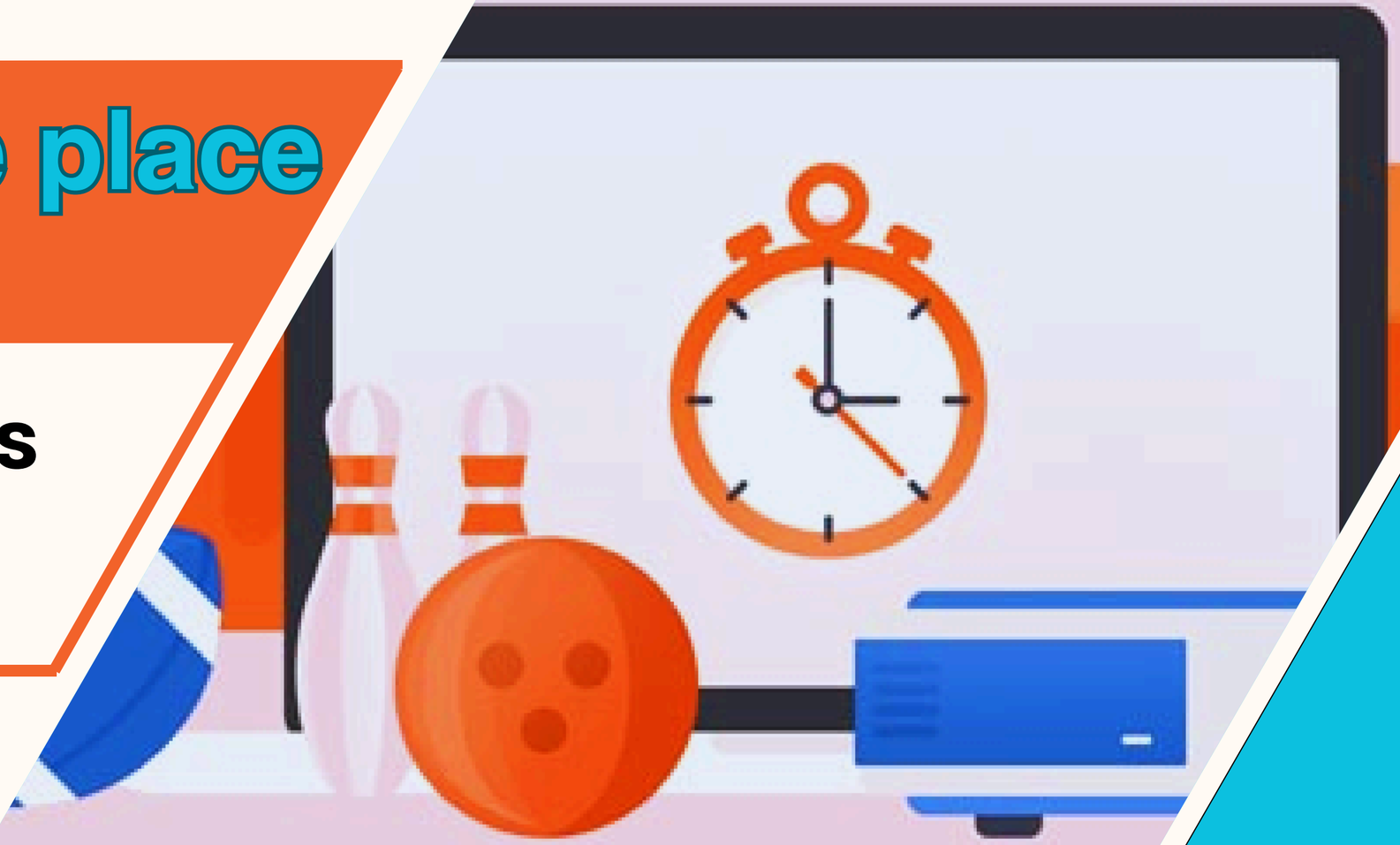
Capstone Project (DSN4096)

RentALL - one place to rent all

Online products rental system



Group 156

Project Supervisor - Dr. SHAHAB SAQUIB SOHAIL

Team Members

Yash Yadav	20BCE10874
Pulkit Grover	20BCE10929
Nikhil Sharma	20BCE10964
Hare Krishana Mishra	20BCE11077

Objective: What we are aiming for?

We are developing an online rental application which caters :

- Product renting services for both end users - lessee and renter
- Diverse and broad range of items.
- Easy, interactive, and user-friendly interface.
- Secure and liable renting system.
- Assured product safety.

Purpose of the project

In today's world, there are several rental service providers such as Zoomcars, ONN Bikes, GoBikes, etc. providing car and bike renting services.

All such renting sites are limited only to a particular category and have a small scope for expansion.

There is no single-integrated platform that caters to all the necessary needs.

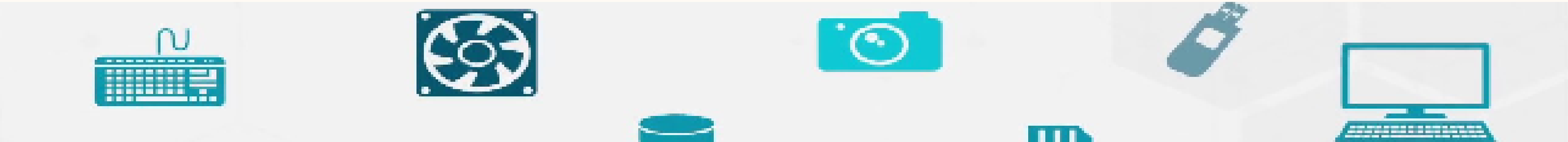
Motivation of the work

Due to the broken rental system, we tend to limit our item selection scope to a mere 2-3 options we have, even for our actual usage or needs.

Lack of awareness about the renting system, its usability, and the productivity boost it can give in diverse fields.

High expenses of purchasing something for a small usage.

Lack of resources and a proper dedicated platform for this service.



Why are we unique?

We are trying to build a single platform that has multiple items available for rent for diverse users.

Here, the users don't have to manage the pickup and delivery of the items. It will be completely done and managed from our side.

We will ensure the proper security and condition of the rented product.

Project Timeline

Review-1

Selecting the project, checking its usability and scope, doing user surveys and analysing various projects of similar scope if available.

Review-2

Keeping in mind the survey progress report, working on basic architecture of the project, eliminating issues of already available projects.

Review-3

Working on the Front-end in detail and simultaneously working on its connectivity with the Back-end for smooth operation of the project made.

Review-4

At last, working on its external connectivity with other services like UPI, or other payment modes. Completion of project and presenting the final project made.

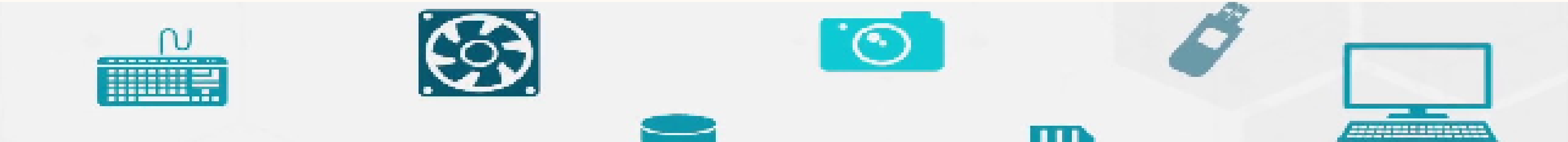
Module Split-up and Explanation

For the second review we analyzed the pros and cons of various projects of similar scope.

Eliminating the already available issues along with working on uniqueness of our project.

Working on the basic architecture of our project to further work on the idea.

Implementation of the ideas.

