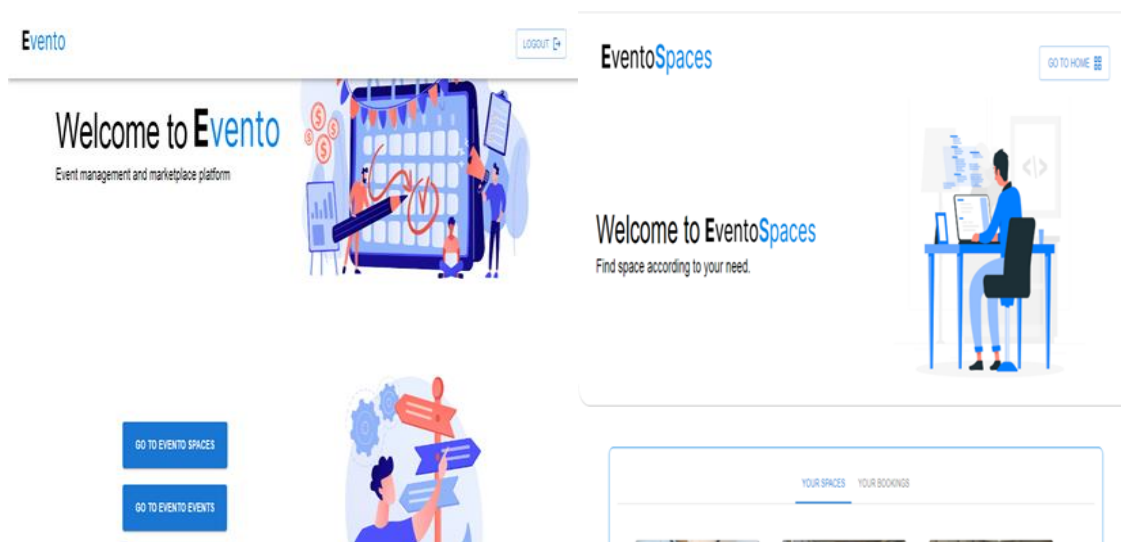

Figure-2: Evento Pages

2. Load Balancer or Application services- This includes the requests, and respones that are made between the presentation and application layer and it also includes the load balancers to improve, and enhance the user experience even in high load conditions.

3. Server Side or Application Layer- This includes the main business logic for the Evento, it provides a way of communication between presentation and database layer. Apart from this it also communicate with database, payment gateway, and media devices for providing a fully functional product. It integrates many services like api, Evento events, Evnto spaces and web socket.
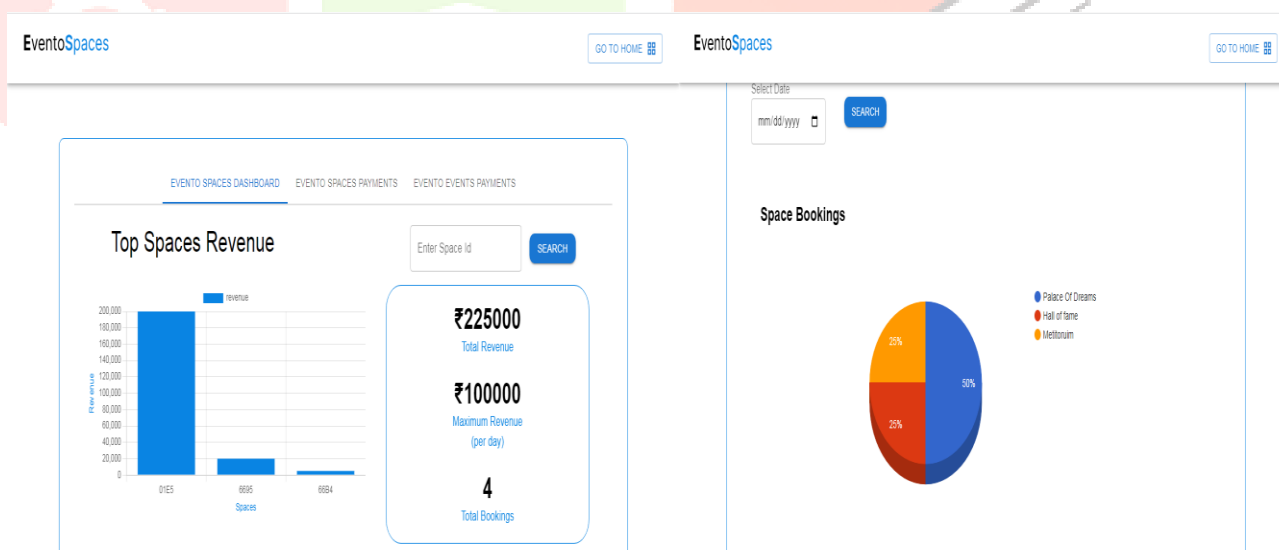
Figure-3: Evento Dashboard

