





Workshop Management System

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 linktr.ee/nisoojadhav

Naranlala College of Professional and Applied Sciences
Bachelor of Computer Application
Semester 5 Mini Project Documentation

TY 2022-2023



NARANLALA
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CERTIFICATE

This is to certify that **Mr. Nishant Jadhav**, Exam No. _____ student of **B.C.A. 5th semester** of our college have successfully prepared and submitted Project Report on “**Workshop Management System**” as a partial fulfillment for the course of **Bachelor of Computer Application (Minor Project Sem. V)** during the academic year **2022-2023**.

DATE

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Acknowledgment

Dear Reader,

I sincerely feel that I am not the only one to be credited for this Web App. This mini project work is an integrated effort of all self-study from Online Forums, YouTube tutorials, Official Docs, StackOverflow, and all those concerned, by whose cooperation and practical guidance; I achieved its completion.

It is a curriculum to undergo project work in any system. I preferred the “**WORKSHOP MANAGEMENT SYSTEM**” at Naranlala College of Professional and Applied Sciences, Navsari.

I would like to take this opportunity to express my gratitude to all the faculty members of the Computer Science department, Principal **Dr. Sunil Naik**, Head of Department **Dr. Ashish Patel**, and special thanks to **Mr. Chirag Mewada** and **Ms. Neha Parmar**.

Yours truly,

NISHANT JADHAV

(github.com/nisoojadhab)

Abstract

The report reflects the journey of making a Full Stack MERN Application. It incorporates my learnings from errors, opening it for open source, hosting it on the web, and working with dynamic web technologies and libraries. I have gained knowledge of not only programming but about hosting on the web, finding vulnerabilities, SEO, designing paradigms, typography, and working with DB on the cloud.

I would like to thank my 3 FPGs(Friend, Philosopher, Guide):

- 1) **Mr. Chirag Mewada** (who stated me to learn Javascript and React/Angular right in Sem 4).
[\(https://www.linkedin.com/in/chirag-mewada-csm%C2%AE-90015213/\)](https://www.linkedin.com/in/chirag-mewada-csm%C2%AE-90015213/)
- 2) **Sumit Patil** (who expressed me learning Javascript and Mongo DB when I was in Sem 3(I didn't take it seriously though I needed to learn it at the end of Sem 4)).
[\(https://www.linkedin.com/in/iamsumitpatil/\)](https://www.linkedin.com/in/iamsumitpatil/)
- 3) **Zaid Shaikh** (Senior Web Developer at Prism IT Systems, who helped me learn React JS, and MERN and keeps me updated about what tech stack I learn next).
[\(https://www.linkedin.com/in/zaid-shaikh-391aa1138/\)](https://www.linkedin.com/in/zaid-shaikh-391aa1138/)



Contents

Abbreviations	1
1 Introduction	2
1.1 Project Details	3
1.2 Purpose	4
1.3 Project Scope	4
1.4 Limitations	5
2 System Requirements	6
2.1 Hardware Requirements	6
2.2 Software Requirements	6
Building Local Version	7
3 System Analysis	9
3.1 Requirement Analysis	9
3.2 Feasibility Studies	13
3.3 Main Module of System	14
4 User Privileges	15
4.1 Admin: (CRUD) Workshops, Attendees	15
4.2 Other Users:	21
Read(Search), Contact, Register for Workshop	21
5 Tools and Technologies	25
5.1 Overview	25
5.2 Why React JS?	26
5.3 CSS and Bootstrap	27

5.4	Node Modules	28
5.5	Deployment to Heroku	31
5.6	MongoDB Atlas	35
5.7	Database Schema	36
5.8	REST API	38
6	System Diagrams	39
6.1	System Flowchart	39
6.2	ER Diagram	40
6.3	Data Flow Diagram	42
6.4	Use Case Diagram	44
7	Scope of further development	45
8	Important Links	46
9	Code Screenshots	47
10	References	48

Abbreviations

API	Application Programming Interface
BSON	Binary JavaScript Object Notation
CLI	Command Line Interface
HTTP	Hypertext Transfer Protocol
JSON	JavaScript Object Notation
JSX	JavaScript XML
MVC	Model View Controller
MERN	MongoDB, Express, React JS, Node JS
NPM	Node Package Manager
NoSQL	Not only Structured Query Language
RDBMS	Relational Database Management System
REST	Representational State Transfer
SPA	Single Page Application
URL	Uniform Resource Locator

1 Introduction

The Covid 19 pandemic forced us to change the way we work. It forced us to stay detached yet connected digitally as a social-animal. Everything that can happen digitally was adapted more rapidly compared to the pre-pandemic era. Fields range from contactless payment to delivery of groceries and medicines. And from the digital admission process to virtual learning. E-learning was never such a good solution to us before the pandemic but the post-pandemic digital space boomed in the world, and a digital revolution in India was responsible for multi-billion dollar unicorns leaping from the e-learning industry. Now it's so common that it's believed the institution doesn't exist if it isn't available in any digital space. Many YouTube Channels, Online Learning BootCamps, and Online interactive virtual learning sites provide online learning, certifications, and Universities that provide distant, online graduation and post-graduation programs taking lectures via the internet.

"Workshoply - a one-stop solution for managing workshops" is an open source project for helping small institutions having hurdles in their way to providing intuitive learning for their students in the comfort of their homes.

Project Details

- This web application delivers users an intuitive way by which they can get the course details, register, and attend the workshop from the comfort of their homes.
- This web application will be a boon for the people who want to host new workshops and want other people to gain from their teachings.
- Teachers can request password details. Idle users can just register the colleague will get back to them.
- After successful registration, before seats get full, the learners will get an email for Zoom meetings or the physical location of the workshop.

Purpose

- Provides new skills to learn from the home.
- Access current running workshops.
- Reduce the cost of the offline and tedious process of hosting such workshops.
- Facility for admin to manage to Create, Read, Update, and Delete permissions for the workshops.
- Other users will have Read(Search) and Register permissions.

Project Scope

- Perfect for Institutions to serve 1000s of students.
- Register details in Google Spreadsheet, accessible through the Workshoply app.
- Teachers can focus more on teaching instead of worrying about data handling, security, hosting, and thousands of concurrent users.
- Async requests through REST API, MongoDB Atlas.

Limitations

- Not included Login, Sign up for students.
- Teachers can request a Password from the Admin, which is made with such logic that it changes every hour to prevent gaining access to the Admin Page by the unauthentic person even if he receives a password.
- Not included Virtual Meeting Feature(like Zoom).

2 System Requirements

1. Hardware Requirements

- If you want to deploy the app in the local environment:
- PC/ Laptop.
- Minimum 4 GB RAM.
- Processor 1.4 GHz 32/64-bit.
- Internet connection.

2. Software Requirements

- Windows 8.1(minimum)
- Latest Node JS, NPM, and Git installed.
- Internet connection.
- Browser(required) with React Developer Tools(optional)
installed.

Building Local Version

Prerequisites:

- Installed Node JS, npm/yarn, React JS, Git Bash(or another terminal), and a text editor(VSCode preferred).

Download:

- Node JS: <https://nodejs.org/en/download/>
- npm: <https://www.npmjs.com/package/npm>
- Yarn: <https://www.npmjs.com/package/yarn>
- React: <https://www.npmjs.com/package/react>
- Git Bash: <https://git-scm.com/downloads>
- VSCode: <https://code.visualstudio.com/>

2. Open Git Bash, get into your preferred directory.

e.g.

```
$ cd d:/projects
```

3. Clone [Workshoply](#) git repository.

```
$ git clone https://github.com/nisoojadhav/workshop.git
```

4. Get into Workshop folder

```
$ cd workshop
```

5. Install packages:

```
$ npm i  
$ cd client  
$ npm i
```

6. Start server(resides on root folder):

```
$ node server
```

7. Start project

```
$ cd client && npm start
```

8. You are good to go! Visit [localhost:3000](#).

3 System Analysis

Requirement Analysis

MERN Stack:

1) MongoDB:

A free, open-source, cross-platform, document-oriented cloud database. Developed while keeping scalability and developer agility keeping in mind. Instead of storing data in rows and columns, it stores JSON documents in collections with dynamic schemas making it easier to store and combine data of any structure, without complex validation rules, and schemas, with flexible data access, and rich indexing functionality.

2) Express JS:

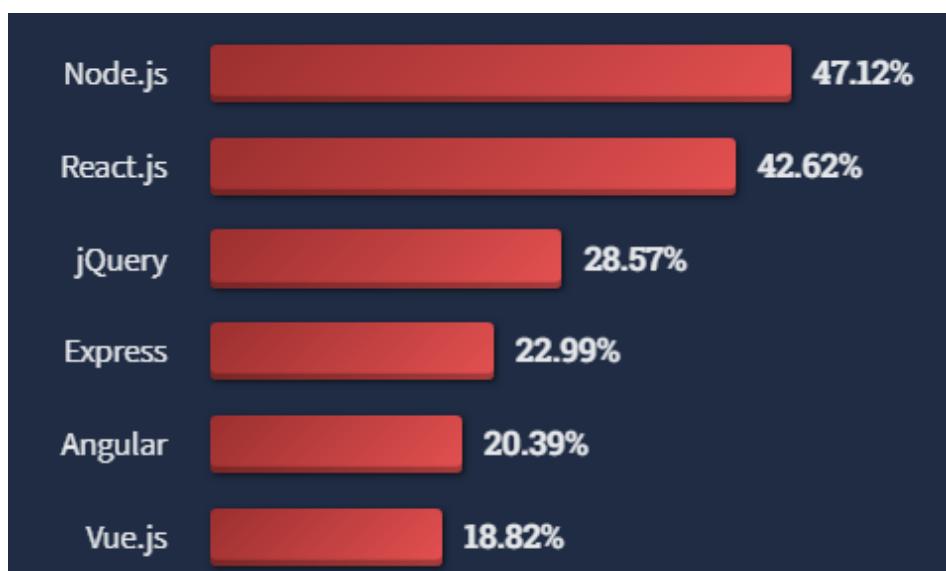
Web application framework that runs backend applications. Express runs as a module in Node JS, it can handle the routing of requests to the right parts of the application:

We use Express to perform two functions:

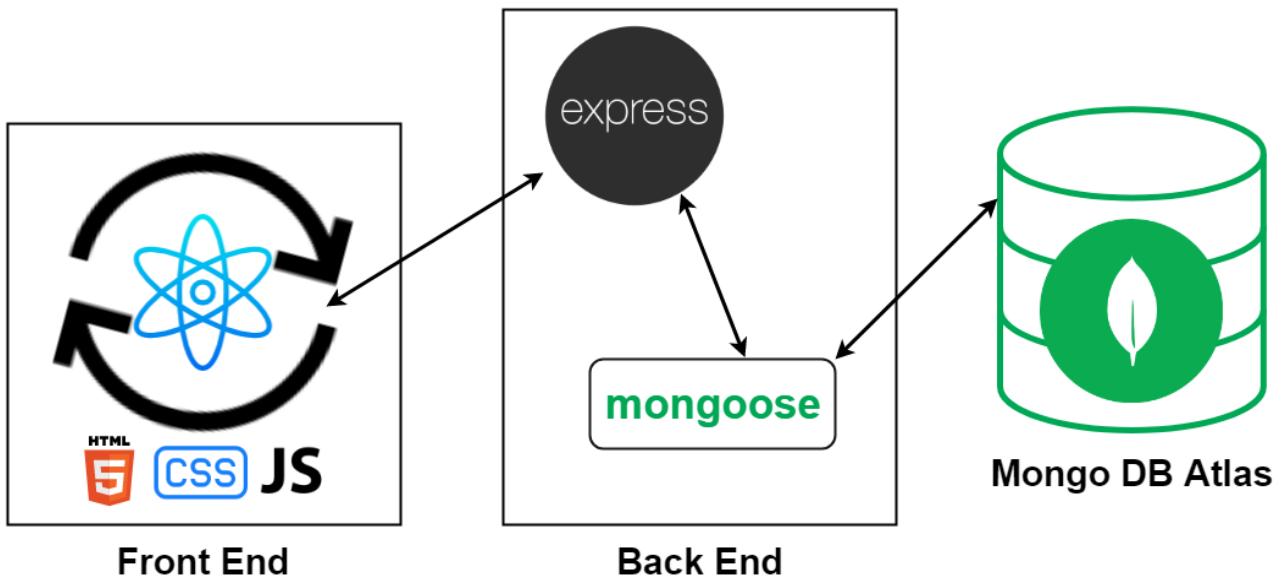
- A) Send the front-end to the remote browser when a user browses our app.
- B) Provide REST API that the front-end can access using HTTP network calls to access the database.