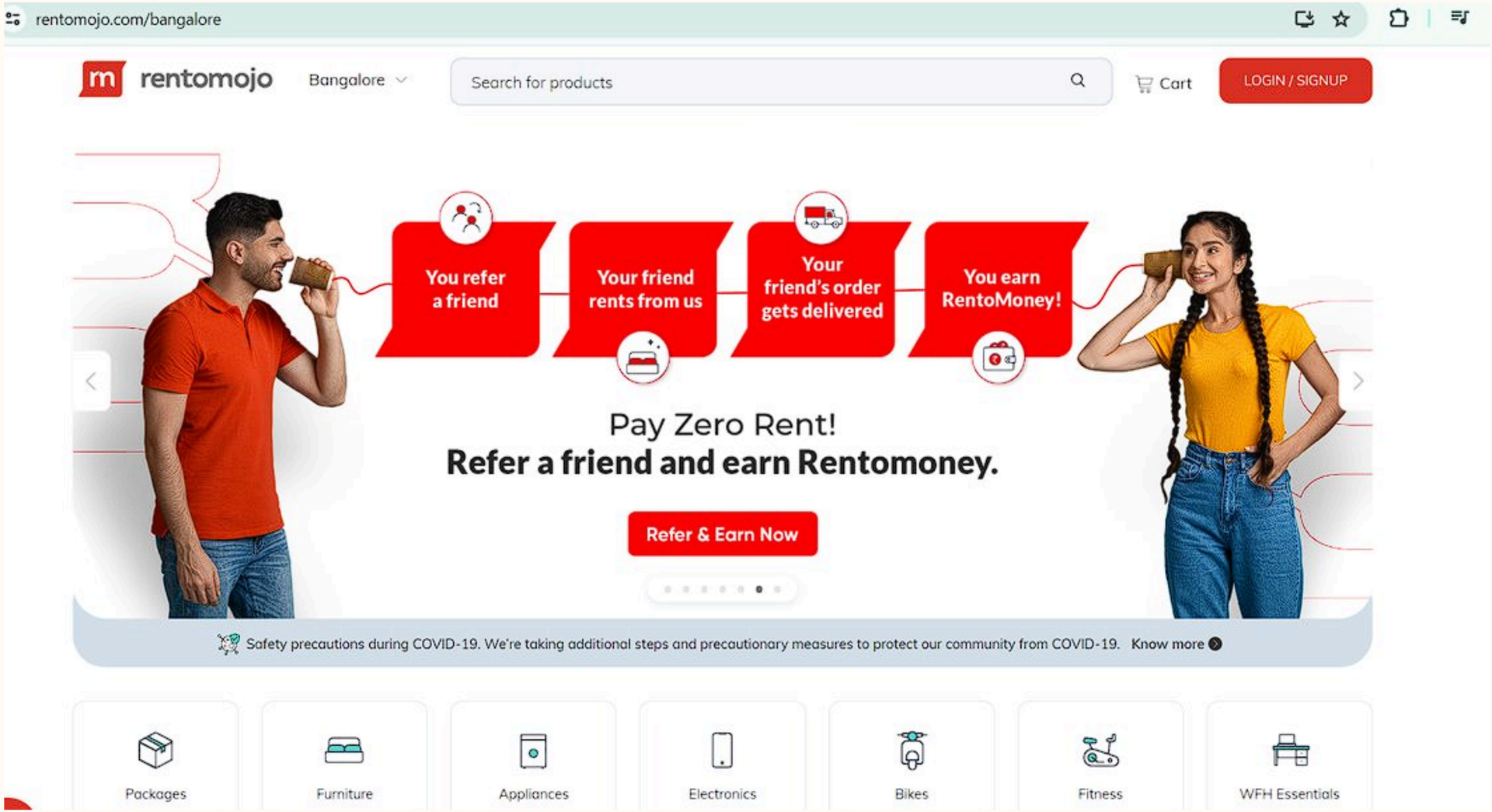


Existing Projects

There were a few websites we researched and we created how those websites are different from our SOLUTION!

- **Rent Furniture & Appliances || Rentomojo**
- **Rentit4me - Rental Marketplace | Give On Rent for Free Anywhere In India**
- **Fat Llama | Rent (almost) anything**

Rent Furniture & Appliances || Rentomojo

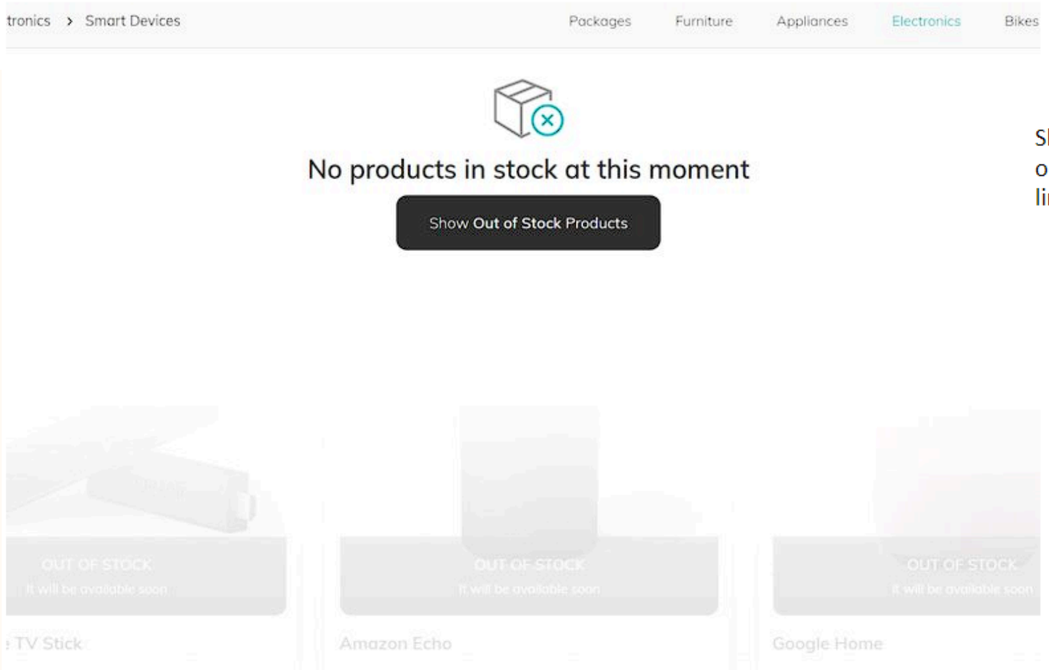


FEATURES

Available Rent for- Furniture's, Fridge, Washing Machine

Available for lease

REFER A FRIEND EARN MONEY- ----------GOOD THING!



DISLIKE

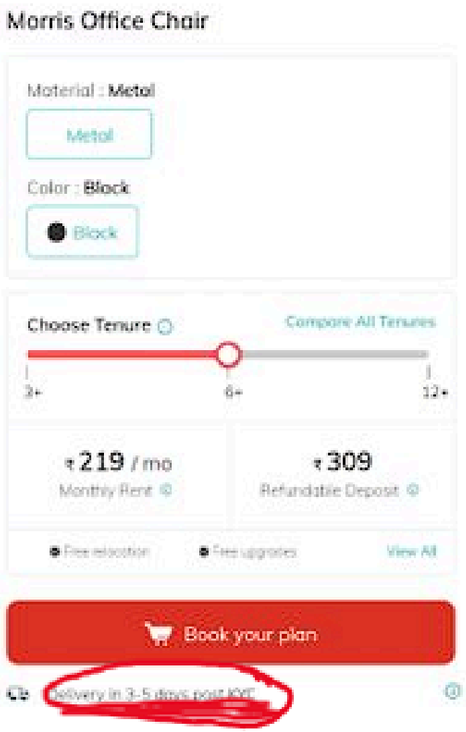
Showed everything on website but only contains Furniture that too limited for rent

WHAT WE CAN DO BETTER

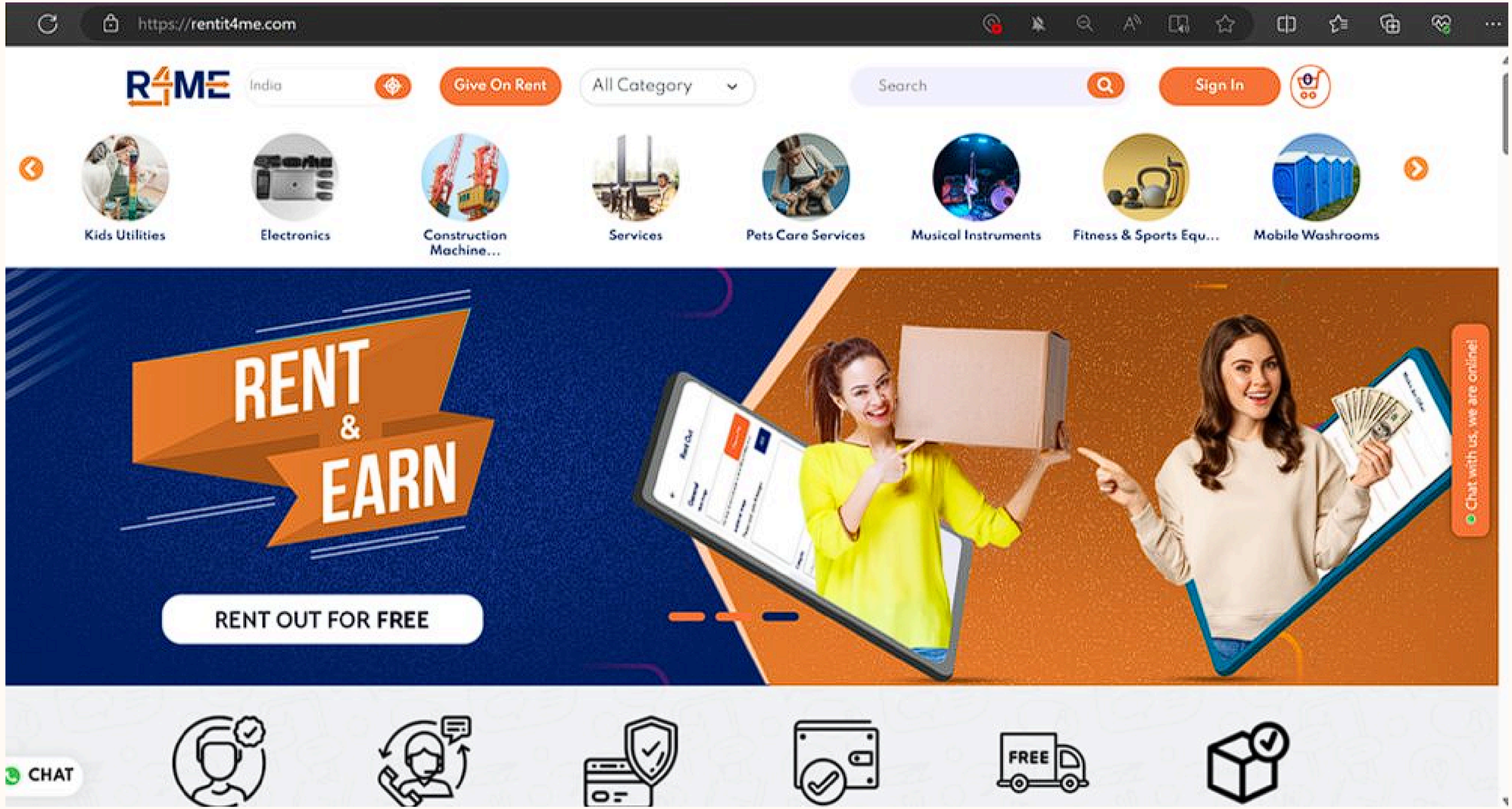
- REFER A FRIEND EARN MONEY----------GOOD THING!
- We will add into our project.