4. Database Services- These services provides request and response between the application and database layer.
5. Database Layer- It includes all the resources and functionalities for the database such as Mongo db database that is use to store, retrieve, update the data in the database.

3.2 EventoEvents Work Flow-
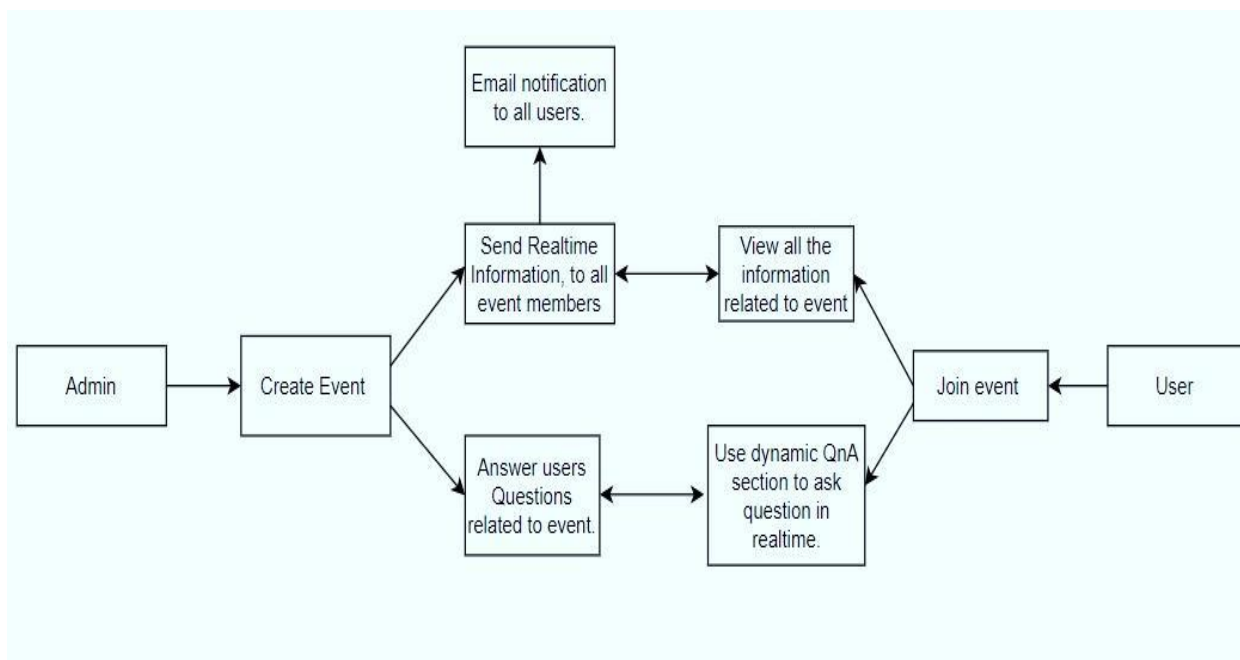
Figure-4:Evento Block diagram

This section provides the work flow for the EventoEvents real time and simultaneous interactions between the admin and the participants and the figure 2 describe the diagram for the same.

- Event Admins creates events with all the necessary details and that event specific group is created.
- After the event creation, if user wants the user can join the event.
- After joining the event, the participant is able to get email notification, post reading access and Q/A access to that event specific group.
- Both the admin and the participant can use the platform at the same time, and in real time.
- As soon the post is posted by the admin it is reflected to the participants in real time, also if admin chooses the email notification option all participants of that event will receive an email regarding the post.
- Post can be read in real time by the participants.
- The users can ask any queries in the Q/A section from the admin of the event as post access is only enable to the admin.
- Also the admin is able to read and answer the participants queries in real time.