3) React JS: JavaScript library developed by Facebook to build interactive UI. React breaks the front end into components. Each component can hold its state that the parent can pass down to its child components, and the child can pass changes back to the parent component using callback functions.

4) Node JS: JavaScript runtime environment that runs our back-end application(via Express). Node JS is made upon Google's V8 JS engine, used in the Chrome browser. Third-party modules are installed using npm(Node Package Manager). Node JS is an asynchronous, event-driven engine where the application makes a request and then continues working on other useful tasks rather than stalling until a response. The application receives results via a callback, ensuring a lot of operations are performed in parallel when scaling applications.



Node JS Usage 2022.



3 Tier MERN Architecture

Goals for conducting Requirement Analysis:

- Identify customers' needs.
- Evaluate the system for feasibility.
- Economic and Technical analysis.
- Functions to system elements.
- Enforcing constraints.

Steps included in Requirement Analysis:

- Problem recognition
- Evaluation and synthesis.
- Specification
- Review.

Requirement Types:

1) Functional Requirements:

-Involves Input Output processes error handling.

2) Non-functional Requirements:

-Physical environment(equipment locations, multiple sites, etc.)

-Interface(electronic medium).

-User and human factors.

-Security.

-Quality assurance.

3) Validation:

- Are the requirements complete, accurate, uniform, and verifiable?

Workshoply has fulfilled all the above requirements. It is accessible via any electronic device that has a browser on it. It fulfills the requirement of helping instructors create and manage new workshops whose learners can learn from anywhere. The system runs successfully without errors. We can proceed further to the FAST technique:

FAST(Facilitated Application Specification Techniques).

The Objectives of FAST:

- Specify requirements.
- Identify the problem.
- Propose a solution.
- Negotiate between approaches.

Feasibility Studies

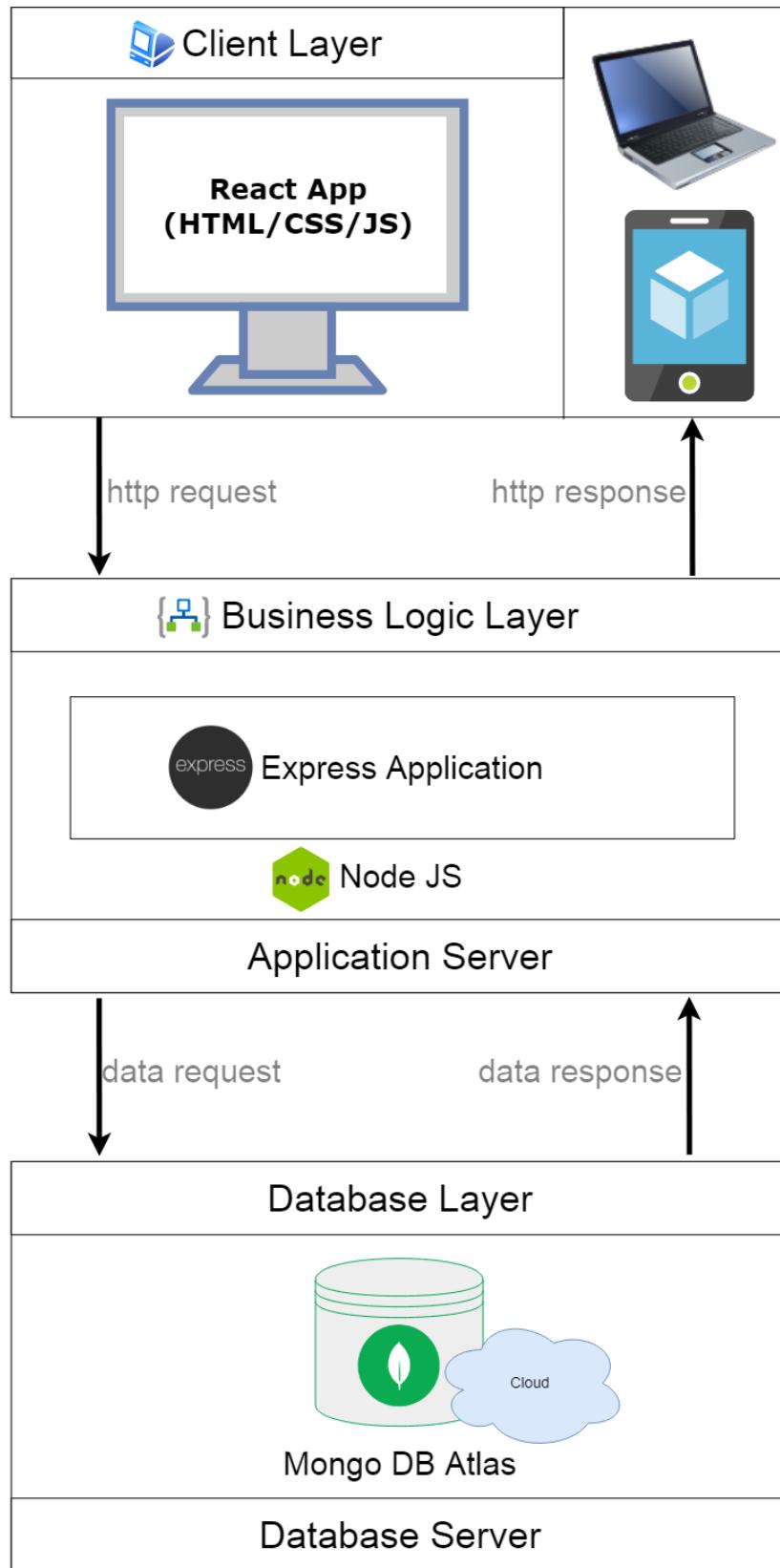
Workshoply is feasible, it does the task for which it was designed, as a learner I have incorporated all the simple tasks that are performed. As an open-source project, I foresee including many amenities inside it as time permits. **Operational and Technical feasibility** is covered as it's secured, cloud-based, and hosted on the web, so serves its purpose.

As an open-source project, **economic feasibility** is already satisfied and the product is free to use.

Schedule feasibility is also kept in mind as the testing environment is hosted on a dummy site and the actual production build is hosted on the main site.

Main Module of System

Main Module of System Overview:



4 User Privileges

4.1 Admin(CRUD Operations - Workshops and Attendees)

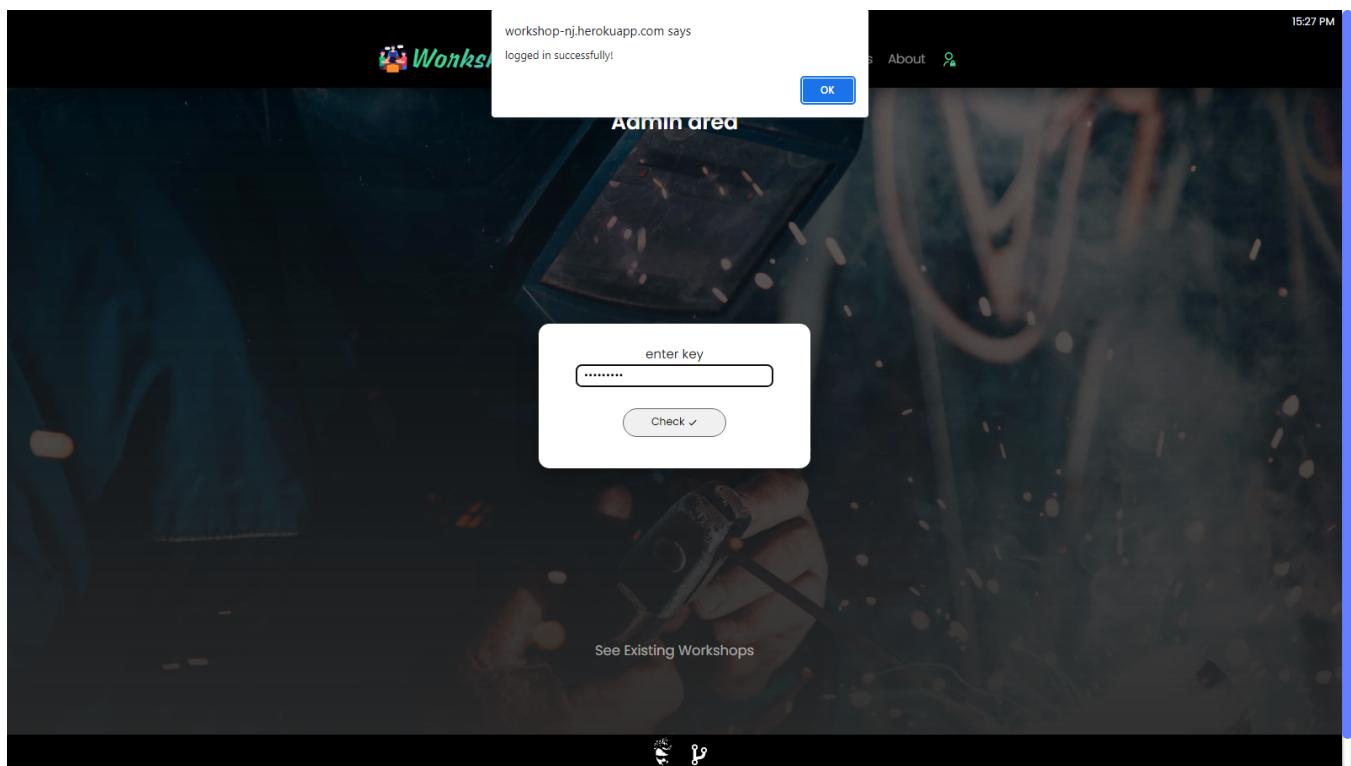
1) Workshops

Creating Workshops

- The Admin can create workshops by visiting and successfully logging in:

<https://workshop-nj.herokuapp.com/create>

Logging In

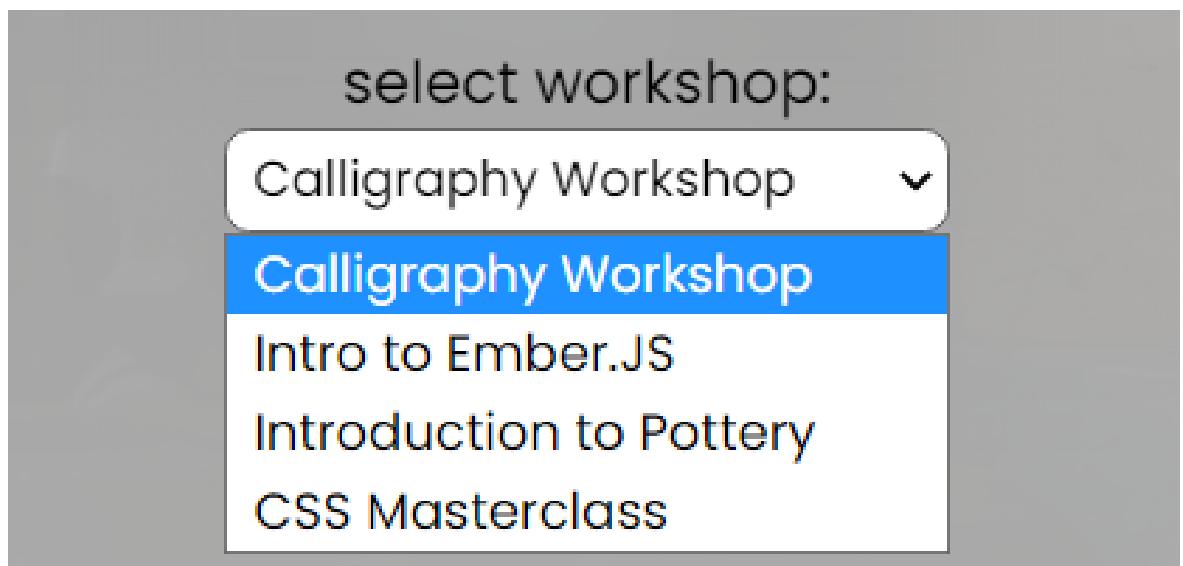


- Creating a workshop will insert the details into MongoDB Cluster and asynchronously append the new workshop at the end of the workshops page and in the dropdown on Register Form.