- They must have been keeping things to themselves and deliver it when needed. But we will do something like OLX….We will connect the leaser and the take through our platform.

- Check that Tenure bar Design(We can take it) and they have a Refundable deposit.. Which we can incorporate as it will further increase bond's Genuity.



Rentit4me - Rental Marketplace | Give On Rent for Free Anywhere In India



- **No One to Chat to when Logged In. The website is either dead or its using our data for 3rd party selling and profit generation.**
- **Security Deposit: This is a good feature which would help us reduce fraud users.**

Fat Llama | Rent (almost) anything

Fat Llama

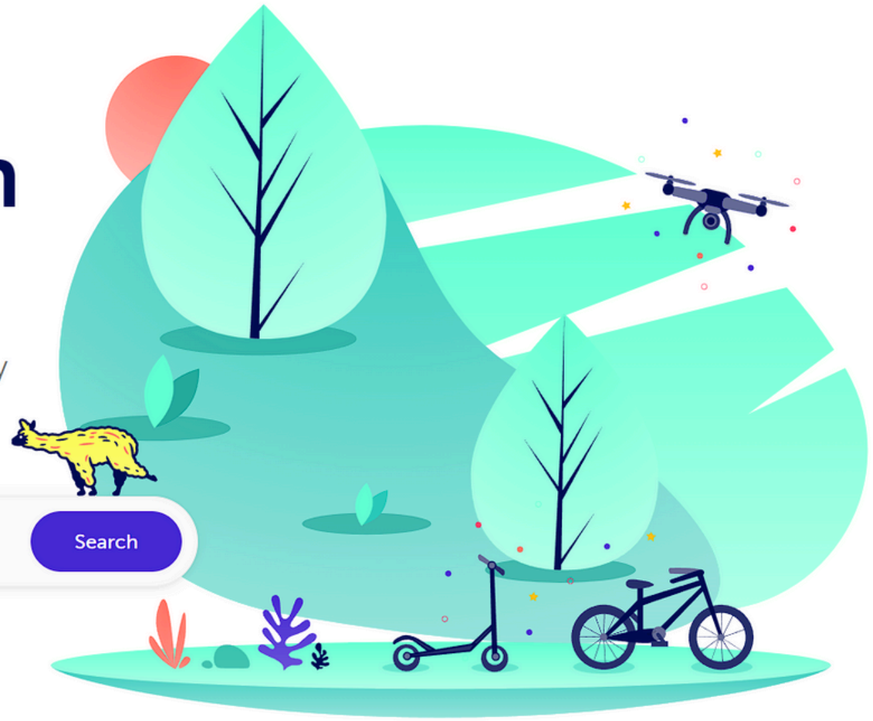
How it works | List an item | Login or Sign up

Rent anything from people in your area

Borrow almost anything from people nearby for jobs at home, fun experiences or work.

Bikes, drones, cameras... | Search

Or | List an item



nmunication and very
reat renter.
tand + Arm Set
42 minutes ago

Very quick response. Alexander explained everything really well and accommodated well to a very last...
Rented Neewer X14 Metal Teleprompter ...
an hour ago

Rented from her multiple times, never had any issues.
Rented Sony 160GB CFexpress type A
3 hours ago

Top Guy, Easy comms, easy transaction, All round great
Rented Røde Wireless GO II Microphone...
3 hours ago

Very professional, Jean pickup the item and return the item on time
Rented AKG C414 XLS/ST Stereo Matched...
9 hours ago

Great Len
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Thanks for renting from me. Great communication. Easy to arrange pick

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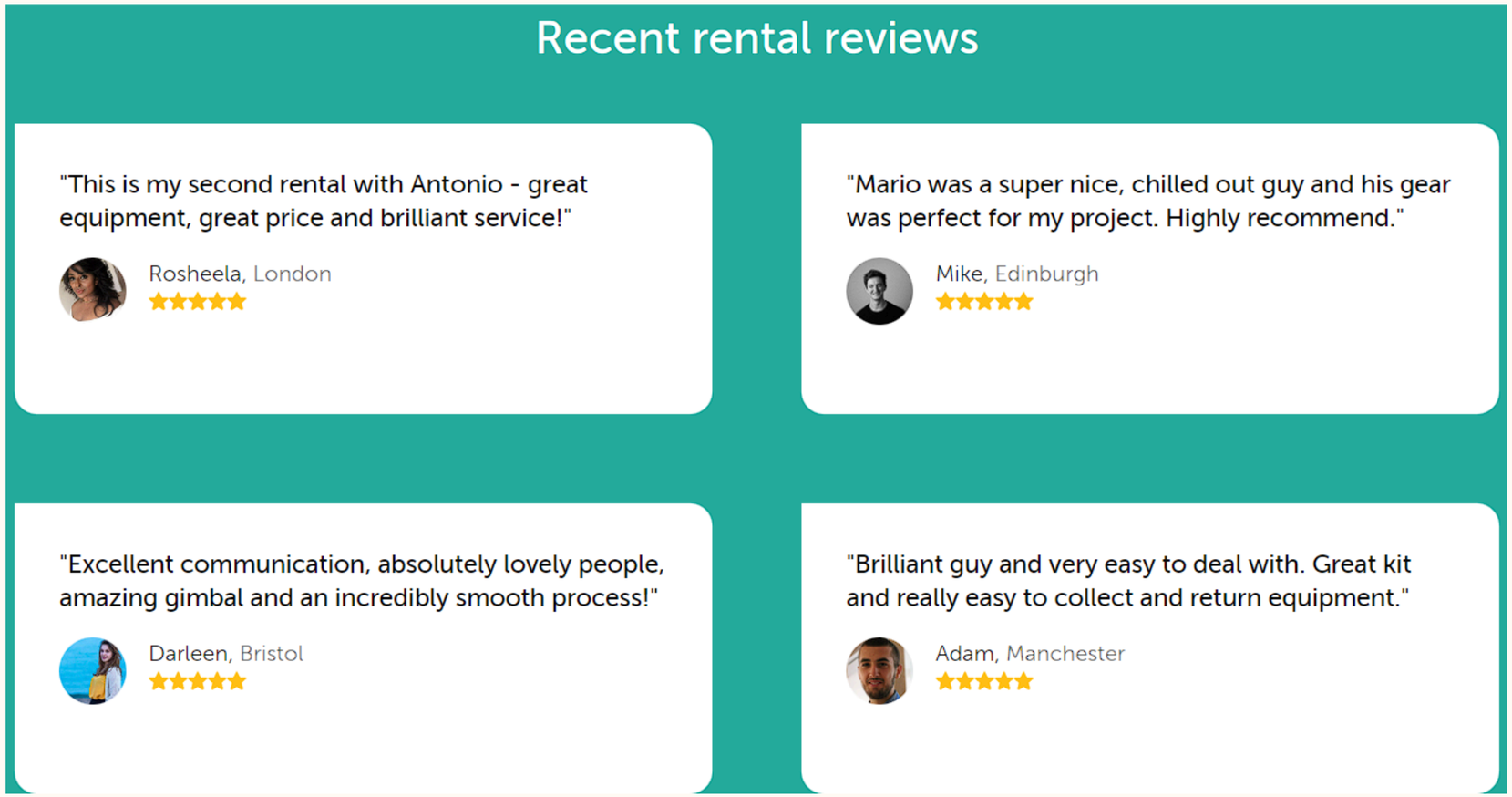


By far the best Website from our Research List

Good UI! + Testimonial makes it look Genuine

Not operating in India
Currently operating only in the UK, US, and Canada

Suggestions: *from Phase-I*

- Add a **Refundable Security Deposit** feature -

  It will increase customer trust, and also help in reducing fraud customers.
- Add customer **testimonials** on the website -

  It makes the website look genuine.
- Add a Refer and Earn option -

  A good way to advertise the site.
- Add a Tenure bar on the product checkout page.