Steps-

1. First of all the admin creates an event, providing all the necessary details for the event such name, description, timing and many more, after event creation a specific event group is generated.
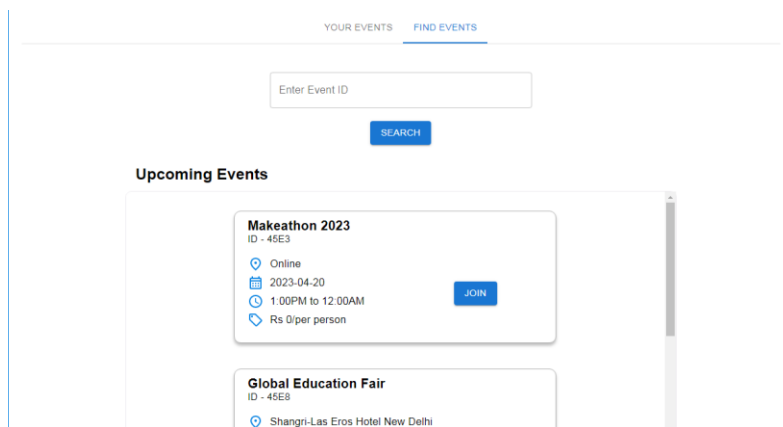
Figure-5:EventoEventsFind Event

2. After the event is created then the users can find the event in event list or search the event using its unique id, then the user can join the event.

Figure-6:Evento Events Available Events

3. After joining the event the participants can see the posts and Q/A section for that event.
4. Only Admins can post any information in the event group, also the can choose to mail the notification to the event participants and can also post the same information to the facebook.
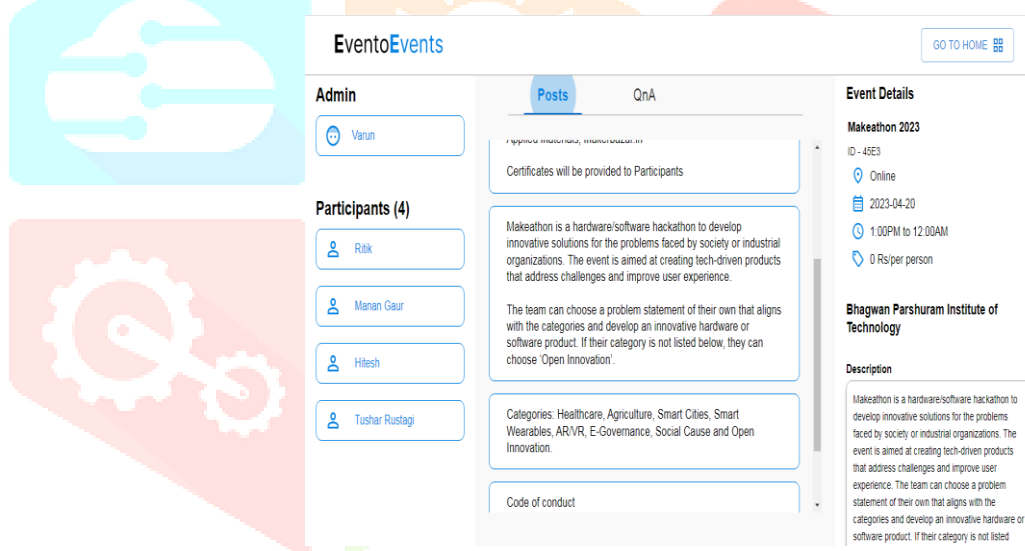