The screenshot shows the 'Create Workshop' form within the 'Admin area'. The form fields include:

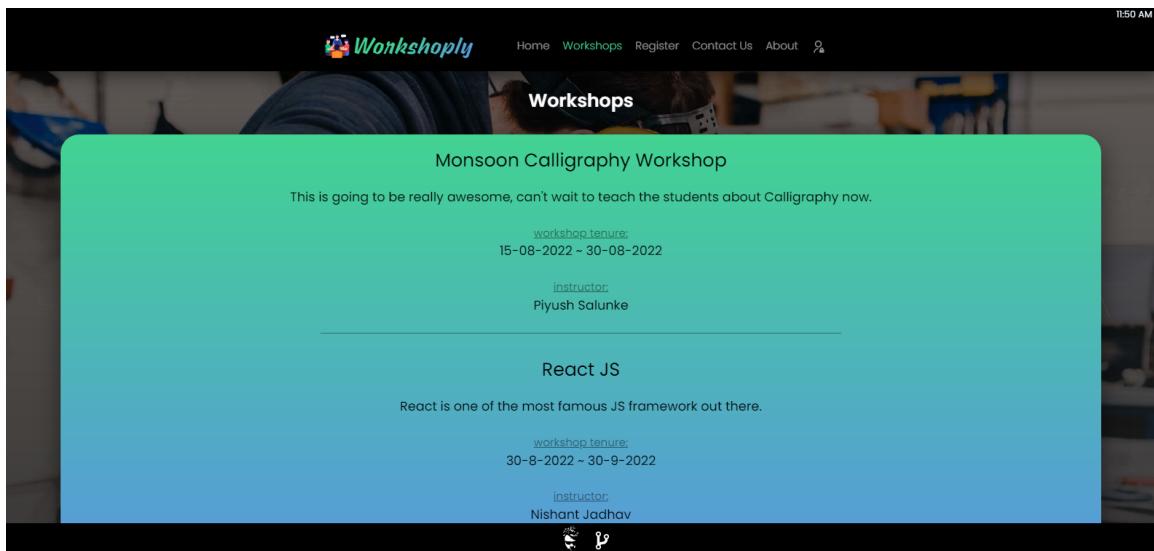
- workshop title: Increase Page Performance with Next.JS
- workshop description: This is the workshop for which I was waiting to conduct for a really long time. We will go deep into Next.JS
- from date: 10-9-2022
- to date: 30-9-2022
- instructor: Elon Musk

A green 'Add +' button is located at the bottom right of the form.

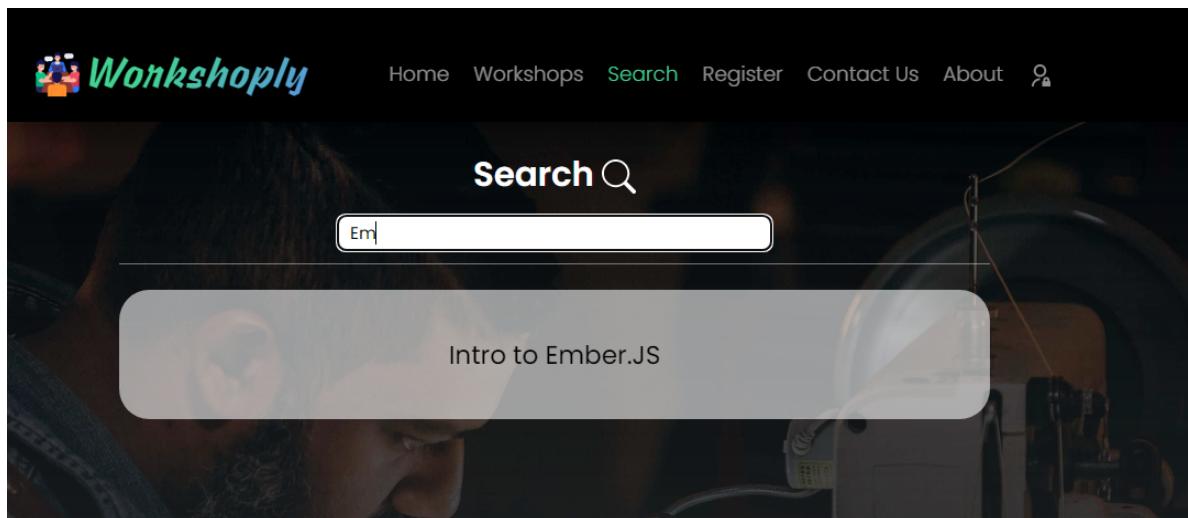


Reading Workshops

- Reading data from the MongoDB Cluster(Atlas) is carried out asynchronously, as we can see in Workshops, and the dropdown of Register.

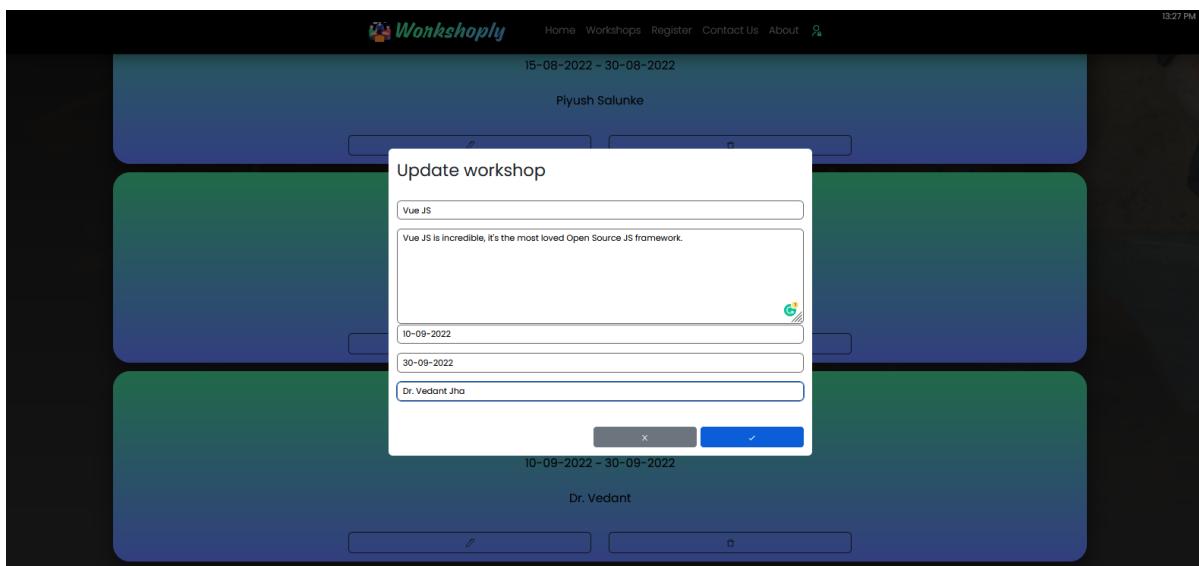


Search



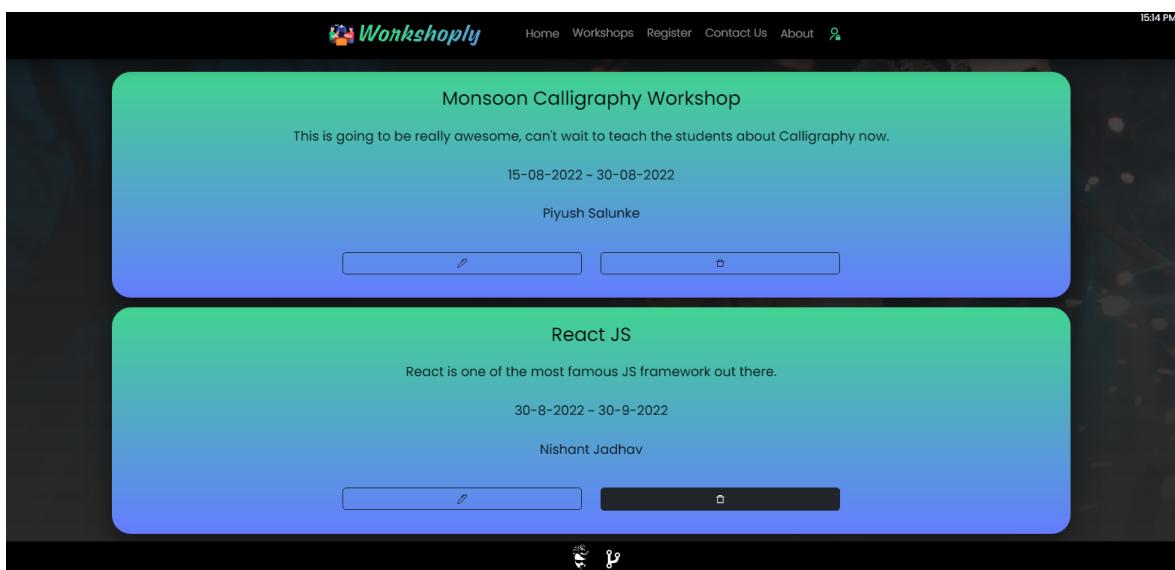
Updating Workshops

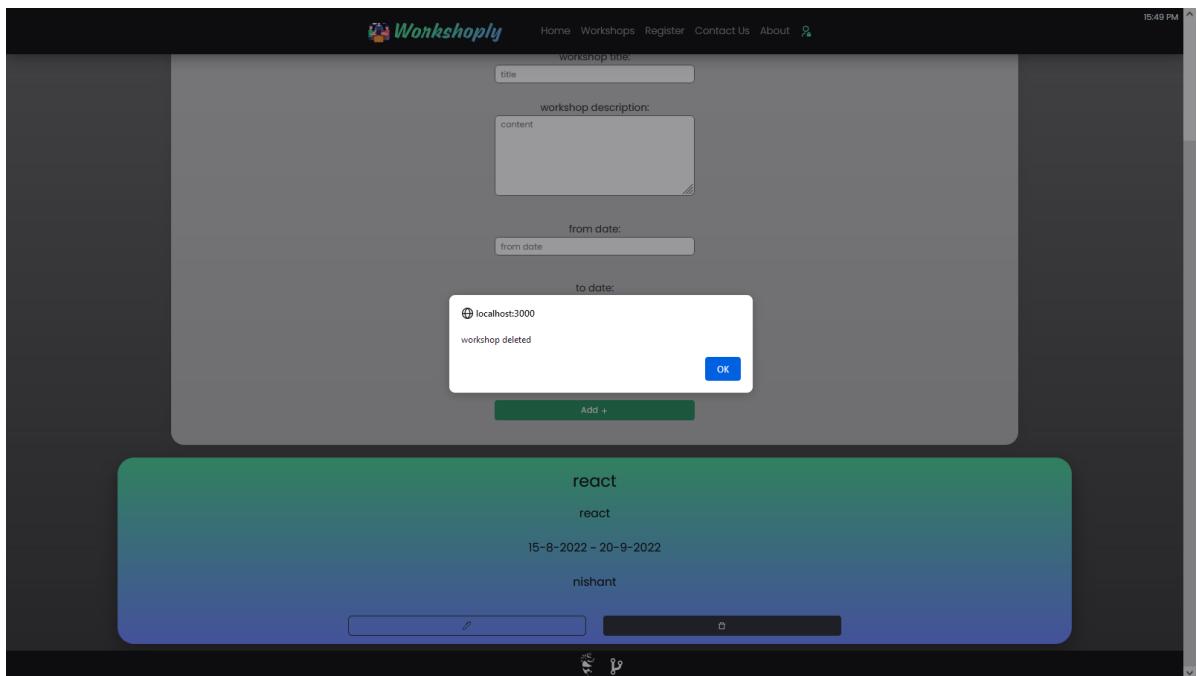
- Updating a particular workshop will only update the workshop with a particular ID in MongoDB Cluster(Atlas), at the same time it will update the workshops at Workshops, and in the dropdown of Register.