Novelty of the project:

- Collection of matchless number of options on sole platform.
- Clear target audience (18-25 yrs age), as they are the majority user of this service.
- Fair and honest product info. with no false promotions.
- Reasonable amount.

Real time Usage

Everybody needs something occasionally that they don't own, but for a variety of reasons or constraints, they don't want to buy it. Second, it's likely that they won't find the object they were looking for or won't be able to borrow it from someone for the duration of time they need. Here's where we fit into this overall picture. With our rental application, we will help the client in this case.

We will provide:

- **Multiple options -** All accessible items will be exposed to the user, eliminating any restriction such as having limited alternatives.
- **Flexible time limit -** The user can freely select the time period to have the item for rent.
- **Stress-free usability -** During the time the product is rented, it will provide the user a sense of ownership. He or she can use the product without interruption or tension.
- **Product safety -** We shall guarantee the item's safety and security for the user renting it out.

Research and Review

Forms Link

RentALL - online products rental system

We are trying to build a single platform that has multiple items available for rent for diverse users.

suraj.jha2020@vitbhopal.ac.in Switch account

Not shared

* Indicates required question

Name *

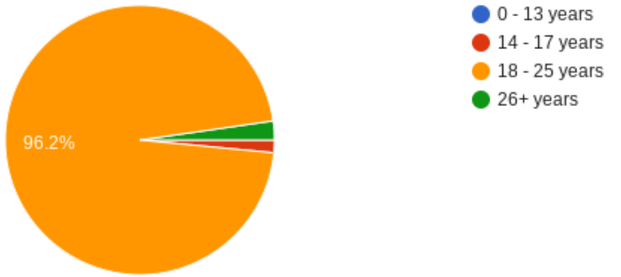
Your answer

Age group *

- 0 - 13 years
- 14 - 17 years
- 18 - 25 years
- 26+ years

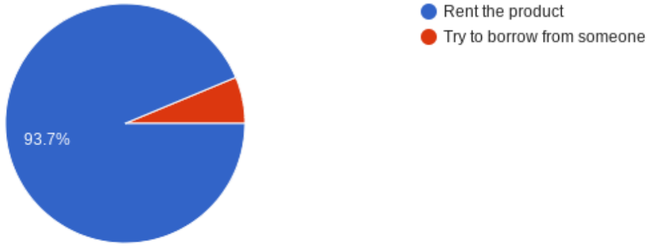
Age group

923 responses



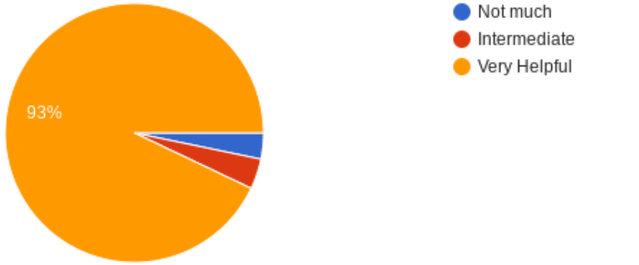
What is easier for you, 'Rent the product you need for the required period of time at minimal price' OR 'try to borrow it from someone without any time period assurance'.

923 responses

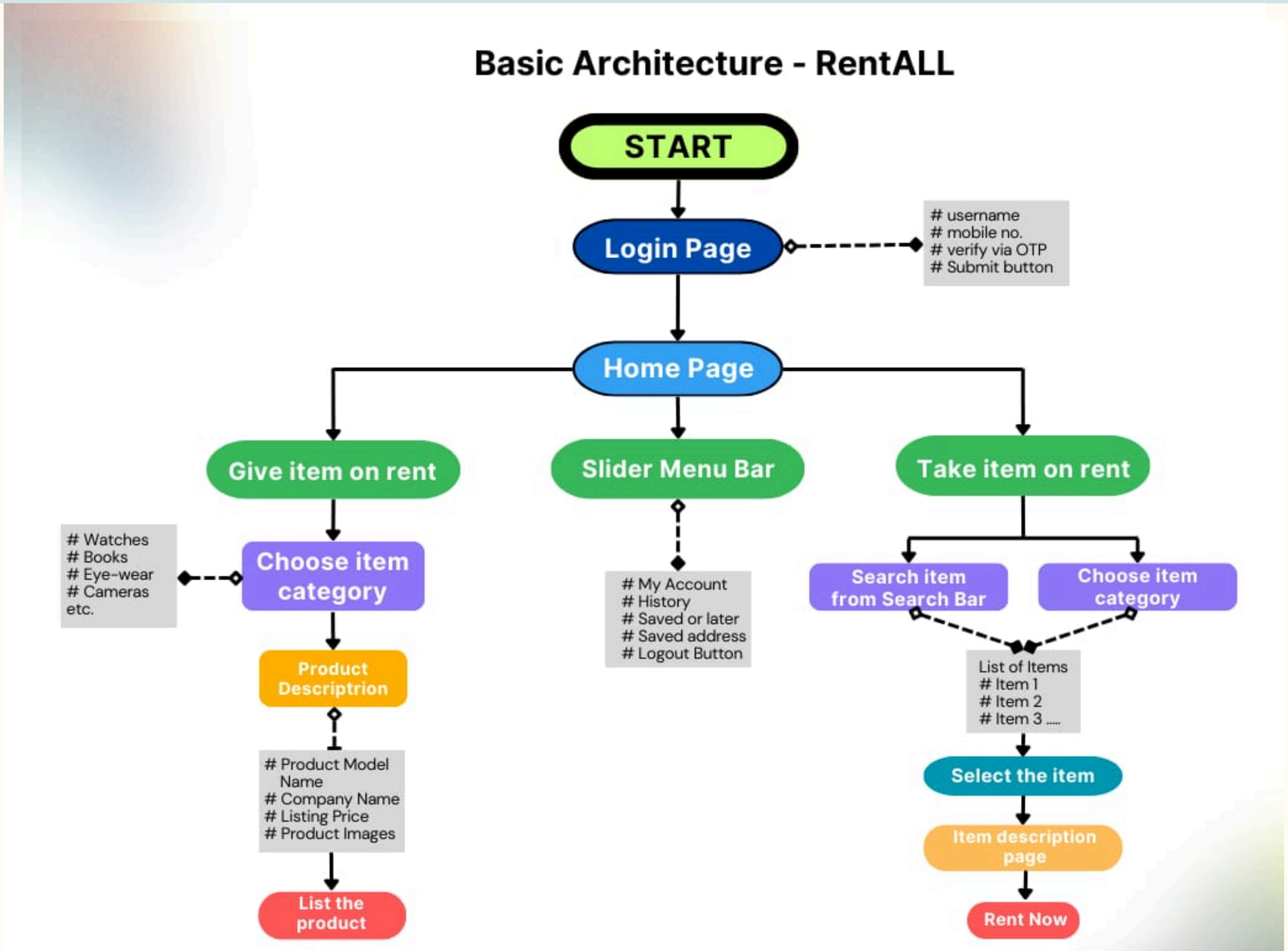


how helpful would it be if we have a single rental application for various products?