Figure-7:Evento Events Event Post Page

5. For participants, there is an Q/A section through which the participants can ask there queries to the admins, and admins can answer the queries and other participants can also see that queries.
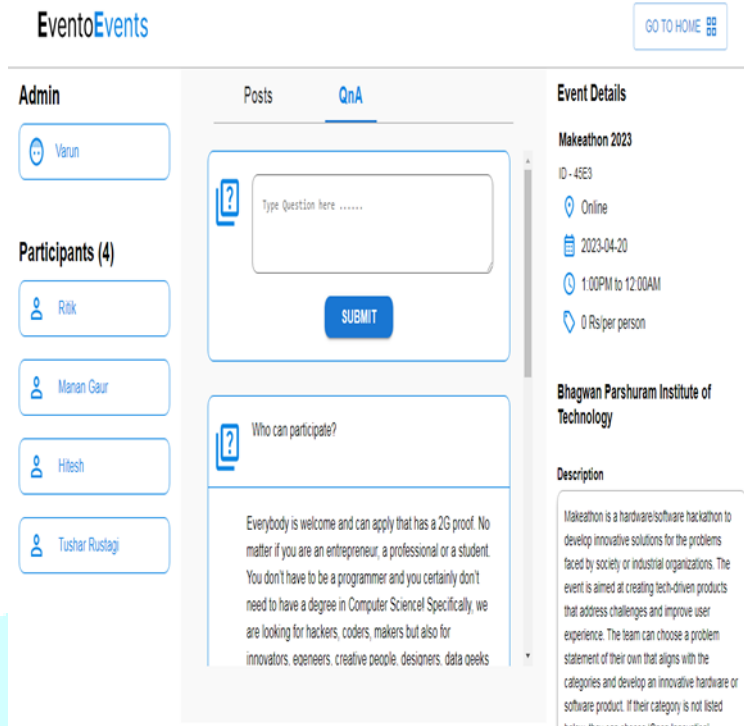
Figure-8:Evento Events Event Q/A Section

3.3 Evento Spaces
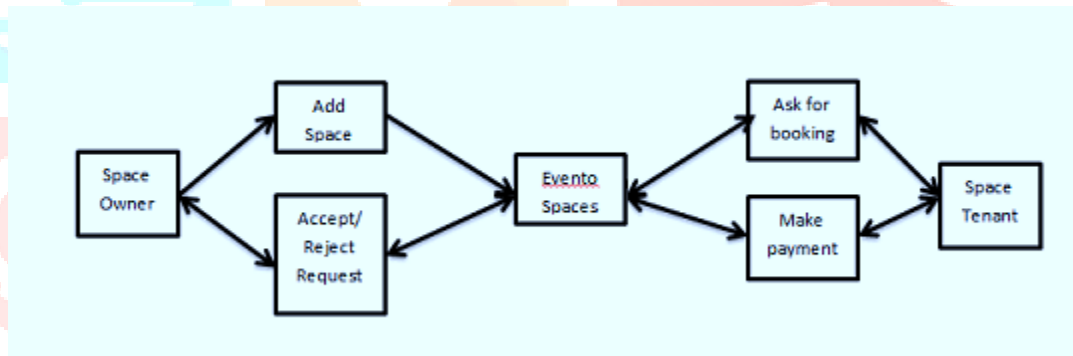
Figure-9: Evento spaces Work Flow

Steps-

1. Space Owner Adds a space for listing on the Evento Space and it includes informations such as name, photo, description, capacity and other aspects of the space.
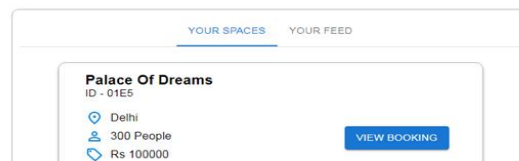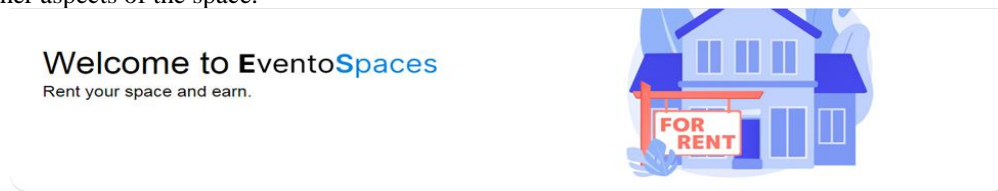
Figure-10:Evento Spaces Owner spaces list