Deleting Workshops

- Deleting a workshop will permanently remove all details of the particular workshop in MongoDB Cluster(Atlas), at the same time it will remove that workshop from Workshops, and the dropdown of Register.





Workshoply App Attendees CRUD:

- Admin can Insert an attendee for a particular workshop.
- Users who registered for a workshop are visible to the Admin.
- Admin can Update, Delete and Search the current attendees.

11:34

VoIP 4G .11 94%

Registration Details



7,698,525,682

React JS

Nishant Jadhav

nisoojadhav@gmail.com

9/10/2022 10:41:39 AM

COMPOSE EMAIL
(EMAIL)



1,231,231,231

Calligraphy Workshop

Elon Musk

elonmusk@gmail.com

9/10/2022 11:33:38 AM

COMPOSE EMAIL
(EMAIL)



4,564,564,564

Intro to Ember.JS

Warren Buffett

warrenbuffet@yahoo.com

9/16/2022 5:28:01 AM

COMPOSE EMAIL
(EMAIL)



Registration Details

4.2 Other Users(Read(Search), Contact Us, Register)

Reading Workshops

The screenshot shows the 'Workshops' section of the Workshoply website. At the top, there's a navigation bar with links for Home, Workshops, Register, Contact Us, About, and a search icon. Below the navigation, there's a banner image of a person working on a workshop. Two workshop cards are displayed:

- Monsoon Calligraphy Workshop**
This is going to be really awesome, can't wait to teach the students about Calligraphy now.
workshop tenure: 15-08-2022 ~ 30-08-2022
instructor: Piyush Salunke
- React JS**
React is one of the most famous JS framework out there.
workshop tenure: 30-8-2022 ~ 30-9-2022
instructor: Nishant Jadhav

Contact

The screenshot shows the 'Contact Us' page of the Workshoply website. The page has a dark background featuring a photo of a person with a long white beard working on a workshop. The contact form is centered in the foreground:

enter name:
Nishant Jadhav

enter email:
nisojadhav@gmail.com

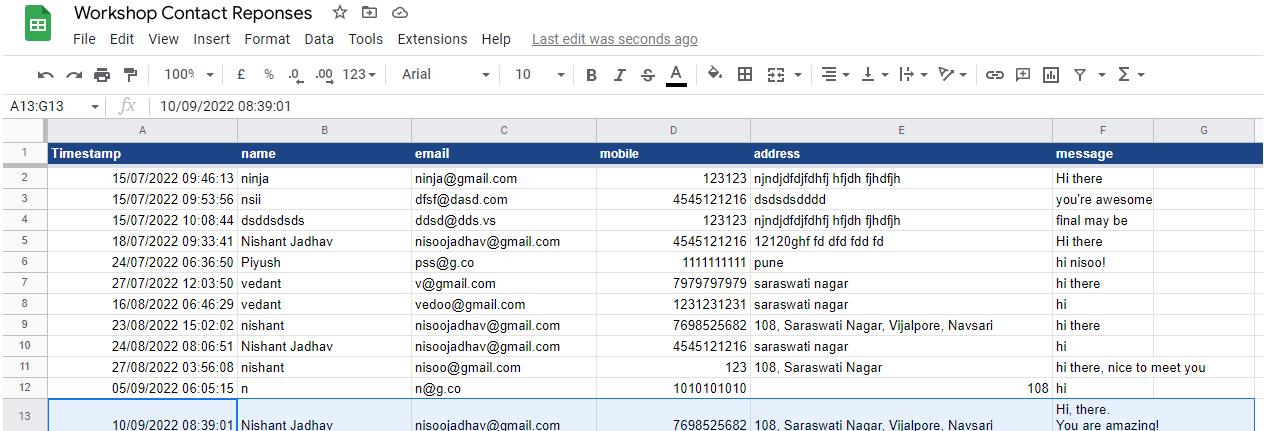
enter mobile no:
7698525682

enter address:
108, Saraswati Nagar, Vileipore, Navsari

enter message:
Hi there.
You are amazing!

Send ▶

Contact Responses

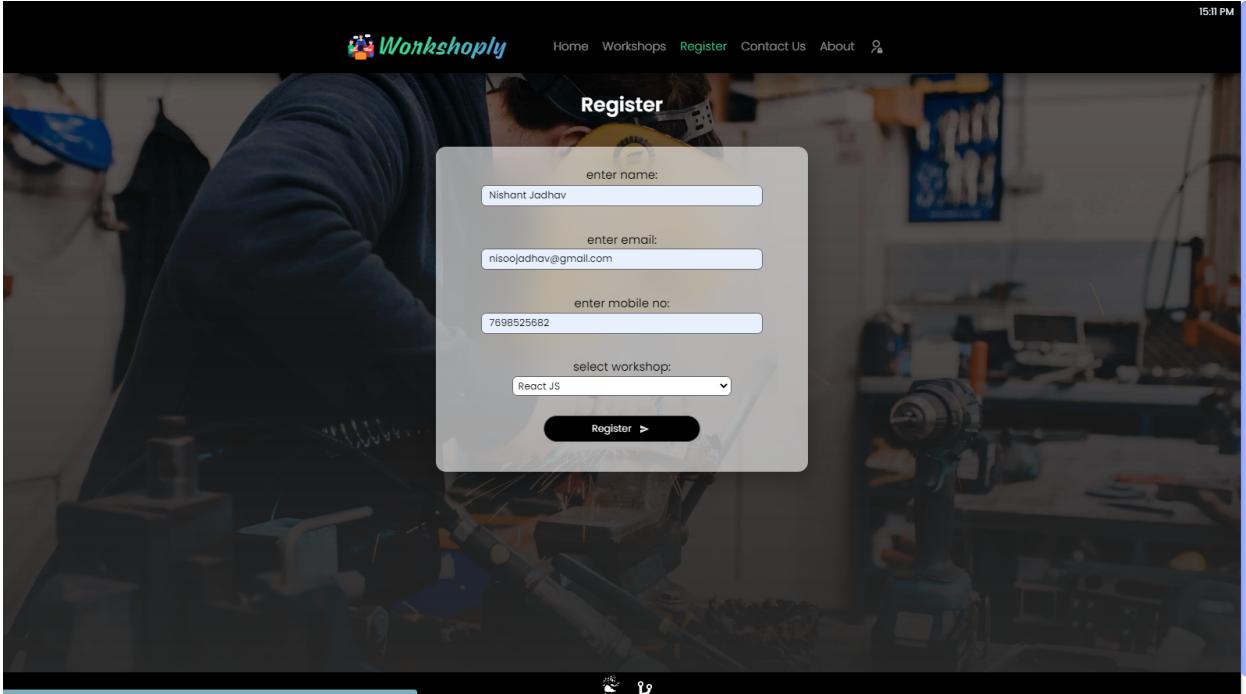


A screenshot of a Google Sheets document titled "Workshop Contact Reponses". The sheet contains 13 rows of data with the following columns: Timestamp, name, email, mobile, address, and message. The data includes various entries such as "ninja@gmail.com", "4545121216", and "Hi there". Row 13 is highlighted in blue.

	A	B	C	D	E	F	G
1	Timestamp	name	email	mobile	address	message	
2	15/07/2022 09:46:13	ninja	ninja@gmail.com	123123	rjnjjdfjfhfjh hjdh fhdfjh	Hi there	
3	15/07/2022 09:53:56	nsii	dfsdfdasd.com	4545121216	dsdsdsddd	you're awesome	
4	15/07/2022 10:08:44	dsddsdssds	ddsdd@dds.vs	123123	rjnjjdfjfhfjh hjdh fhdfjh	final may be	
5	18/07/2022 09:33:41	Nishant Jadhav	nisoojadhav@gmail.com	4545121216	12120ghf fd fdf fdd fd	Hi there	
6	24/07/2022 06:36:50	Piyush	pss@g.co	1111111111	pune	hi niso!	
7	27/07/2022 12:03:50	vedant	v@gmail.com	7979797979	saraswati nagar	hi there	
8	16/08/2022 06:46:29	vedant	vedoo@gmail.com	1231231231	saraswati nagar	hi	
9	23/08/2022 15:02:02	nishant	nisoojadhav@gmail.com	7698525682	108, Saraswati Nagar, Vijalpore, Navsari	hi there	
10	24/08/2022 08:06:51	Nishant Jadhav	nisoojadhav@gmail.com	4545121216	saraswati nagar	hi	
11	27/08/2022 03:56:08	nishant	nisoog@gmail.com	123	108, Saraswati Nagar	hi there, nice to meet you	
12	05/09/2022 06:05:15	n	n@g.co	1010101010		108	hi
13	10/09/2022 08:39:01	Nishant Jadhav	nisoojadhav@gmail.com	7698525682	108, Saraswati Nagar, Vijalpore, Navsari	Hi, there. You are amazing!	

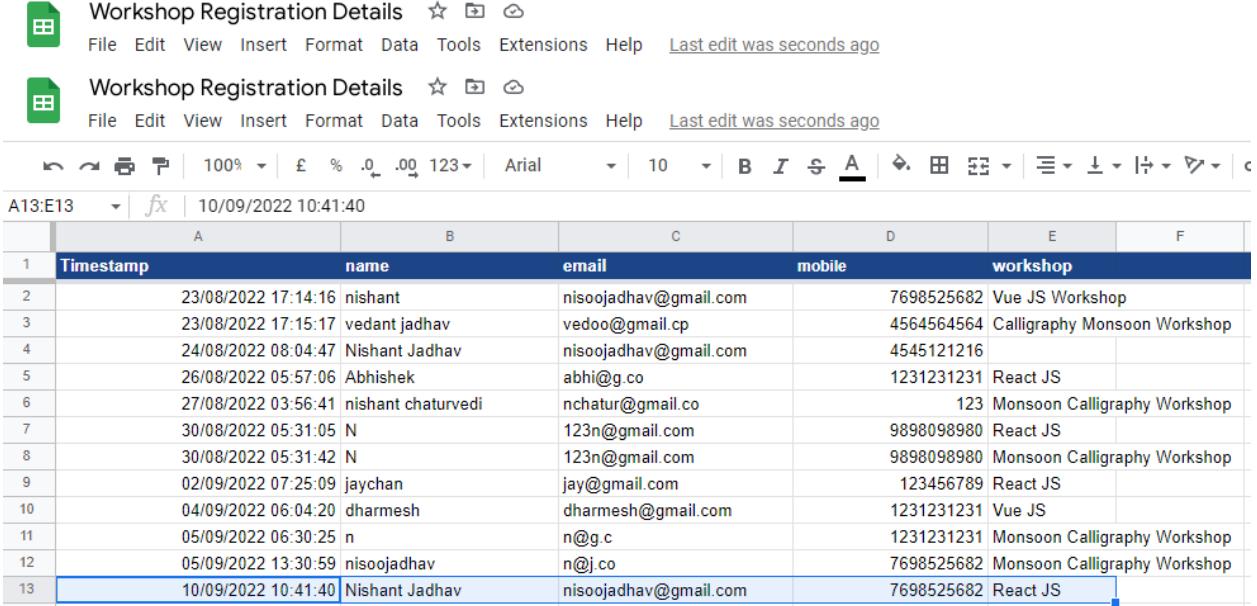
Contact form responses are saved asynchronously on Google Sheets, and mail notification is sent to the admin.