923 responses



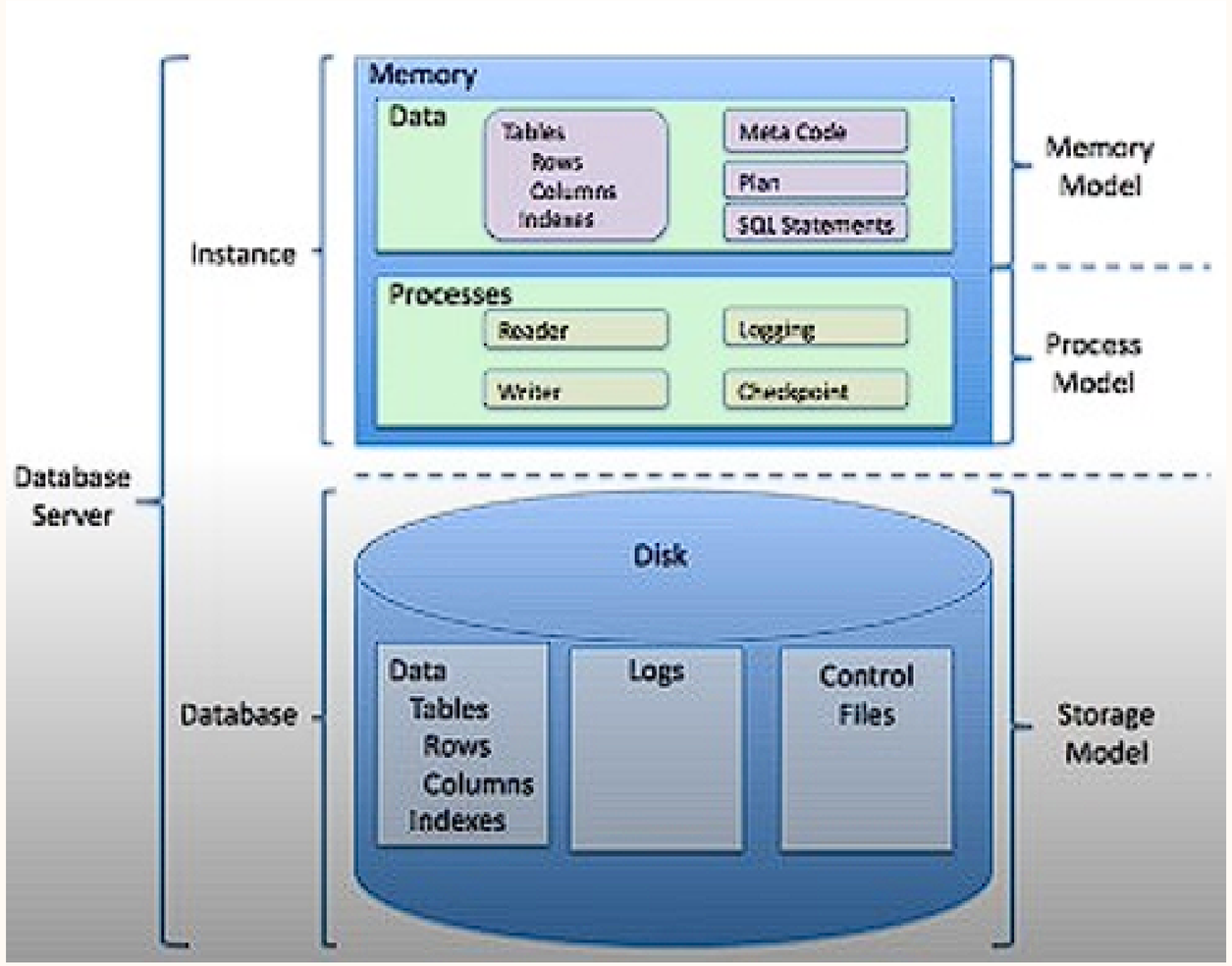
Architectural Diagram



Databse Usage

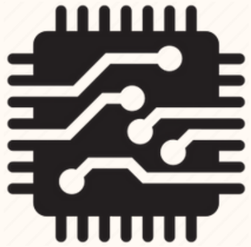
Relation Database Management System(RDBMS): This is an RDBMS based project which is currently using MySQL for all the user data collection and database.

MySQL is an opensource RDBMS System. And this diagram represents how our Databse Server should be working.



Hardware requirements:

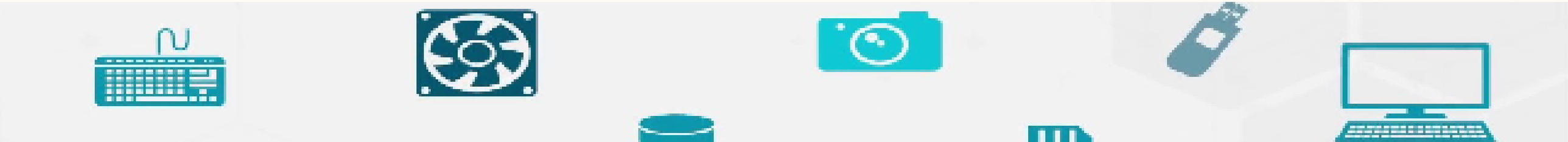
Ethernet connection (LAN) OR a wireless adapter (Wi-Fi)



Processor: Minimum 1 GHz; Recommended 2GHz or more.

Hard Drive: 2 GB or more.

Memory (RAM): 1 GB or above.



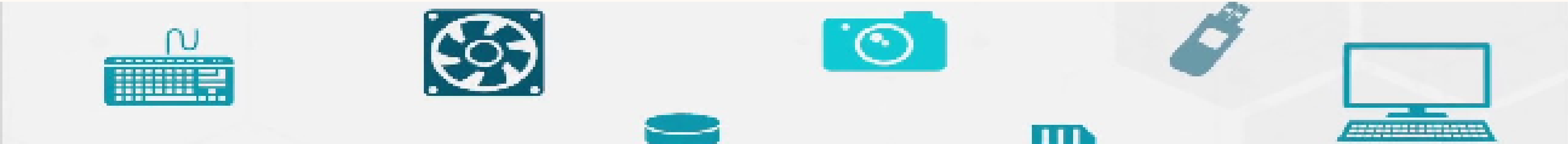
Software requirements:

FIRESTOTRE Database

We have used the FIRESTORE database to host the data.

HTML, SCSS, JS and ReactJS

We had made our own interacting platform which we would style with SCSS which is a pre-processor for CSS and for backend we have chosen JavaScript and ReactJS as our native language.



Project implementation and development progress

- **UI Development:** Completed initial layout and styling of UI elements. Implemented responsive design for better usability.

- **Backend Development:** Set up server environment using JavaScript and ReactJS. Developed APIs for user authentication and product management.

- **User Authentication and Registration:** Implemented user registration and login forms. Implemented client-side and server-side validation for user input.

- **Product Management:** Developed functionalities for adding and editing products. Integrated with Firestore database for storing product information.

- **Search and Filter:** Implemented search functionality and basic filter options. Currently optimizing search algorithm for better performance.

Project implementation and development progress

- **Booking Process:** Implemented booking forms and integrated with payment gateway for processing transactions. Currently working on updating availability status and recording booking details.

- **User Profile and Booking History:** Developed user profile pages to display rented products and booking history. Implemented functionalities for users to manage their bookings.

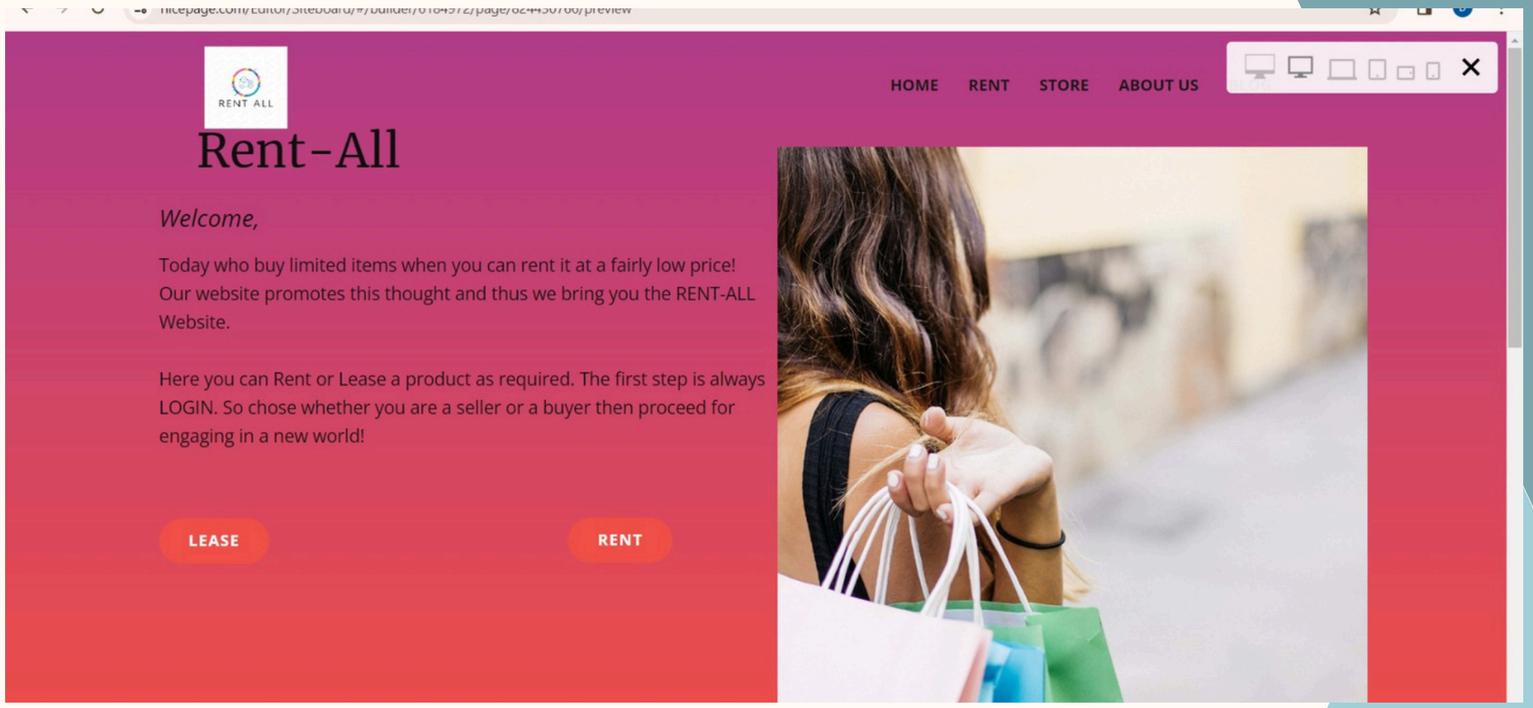
- **Payment Integration:** Integrating with payment gateways and tested payment processing. Currently refining error handling and ensuring security compliance.