2. Tenant Can look for spaces using the Evento Space and can book the space according to his/her needs as by selecting the date for the space, and can sent a booking request to the owner
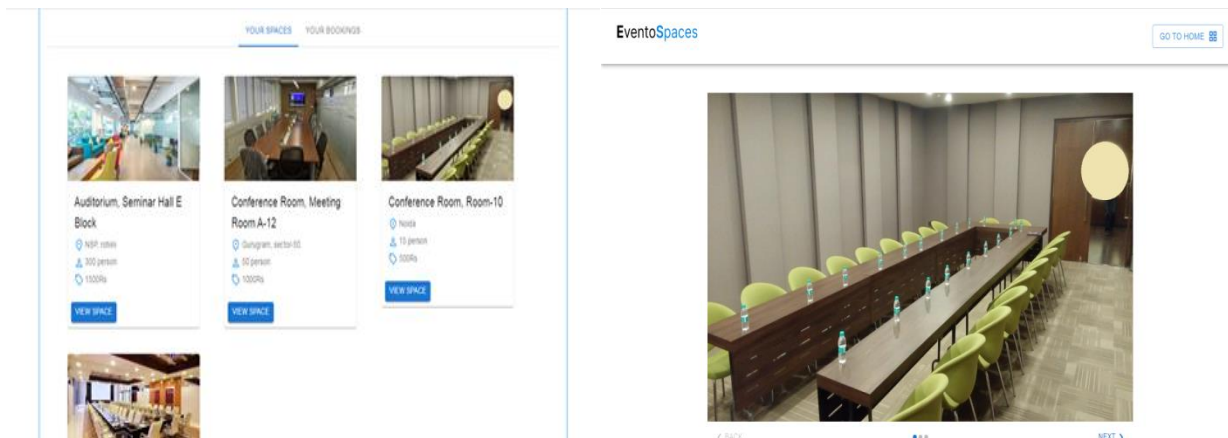
Figure-11:Evento Spaces Event listing and Description

3. The owner can accept the booking if booking is accepted then notification to user is sent about the accepting the request and now the payment is activated for the space.
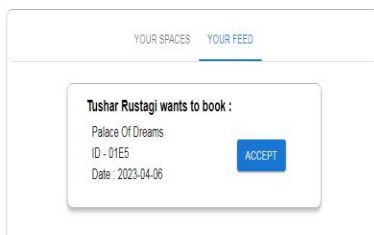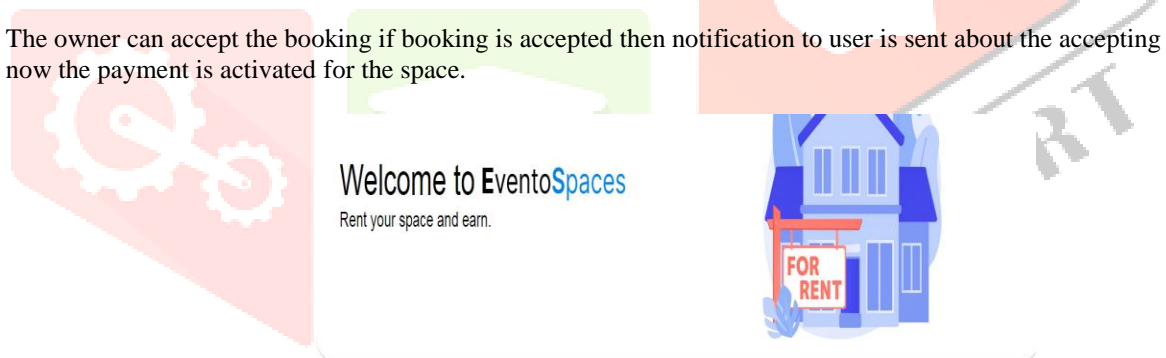