Register



A screenshot of the Workshoply website showing a registration form. The form is titled "Register" and contains fields for "enter name:", "enter email:", "enter mobile no.", and "select workshop:". The "select workshop:" field has "React JS" selected. A "Register >" button is at the bottom. The background shows a workshop environment with tools and equipment.

Register Responses

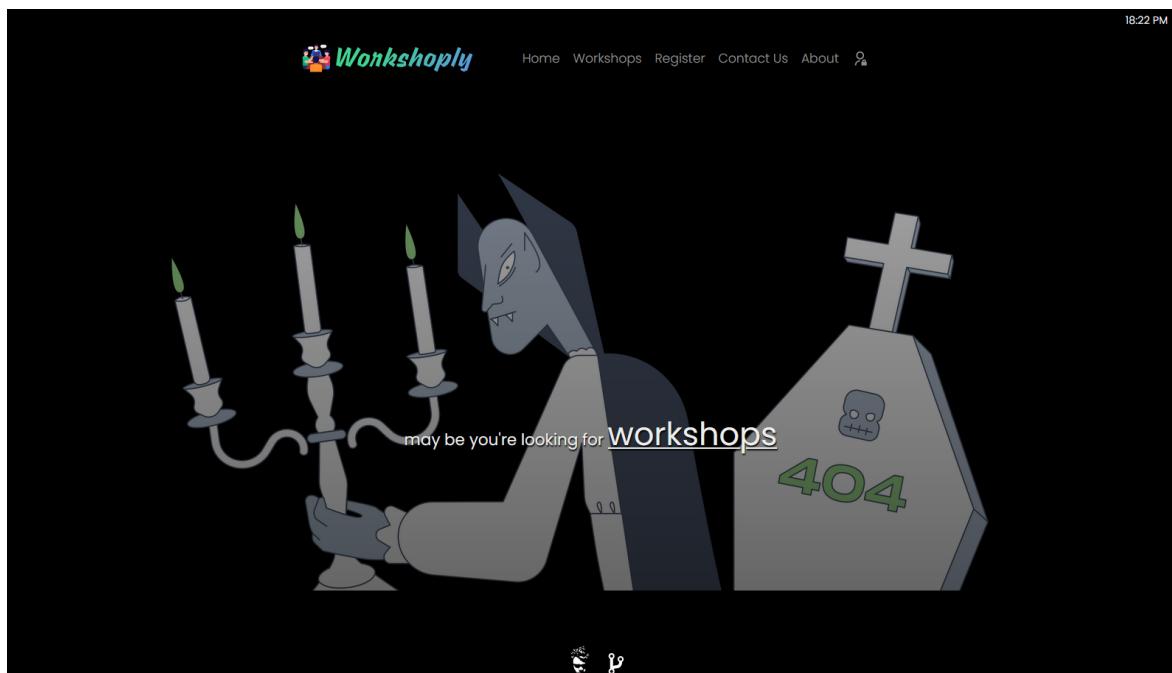


A screenshot of a Google Sheets document titled "Workshop Registration Details". The sheet contains 13 rows of data with the following columns: Timestamp, name, email, mobile, and workshop. The data includes various names, emails, and phone numbers, along with workshop names like "Vue JS Workshop", "Calligraphy Monsoon Workshop", and "React JS". The timestamp column shows entries from August 23rd to September 5th, 2022.

Timestamp	name	email	mobile	workshop
23/08/2022 17:14:16	nishant	nisoojadhav@gmail.com	7698525682	Vue JS Workshop
23/08/2022 17:15:17	vedant jadhav	vedoo@gmail.cp	4564564564	Calligraphy Monsoon Workshop
24/08/2022 08:04:47	Nishant Jadhav	nisoojadhav@gmail.com	4545121216	
26/08/2022 05:57:06	Abhishek	abhi@g.co	1231231231	React JS
27/08/2022 03:56:41	nishant chaturvedi	ncnatur@gmail.co	123	Monsoon Calligraphy Workshop
30/08/2022 05:31:05	N	123n@gmail.com	9898098980	React JS
30/08/2022 05:31:42	N	123n@gmail.com	9898098980	Monsoon Calligraphy Workshop
02/09/2022 07:25:09	jaychan	jay@gmail.com	123456789	React JS
04/09/2022 06:04:20	dharmaesh	dharmaesh@gmail.com	1231231231	Vue JS
05/09/2022 06:30:25	n	n@g.c	1231231231	Monsoon Calligraphy Workshop
05/09/2022 13:30:59	nisoojadhav	n@j.co	7698525682	Monsoon Calligraphy Workshop
10/09/2022 10:41:40	Nishant Jadhav	nisoojadhav@gmail.com	7698525682	React JS

the Register form responses are saved asynchronously on Google Sheets, and mail notification is sent to the admin, the data is accessible by admin via Workshoply Mobile App.

404 Page

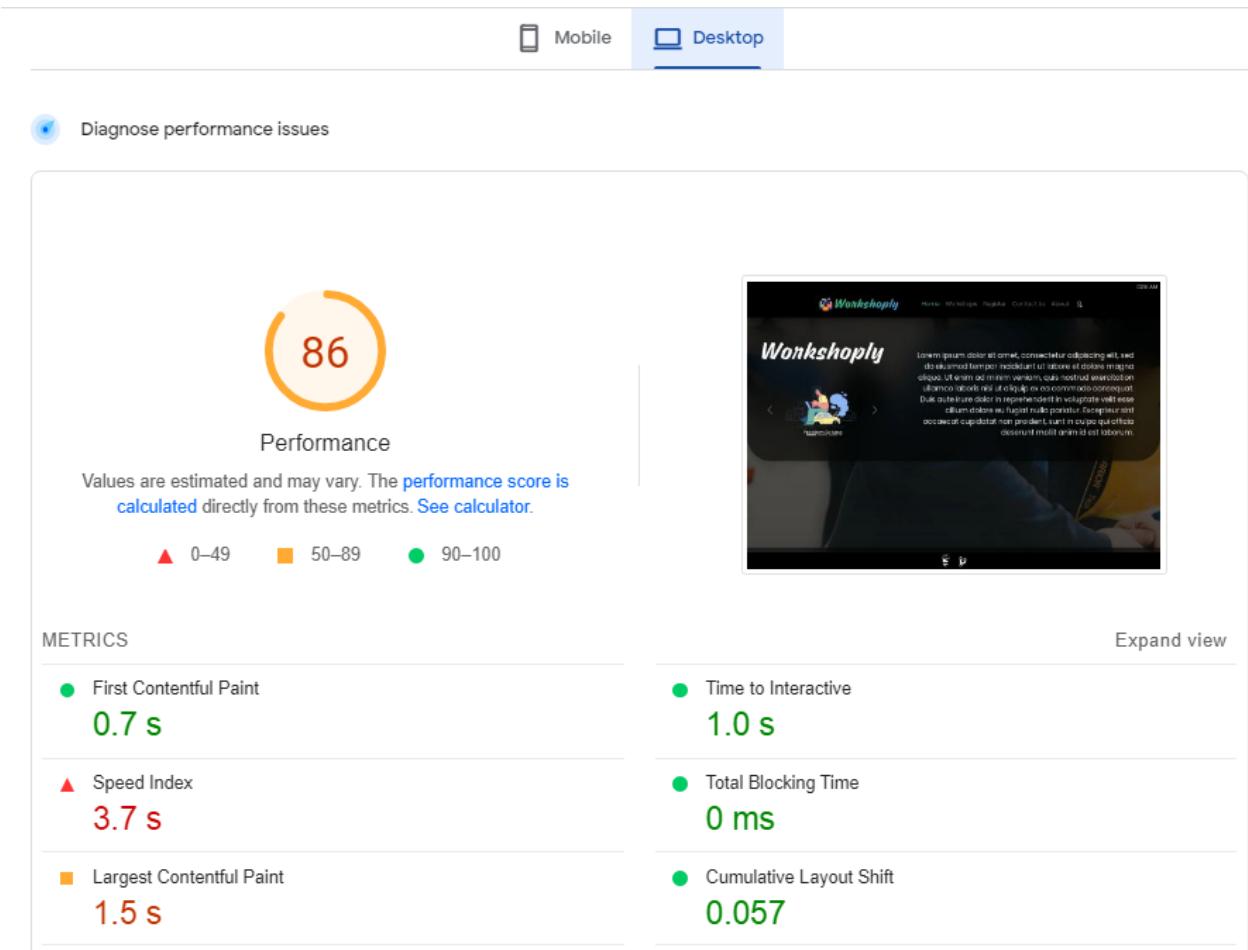


'404 not found' page is displayed to a user when he visits the path that doesn't exist on the website.

E.g:

<https://workshop-nj.herokuapp.com/hello>

Web Speed Insights



View speed insights on:

https://pagespeed.web.dev/report?url=https%3A%2F%2Fworkshop-nj.herokuapp.com%2F&form_factor=desktop

5 Tools and Technologies

5.1 Overview

Workshoply - is a full stack MERN(MongoDB, Express, React, NodeJS) Application.

Whatever tech stack developed using NodeJS and is currently running on the web requires node modules, node modules are a group of programs packed in one program. One module can depend upon other 1000s of modules, another module can use the module at the same time.

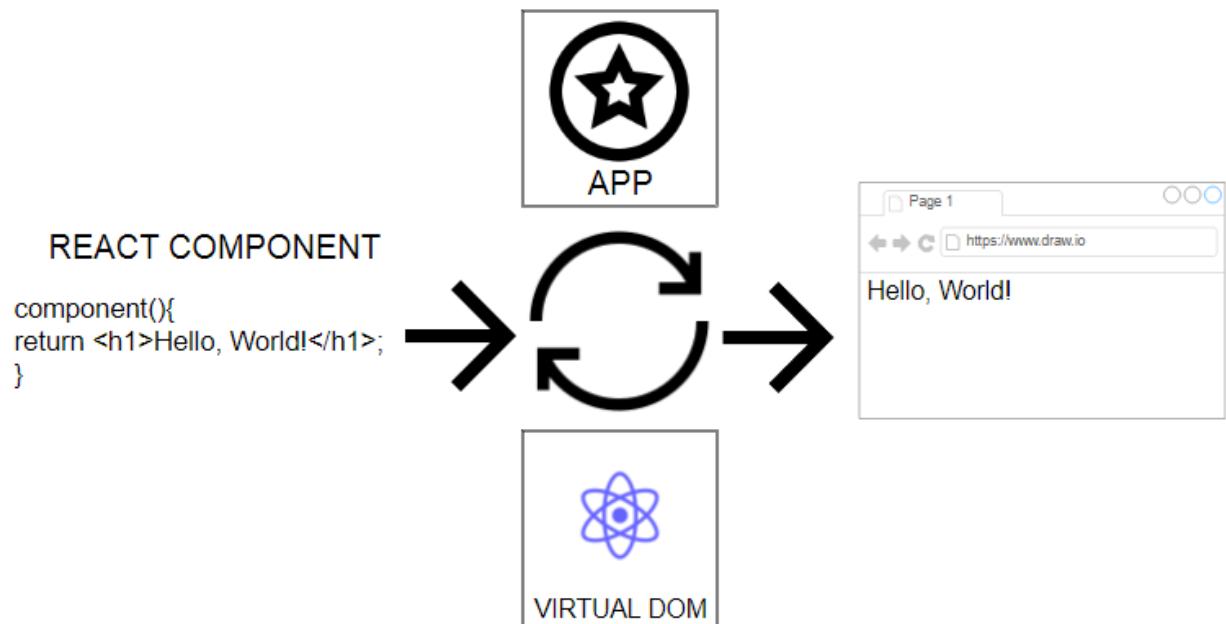
[Dependents \(126\)](#)

```
tvp-vod-downloader create-r3f-app create-aloudata-app @bahachammakhi/react-cli react-3xd  
ac-create-web create-plasmic-app shytools @redtea/generator-react-app visualizer-machines  
testofnpm12138 t00ls poyka npm-package-client create-react-wordpress-plugin  
generator-reactant yjq-wap @miserylee/create-react-app jsbot-cli oucc-react sandhya123_3  
mid-tinker-cli initial-react-app franklin_templeton rigel-app create-ueno-app  
create-wptheme-redux yapij @statecharts/xstate-viz presearch-packages  
create-wakfu-react-app redux-react-app-cli @graphistry/falcor-react-schema sy-react-init  
@jdavanti/react-cli create-mango-react-app express-react-generator  
@nothingmore/generator cli-react generator-lemon-ts @eins78/globals  
create-react-with-redux react-workspace-scripts cineasta-cli nickel-front  
react-cli-module-structure ratpack create-rrr-app dli yarn-create-react-app  
and more...
```