- **Admin Panel (Optional):** Start development of an admin panel for managing products and users in upcoming days. Currently working on authentication and authorization mechanisms.

Project Modules

1) User Interface Development -

- Creation of UI elements using HTML and CSS.
- Designing navigation, product listings, search bar, and filter options.
- Implementing responsive design for optimal user experience across devices.



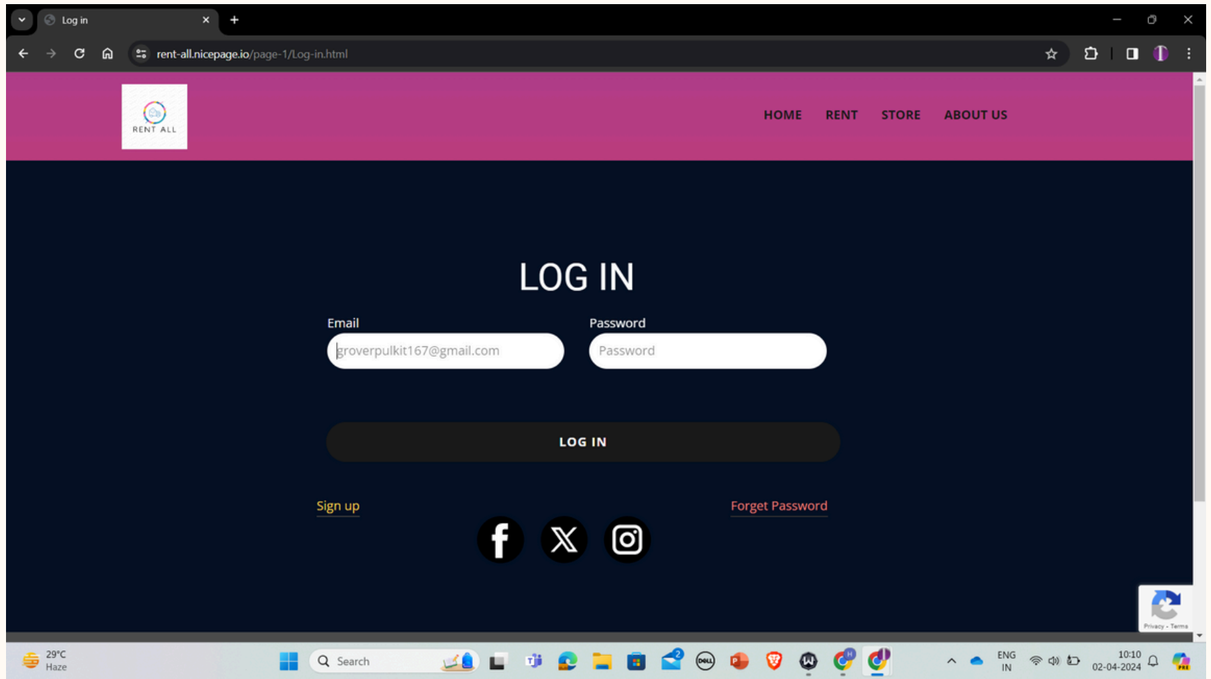
Project Modules

2) Backend Development -

- Setting up the server-side environment using JavaScript and ReactJS frameworks.
- Developing APIs for user authentication, product management, and booking process.
- Integrating with the Firestore database to store product and user information.

3) User Authentication and Registration -

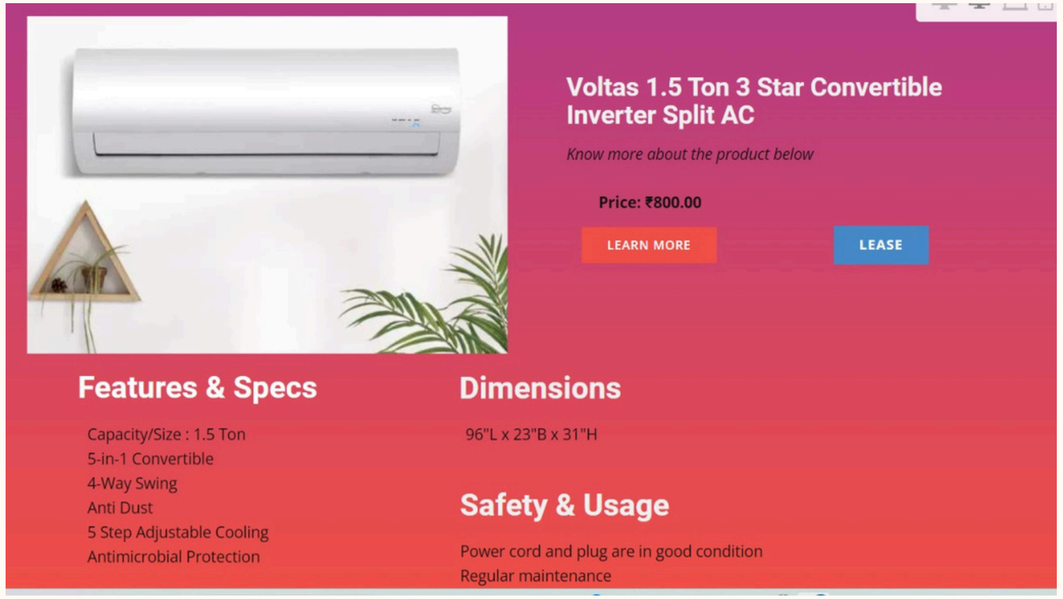
- Implementing user authentication and registration forms.
- Handling user sessions and password encryption for security.
- Validating user input using JavaScript and server-side validation.



Project Modules

6) Booking Process -

- Developing booking forms for users to select rental period and provide payment details.
- Integrating with payment gateway for secure transactions.
- Updating product availability status and recording booking details in the database.



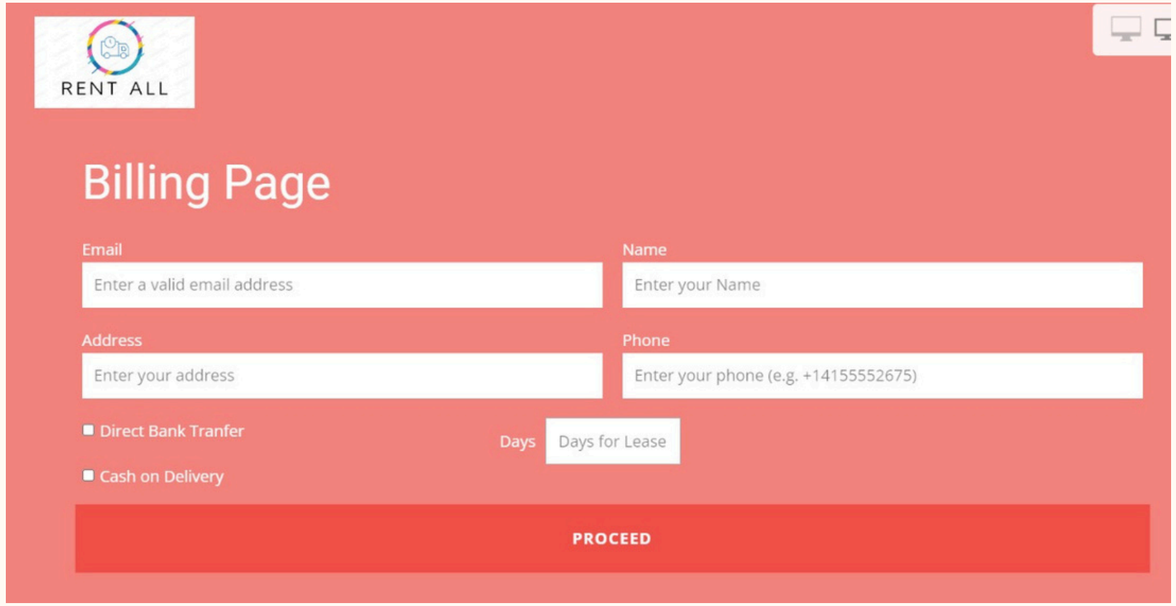
7) User Profile and Booking History -

- Creating user profile pages to display rented products, booking history, and payment details.
- Implementing functionalities for users to manage their bookings and profile information.
- Ensuring data privacy and security of user information.

Project Modules

8) Payment Integration -

- Integrating with payment gateways (e.g., UPI, PayPal, etc.) for processing rental payments.
- Handling payment callbacks and error handling during transactions.
- Ensuring compliance with payment security standards (e.g., PCI DSS).