Figure-12: Evento Spaces Onwer Feed for booking

4. User can pay for the space using Evento Spaces and this payment is also registered in our database.
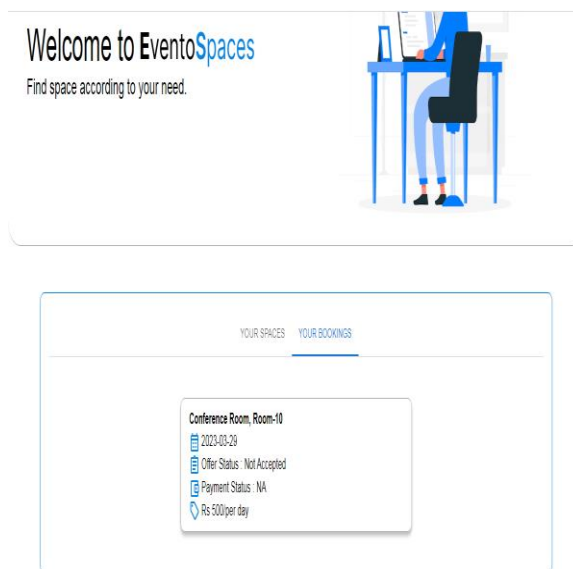
Figure-13: Evento Spaces User confirmation and payment for Space

3.4 ALGORITHM-

1. Users have to Sign up/ Sign in on the Evento for using its services.
    a. Users can Sign up/ Sign in personal mode.
    b. Users can Sign in/Sign up in organisation mode.
2. When Signed in as User mode
   a. Users can 👁, 🔍 and rent spaces available at Evento Spaces. Also view logs for spaces.
   b. User can also make payment for accepted booking using Evento Spaces.
   c. Users can 👁, 🔍 , join events already available at Evento Events.
   d. Also users can ask any doubts regarding events using Evento Events Q/A
3. When signed in as Organization Mode
   a. User can + spaces for renting at Evento Spaces.
   b. User can accept the booking feeds for the added spaces.
   c. Users can + events using Evento Events and event specific group it formulated.
   d. User can post any information on event specific group, and also mail it participants and post it to face book.
   e. User can check revenue for Evento for all spaces using Evento Dahsboard, not only this users can find graphical
      representation for revenue for each space depending on dates.
   f. User can also search payments for specific events and spaces using event dashboard.
4. User achieve their desired goals.

Abbreviations used-
🔍 -Find/Search
👁- See/View
+ - Add/Create

3.5 ADVANTAGES OF PROPOSED PLATFORM

• Role based events group. The event organizer/management has management groups so that they may easily communicate and work together to make the event a success.

• Chat with team members/food vendors/other service providers. Evento offers chat tools within the site, so team members do not need to use another platform to communicate.

• Market place for renting Conference room, hall, auditorium. It can be used for renting such places and hence act as a market for venues. It can also be used by other parties for event management, thereby expanding their business.

• Conference room/ Hall/ auditorium booking system. Using Evento different conference rooms, Halls, auditoriums can be booked easily from our platform.

3.6 COMPARISON WITH THE EXISTING WEBSITES

Eventbrite is an American event management and ticketing website. The service allows users to browse, create, and promote local events. The service charges a fee to event organizers in exchange for online ticketing services, unless the event is free.
But it not provides any Event spaces rental directly in the website, so it only deals with events and not with market place for spaces.

Eventdex is an all-in-one in-person, hybrid, and virtual event management software that helps you host engaging events that delight your audiences.
But it not provides any spaces rental facility, so it deals with event but not with space rentings.

Evento on the other hand have integrated the event management and Space facility together. Evento tries to integrate all the facilities under one roof, it provides advance and unique facilities.
For events user can ask doubt using Q/A and not through post for less spam and more information. Also information in Evento can be directly posted to participants and social media.
For spaces user can ask for booking, and owner can accept the booking hence getting the money for rent through in app payment gateway.

IV FUTURE SCOPE AND CONCLUSION

When it comes to the scalability of this web application, there is a lot of room for growth. A built-in communication route for buyers and sellers can be constructed, lowering communication barriers. A social media bot can be created to assist event organisers in posting updates on a certain event on several social media platforms. As a result, management work is reduced. A system that supports several payment methods (Razorpay, credit card, debit card, net-banking, etc.) can be built to facilitate billing and booking of various event management services and physical places for organising an event.

Nowadays, users access a range of social networking sites and platforms. Because it allows for more efficient engagement. The goal of this research was to examine the design and implementation of an event management platform that makes management easier and the many activities involved in event management more robust and versatile. This keeps all event work under one roof, making administration straightforward and pleasant. It will assist consumers in obtaining the required services that will aid in the success of an event

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