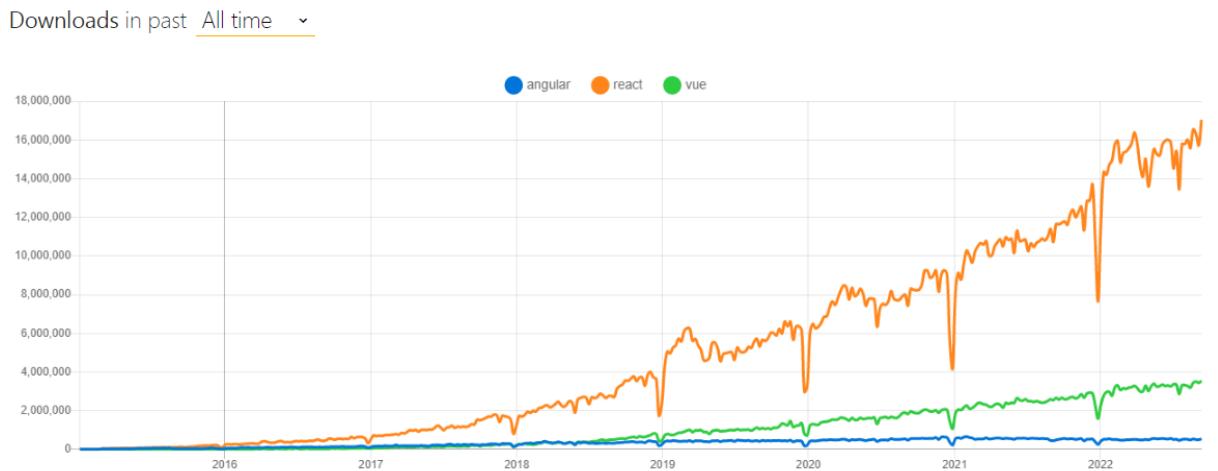
E.g of dependents from create-react-app npm module:

5.2 Why React JS?

- Large developer community → Everything is component
- (With 195k Stars on Github)
- Easy to learn compared to → Reuse of components
Angular JS
- Efficient debugging → Routing Feature(loads pages with getting refreshed)
- Virtual DOM → Effective Single Page Application
- JSX to increase performance → Unidirectional data flow
- Easily develop dynamic websites → Open Source



How React Works



Popularity of React all time among Angular, React and Vue

5.3 CSS and Bootstrap

CSS is written from scratch keeping in mind the design rules, typography, font ligature, and responsiveness in mind. Total lines of CSS exceed 800 lines including inline(where it was the need of hour).

Bootstrap is used for modals, react version of Bootstrap: react-bootstrap and react-bootstrap-carousel modules were used to combine with inline JSX.

The complete CSS can be found at:
<https://github.com/NisooJadhav/workshop/blob/main/client/src/App.css>

5.4 Node Modules

Backend:

- **cors**: Cross-Origin Resource Sharing allows a server to indicate any origins (domain, scheme, or port) other than its own from which a browser should permit loading resources.
- **dotenv**: loads environment variables from a .env file into process.env. (to hide MongoDB Atlas connection key).
- **express**: the primary use of Express is to provide server-side logic for web and mobile applications.
- **mongoose**: Mongoose is a MongoDB object modeling tool designed to work in an asynchronous environment. Mongoose supports both promises and callbacks.
- **path**: provides a way of working with directories and file paths.

Frontend:

- **jquery, react-bootstrap**: common frontend styling and functionalities.
- **axios**: to HTTP requests from NodeJS.
- **lodash**: simplify writing arrays, objects, etc.
- **react-bootstrap-carousel**: for carousel in React.
- **react-loader-spinner**: loading spinners.
- **moment**: to parse Date as per our requirement.
- **react-icons**: to add icons in our app.
- **react-dom**: an efficient way of managing DOM elements of web page.

All of the backend and frontend modules can be downloaded using npm or yarn from <https://www.npmjs.com/> or <https://yarnpkg.com/>.

Syntax to install modules:

```
$ npm i module_name
```

5.5 Deployment to Heroku

Prerequisites:

- Working app on local environment.
- Heroku account(<https://heroku.com/>)
- ‘Procfile’ on root directory of backend code, containing code:

web: node server.js

- ‘.env’ file on root directory of backend code, containing MongoDB connection key, and password:

**MONGO_URI="mongodb+srv://username:password
@cluster0.q4hdt.mongodb.net/workshopsDB"**

- Add additional lines in server.js:

```
//configuring .env file
require("dotenv").config();

//logic for whether the website is local or production
if(process.env.NODE_ENV === 'production')
{
  app.use(express.static("client/build"));
  app.get("*",(req,res)=>{
    res.sendFile(path.resolve(__dirname,"client","build","index
.html"));
  });
}
```

Directory structure should look like this:

Workshop

|

|->client

|->build

|->node_modules

|->public

|->src

package.json

package-lock.json

|->node_modules

.env

Package.json

Package-lock.json

Procfile

server.js

Build directory inside client directory contains compact production code that is ready to be hosted.

Get into the client directory and run to build production code:

\$ npm run build

PUSHING TO GITHUB:

Create .gitignore file(ignores files specified when pushing to GitHub) in the root directory containing:

.env

node_modules

Get into the root directory and initialize a git repository.

\$ git init

\$ git add .

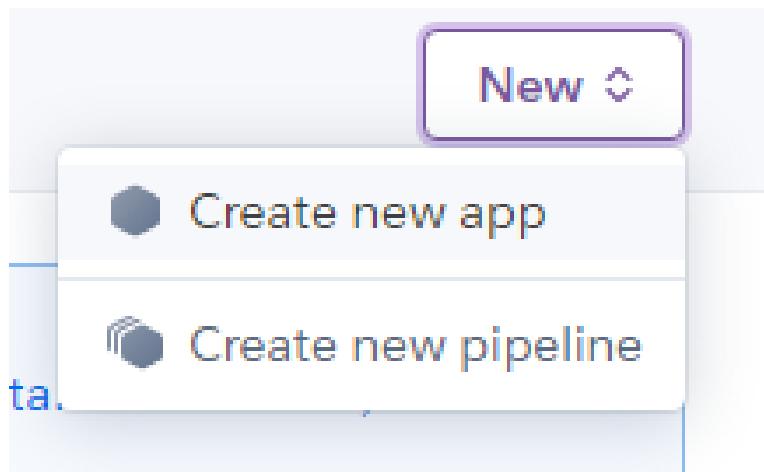
\$ git commit -m "demo commit"

\$ git push

The above four commands will push your project to the GitHub repository.

CREATING PROJECT ON HEROKU:

Visit heroku.com, log in or signup, then select New->Create new app:



Create New App

App name

Choose a region

Europe

▼

[Add to pipeline...](#)

Create app

Go to Deploy -> Deployment Method, select GitHub to choose your repository -> Connect

Heroku Git
Use Heroku CLI

GitHub
Connect to GitHub

Container Registry
Use Heroku CLI

Heroku Git
Use Heroku CLI

GitHub
Connect to GitHub

Container Registry
Use Heroku CLI

Search for a repository to connect to

NisooJadhav

▼

workshop

Search

Missing a GitHub organization? [Ensure Heroku Dashboard has team access.](#)

NisooJadhav/workshop

Connect

Manual Deploy -> Deploy Branch

Manual deploy

Deploy the current state of a branch to this app.

Deploy a GitHub branch

This will deploy the current state of the branch you specify below. [Learn more.](#)

Choose a branch to deploy

main

▼

Deploy Branch

You should success message like this:

The screenshot shows a deployment interface. At the top, it says "Deploy a GitHub branch". Below that, a note states "This will deploy the current state of the branch you specify below. [Learn more](#)". A dropdown menu labeled "Choose a branch to deploy" shows "main". A "Deploy Branch" button is next to it. Below this, there's a list of deployment steps with checkboxes:

- Receive code from GitHub (checked)
- Build main d10f7f8b (checked)
- Release phase (checked)
- Deploy to Heroku (checked)

At the bottom, a message says "Your app was successfully deployed." with a "View" button.

The last thing to do, is to add config vars(MongoDB Connection Key, you can get it from MongoDB Atlas Cluster):

Visit settings -> config vars -> reveal config vars -> enter key and value -> add.

5.6 MongoDB Atlas

It's a MongoDB but on the cloud. To get started we can:

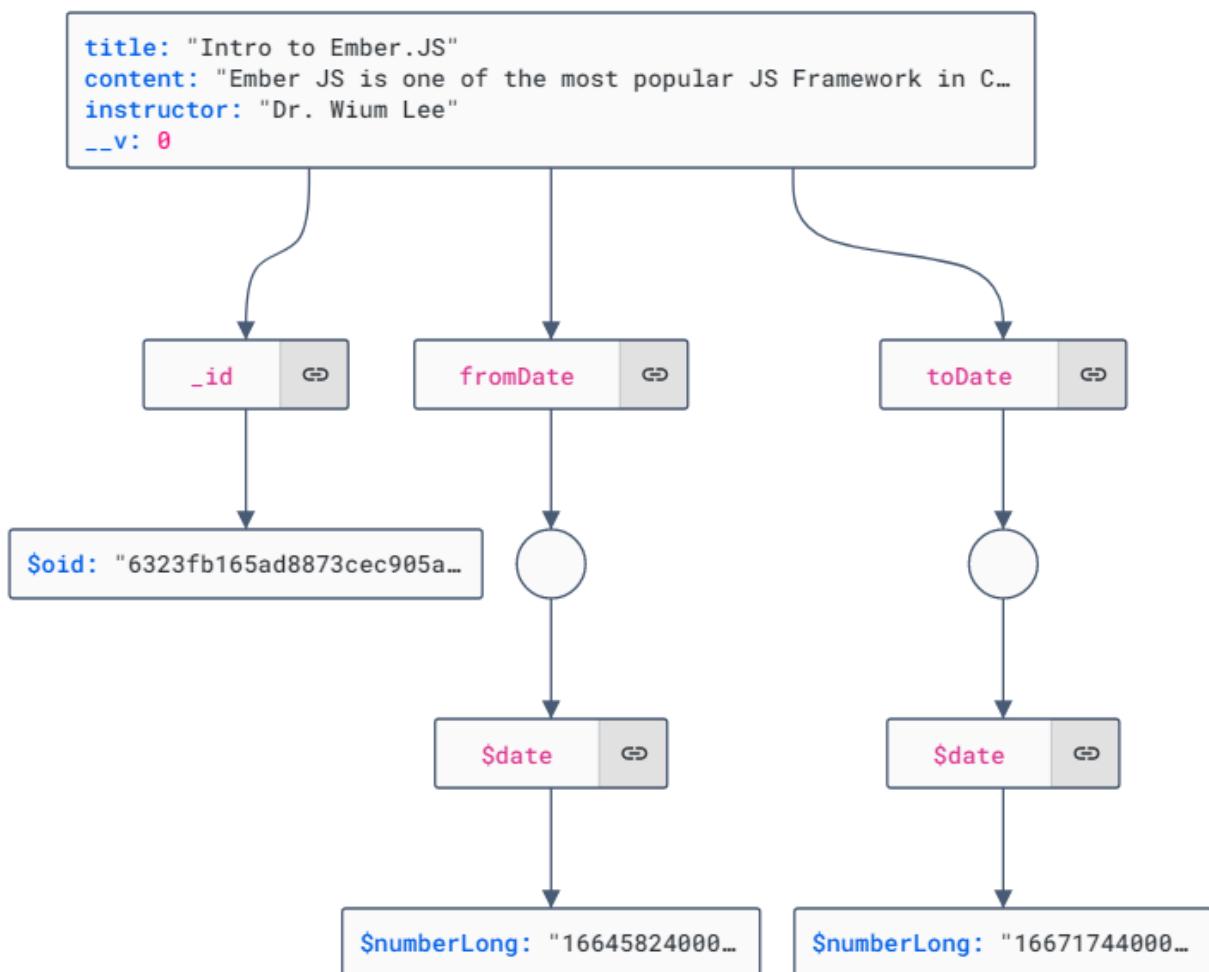
- 1 - visit mongodb.com -> login or signup
- 2 - create cluster -> select location -> free tier.
- 3 - access permission -> from any IP Address.
- 4 - enter password.
- 5 - Copy the connection key, and replace 'password' with your actual password.