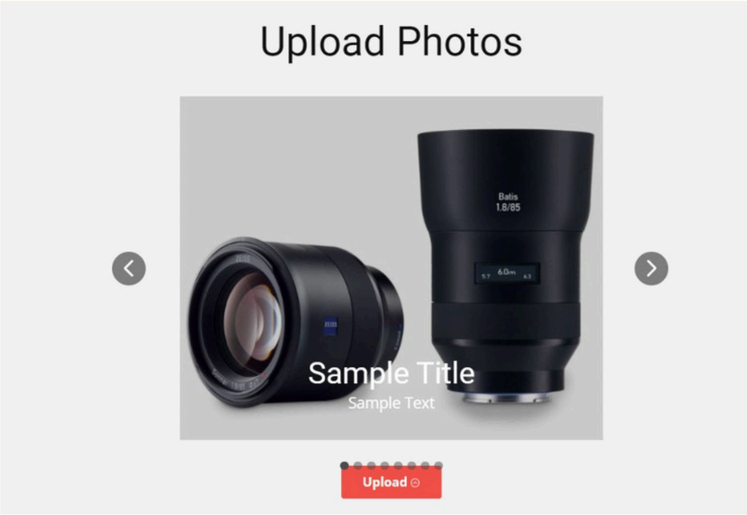
9) Admin Panel (Optional) -

- Developing an admin panel for managing products, users, and bookings.
- Implementing authentication and authorization mechanisms for admin access.
- Providing insights and analytics on product rentals and user activities.

Project Modules

4) Product Management -

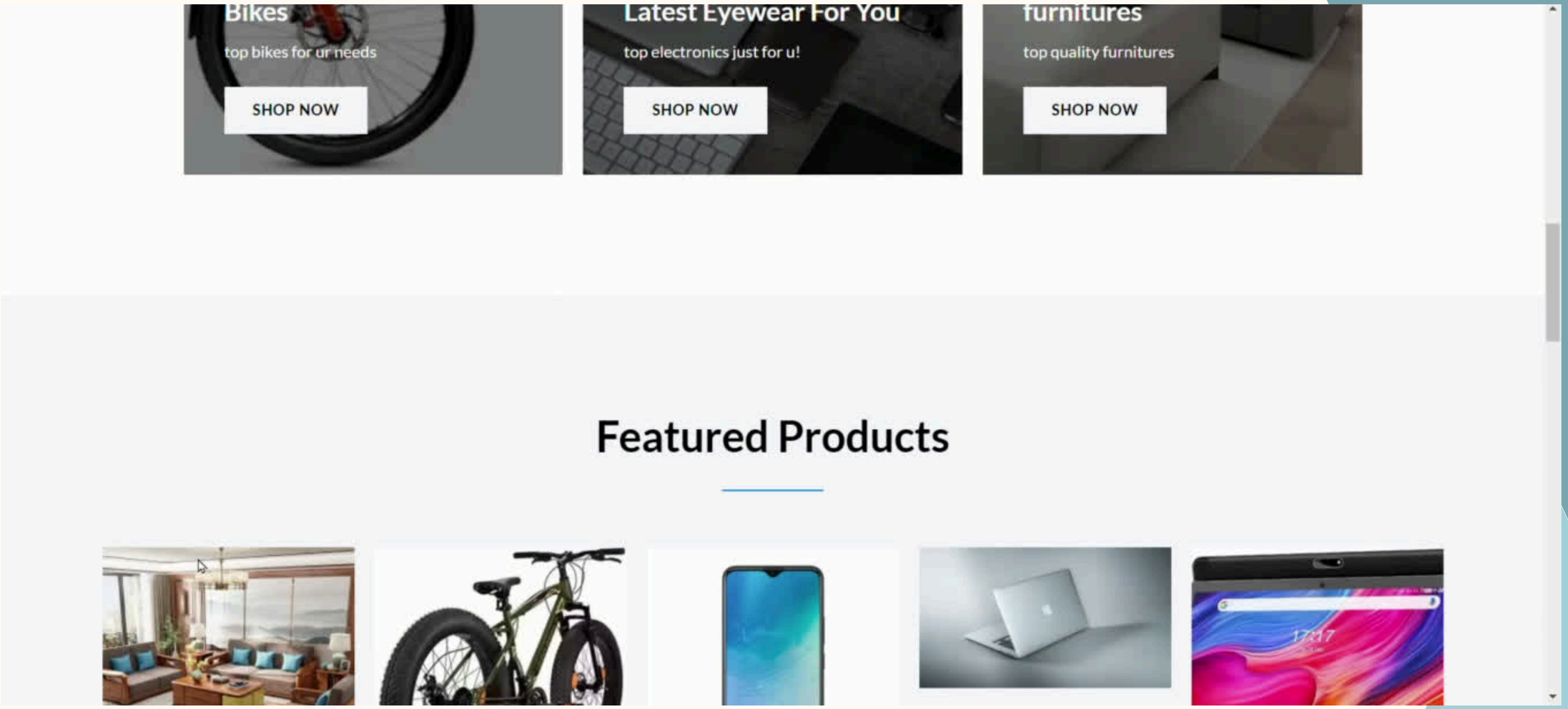
- Developing functionalities for adding, editing, and deleting products.
- Implementing category/tag management for organizing products.
- Updating product availability status based on bookings.



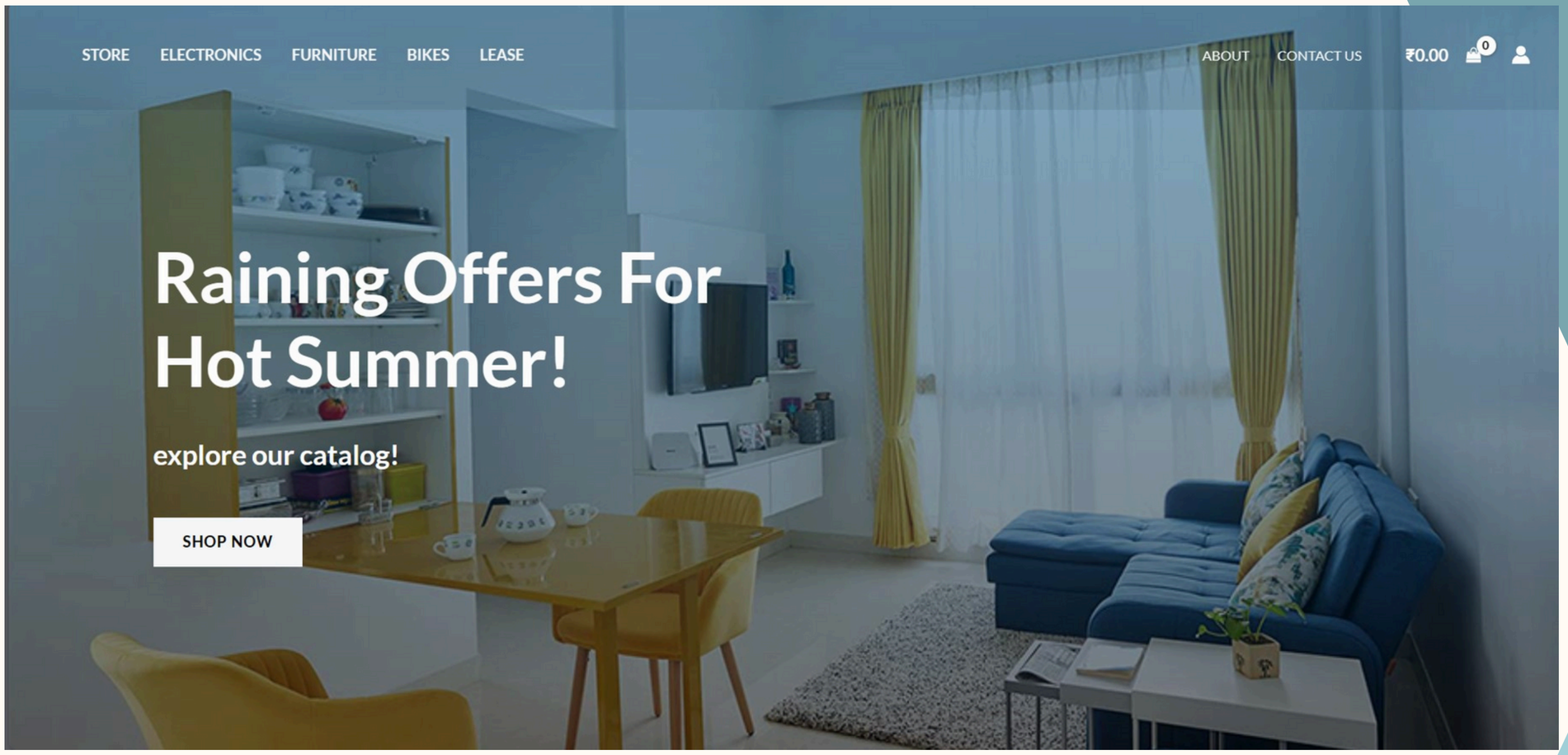
5) Search and Filter -

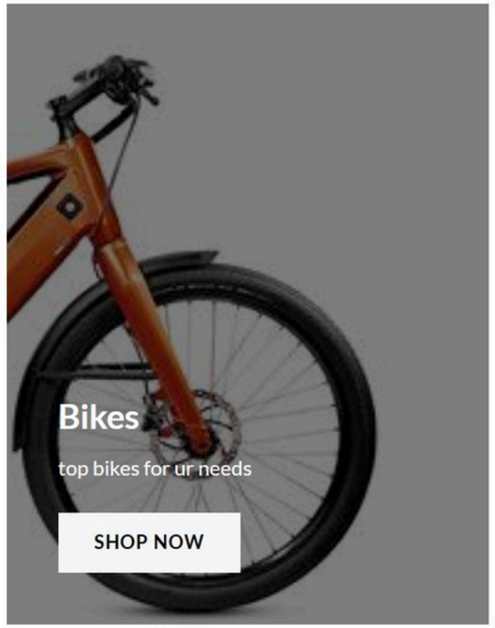
- Implementing search functionality to allow users to find specific products.
- Developing filter options (e.g., category, price range) to refine search results.
- Optimizing search and filter functionalities for performance.