5.7 Database Schema

The Document Schema looks like following:

```
[  
  "_id": {  
    "$oid": "631c67bb3ba8b551d7c45633"  
  },  
  "title": "Printing Circuit Boards for Raspberry Pi Workshop",  
  "content": "Printing Circuit Boards for Raspberry Pi Workshop, I  
am really excited to teach you how to print circuit boards.",  
  "fromDate": {  
    "$date": {  
      "$numberLong": "1664150400000"  
    }  
  },  
  "toDate": {  
    "$date": {  
      "$numberLong": "1666742400000"  
    }  
  },  
  "instructor": "Piyush Salunkhe",  
  "__v": 0  
]
```

_id is assigned automatically by MongoDB, using hashes. Then we have the title, content, and instructor to be a type of '**string**'. And fromDate and toDate in form of '**date**' respectively.



Visualizing Single Document of Workshop Collection

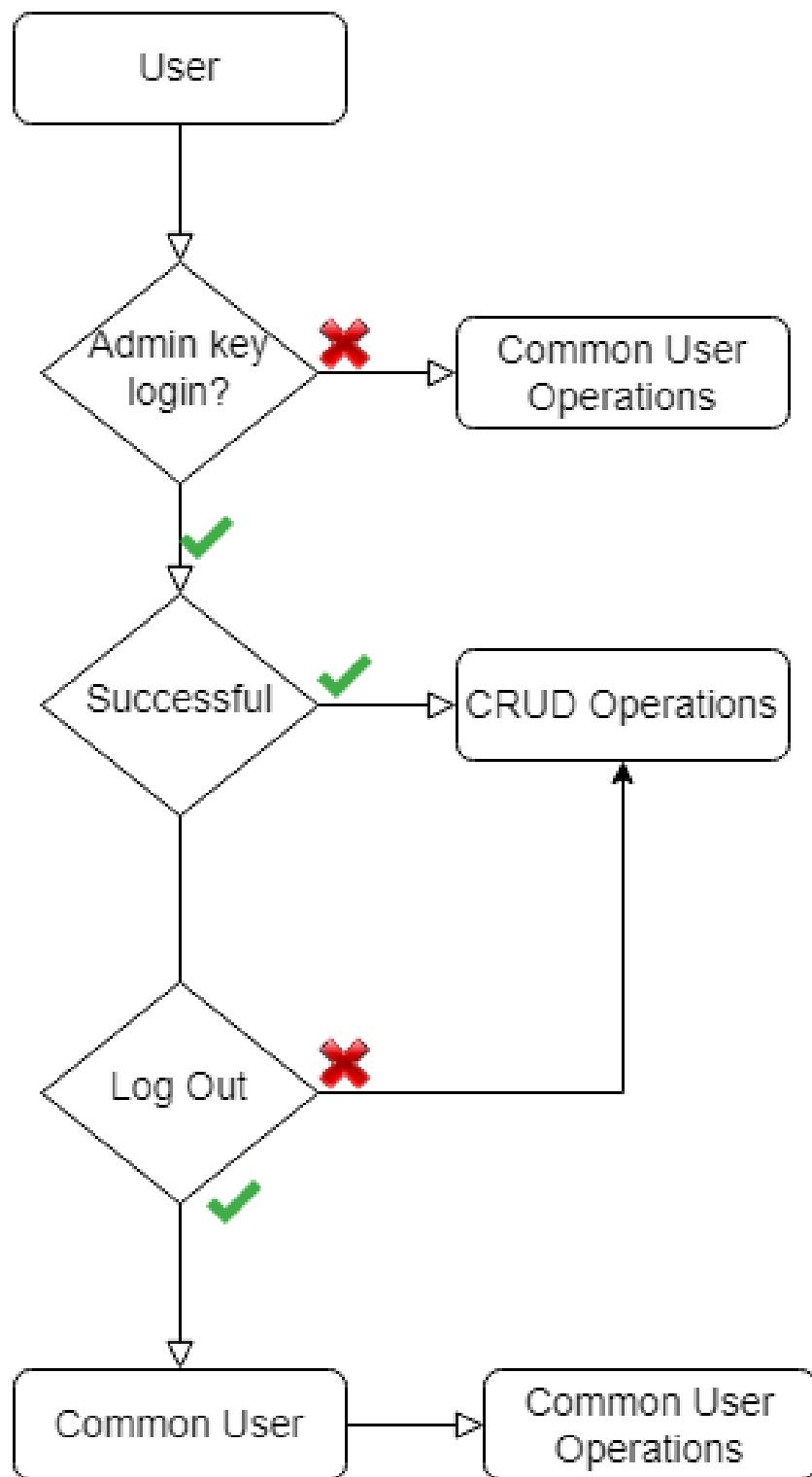
5.8 REST API

Representational State Transfer Application Programming Interface is a tech that uses HTTP requests to access and use data, The data can be used to carry out GET(Read), PUT(Update), POST(Insert), and DELETE>Delete(Delete) operations against concerning data resources.

Method	Route	Description
GET	app.get("/posts")	Get all workshops.
PUT	app.put("/update/:id")	Update particular workshop.
POST	app.post("/create")	Create new workshop.
DELETE	app.delete("/delete/:id")	Delete workshop of a particular id.

6 System Diagrams

6.1 System Flowchart

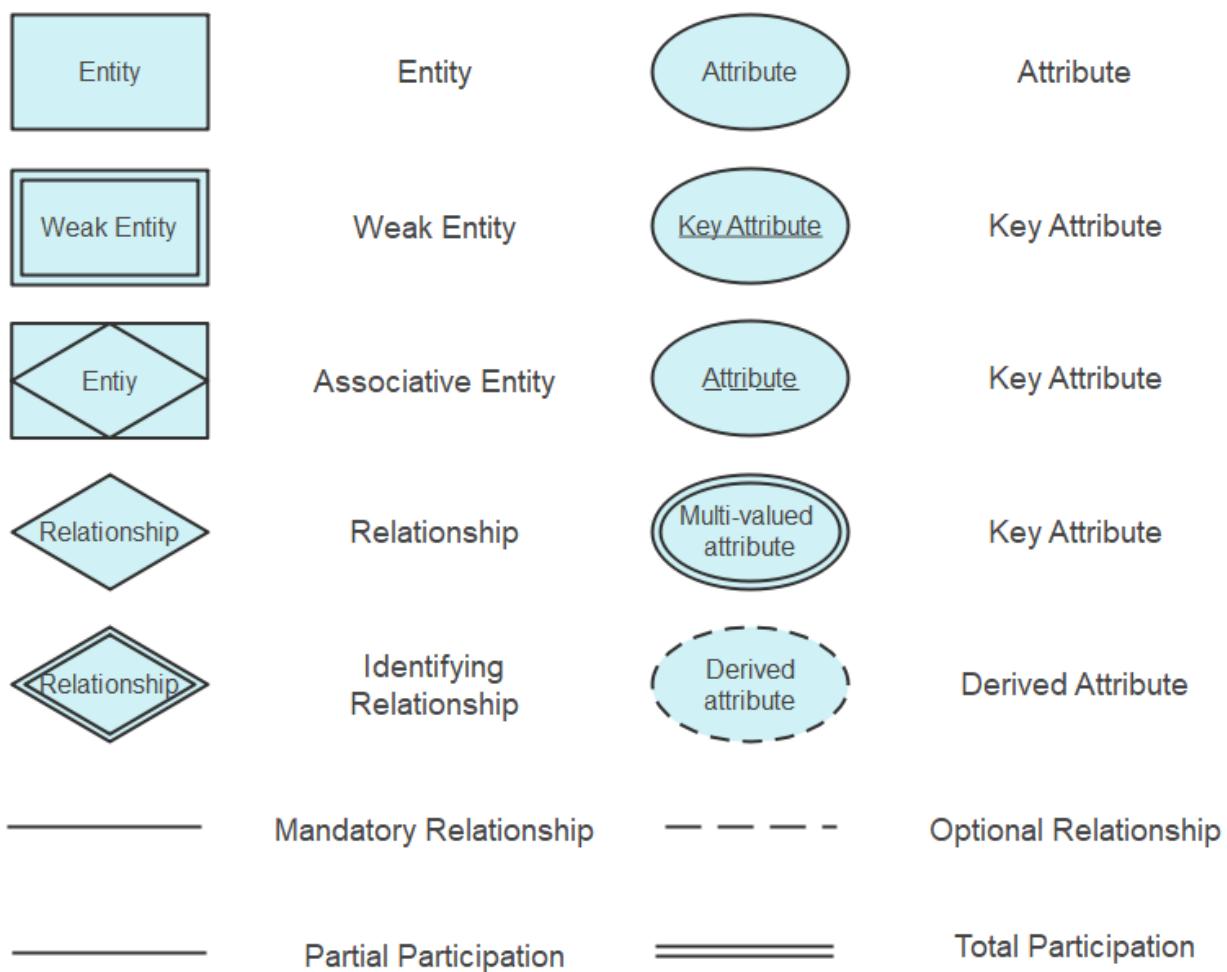


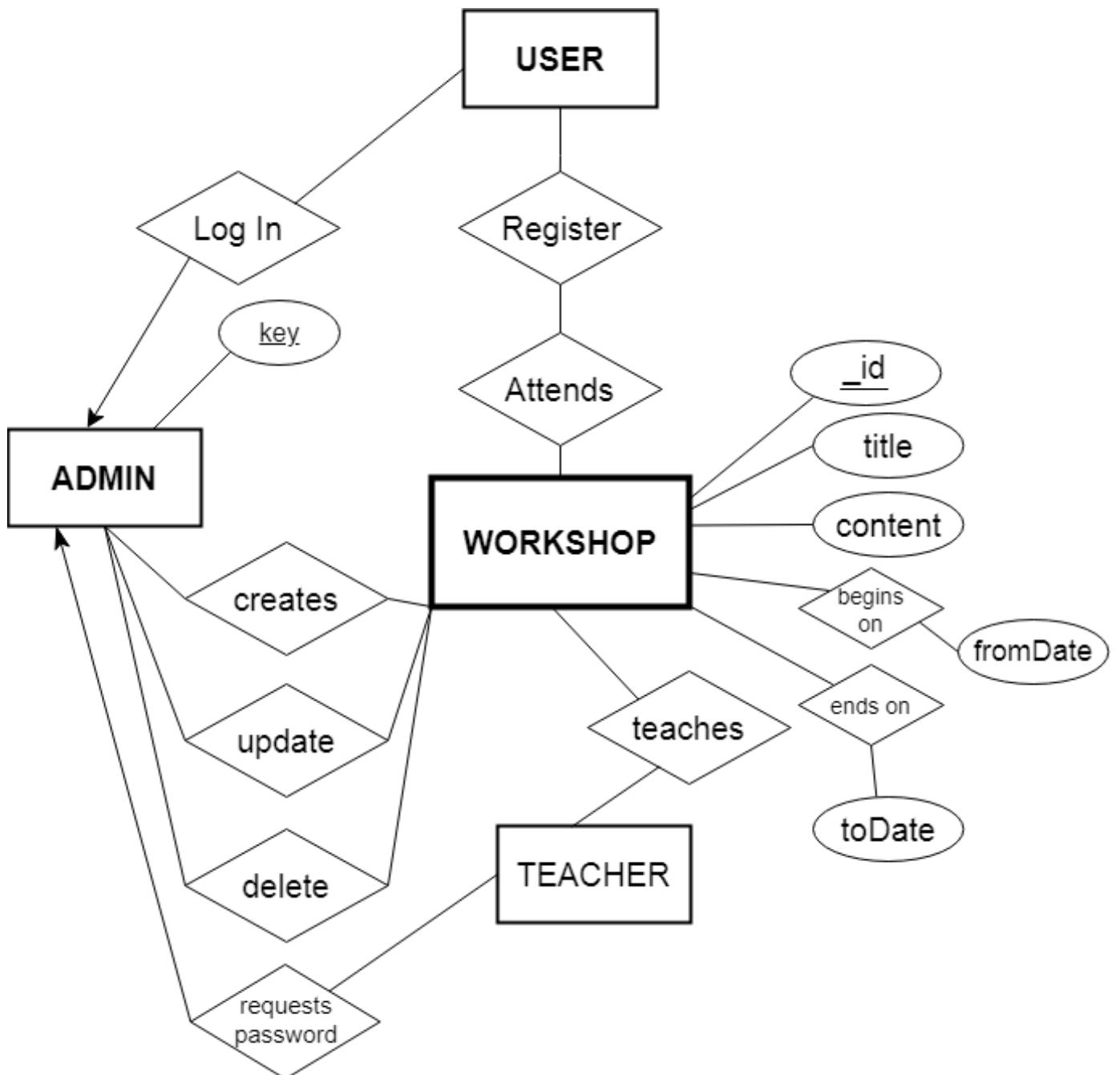
6.2 Entity Relation Diagram

An entity-relationship model (or ER model) describes interrelated things of interest in a specific domain of knowledge.

A basic ER model is composed of entity types (which classify the things of interest) and specifies relationships that can exist between entities (instances of those entity types).

ER model becomes an abstract data model, that defines a data or information structure that can be implemented in a database, typically a relational database.





Entity Relationship Diagram

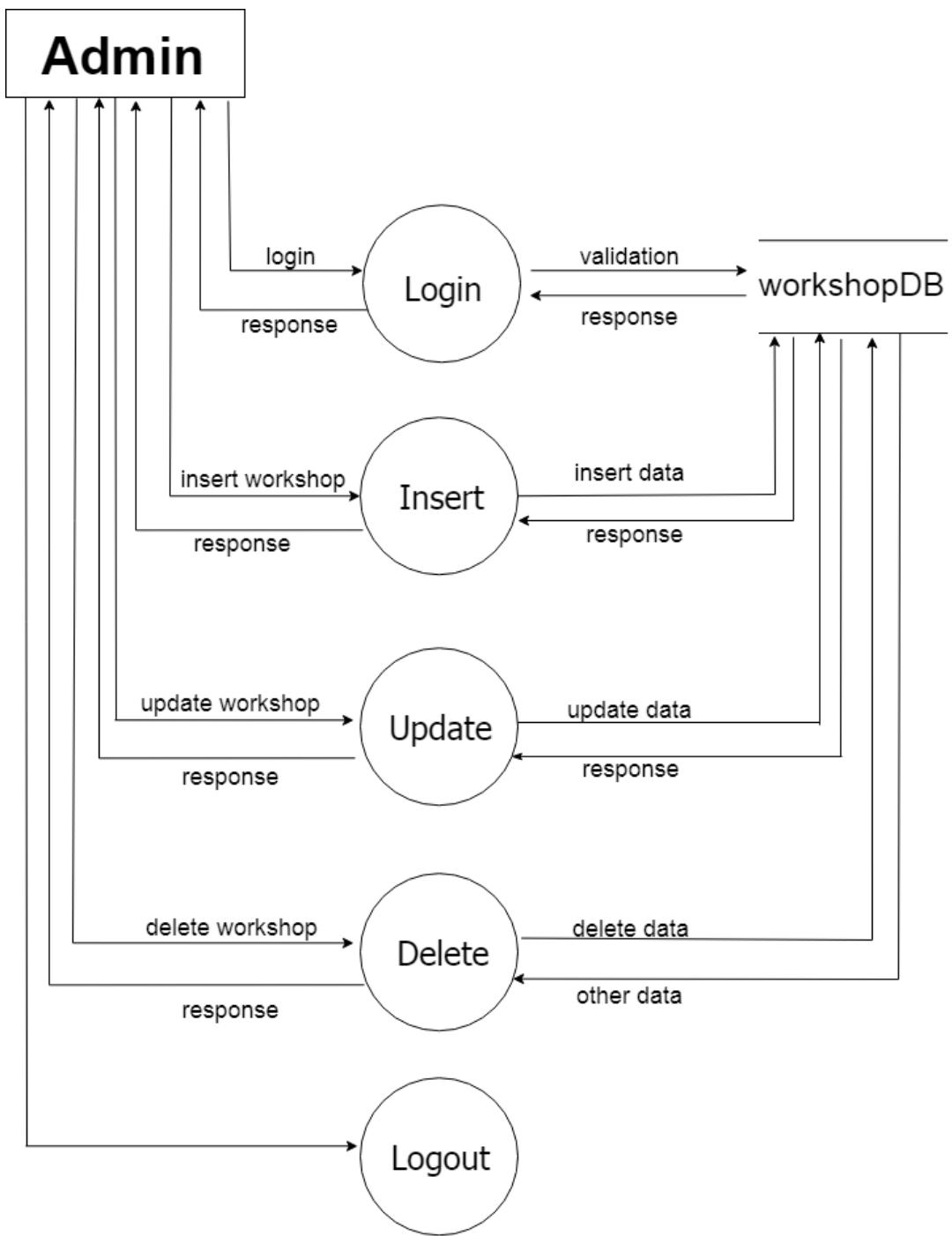
6.3 Data Flow Diagram

- The flow of data of a system or process is represented by DFD. The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow – there are no decision rules and no loops.
- For each data flow, at least one of the endpoints (source and/or destination) must exist in a process. The refined representation of a process can be done in another data-flow diagram, which subdivides this process into sub-processes.

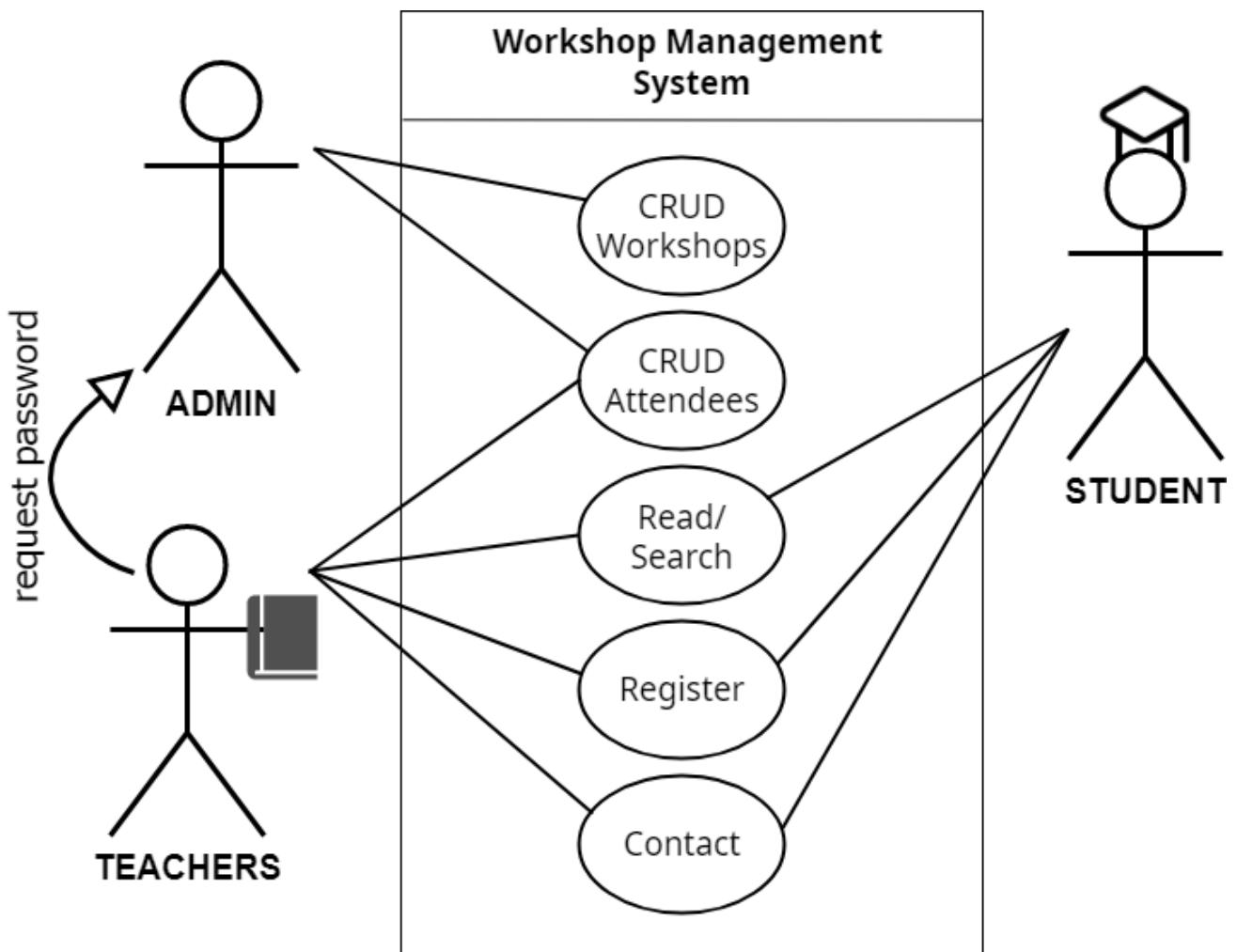
Context Level Diagram:



0 Level Diagram:



6.4 Use Case Diagram



7 Scope of Further Development

New features that can be added to this application:

- New Admin Registration, Log In. The app has only one Admin for now.
- New User Registration, Log In.
- Domain upgradation.
- Adding web notifications.
- Adding paid workshops with a payment interface.
- Generating receipts from booked workshops for a particular user.
- Adding in-built meeting tool, updating schema for inserting images and videos.

The above features will be added by me as I learn and develop new skills, and add them to this application as time permits.

Stay tuned for updates at:

<https://github.com/nisoojadhav/workshop>

8 Important Links

Dynamic Interactive version of this documentation:

<https://workshop-docs.vercel.app/>

Download PDF version of the documentation:

<https://workshop-docs.vercel.app/extra/pdf>

See Video Demonstration:

<https://workshop-docs.vercel.app/extra/video>

See the working version of 'Workshoply':

<http://workshop-nj.herokuapp.com/>

(if the link breaks, visit github.com/nisoojadhav/workshop for updates)

Download the Source Code:

<https://github.com/nisoojadhav/workshop>

9 Code Screenshots

10 References

JavaScript - <https://developer.mozilla.org/en-US/docs/Web/JavaScript>

React Basics - https://fullstackopen.com/en/part1/introduction_to_react

React - <https://reactjs.org/docs/getting-started.html>

React-icons - <https://react-icons.github.io/react-icons/>

React Routing -

<https://reactjs.org/docs/code-splitting.html#route-based-code-splitting>

React-Bootstrap - <https://react-bootstrap.github.io/>

Bootstrap - <https://getbootstrap.com/>

Npm - <https://www.npmjs.com/>

MongoDB - <https://www.mongodb.com/>

MongoDB Docs - <https://www.mongodb.com/>

Express - <https://expressjs.com/>

Node JS - <https://nodejs.org/>

YouTube - <https://youtu.be/qotbRizPobA>

StackOverflow - <https://stackoverflow.com/questions/tagged/reactjs>