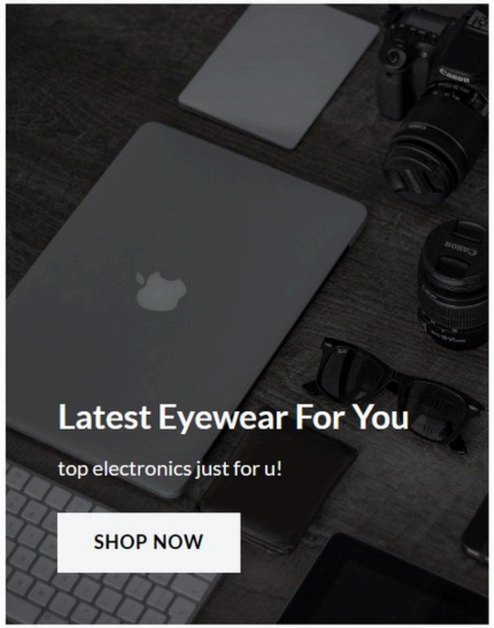
DEMO VIDEO

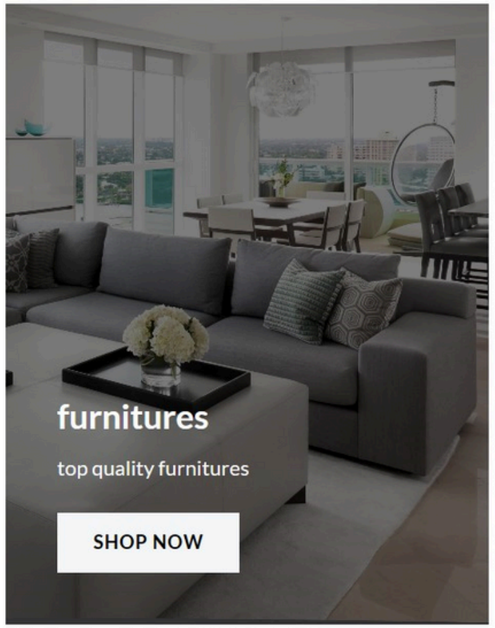

Bikes
top bikes for ur needs
SHOP NOW
Latest Eyewear For You
top electronics just for u!
SHOP NOW
furnitures
top quality furnitures
SHOP NOW
Featured Products

WEBSITE SNIPPETS




Bikes
top bikes for ur needs
SHOP NOW


Latest Eyewear For You
top electronics just for u!
SHOP NOW


furnitures
top quality furnitures
SHOP NOW

Featured Products

classic u shaped sofa set

booking

₹2,000.00

☆☆☆☆☆

21 speed gear cycle

bikes

₹1,000.00

☆☆☆☆☆

android mobile

booking

₹250.00

☆☆☆☆☆

mac book air

booking

₹250.00

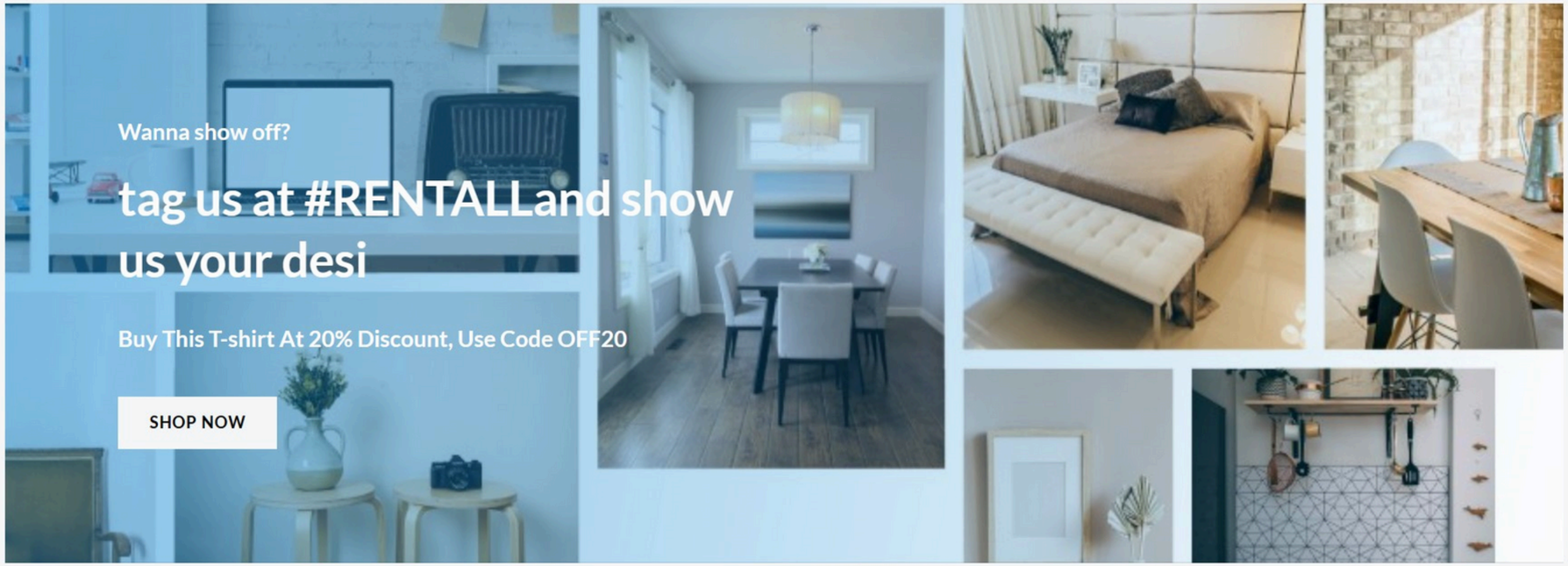
☆☆☆☆☆

android tablet

booking

₹150.00

☆☆☆☆☆


Wanna show off?
tag us at #RENTALLand show us your desi
Buy This T-shirt At 20% Discount, Use Code OFF20
SHOP NOW

Worldwide Shipping

Best Quality

Best Offers

Secure Payments

RENT ALL

A RENTAL COMPANY

ESTD 2024

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FILTER

Price: ₹0 — ₹500

Categories

- bikes (2)
- booking (8)
- electronics (3)
- furniture (3)

Our Best Sellers

tv stand

★★★★★

₹1.00

electric bike 46v battery, 650 bldc motor

☆☆☆☆☆

₹500.00

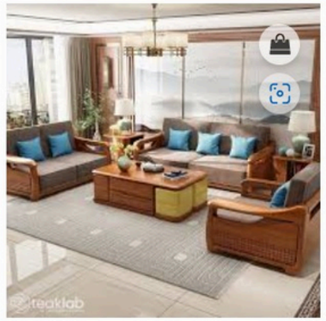
sofa set luxury edition

☆☆☆☆☆

furniture

Showing all 3 results

Default sorting



classic u shaped sofa set

booking

₹2,000.00

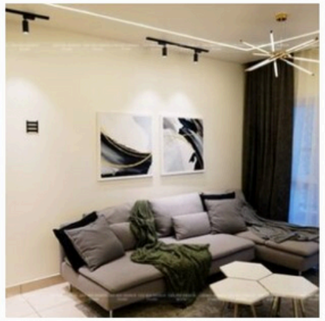
☆☆☆☆☆

sofa set luxury edition

booking

₹500.00

☆☆☆☆☆



tv stand

booking

₹1.00

★★★★★

Filter by Price

FILTER

Price: ₹150 — ₹250

Categories

- bikes (2)
- booking (8)
- electronics (3)
- furniture (3)

Our Best Sellers

tv stand

★★★★★

₹1.00

electric bike 46v battery, 650 bldc motor

☆☆☆☆☆

Home / electronics

electronics

Showing all 3 results

Default sorting

android mobile

booking

₹250.00

☆☆☆☆☆

android tablet

booking

₹150.00

☆☆☆☆☆

mac book air

booking

₹250.00

☆☆☆☆☆

Search products...

Filter by Price

FILTER

Price: ₹500 — ₹1,000

Categories

- bikes (2)
- booking (8)
- electronics (3)
- furniture (3)

Our Best Sellers

tv stand

★★★★★

₹1.00

Home / bikes

bikes

Showing all 2 results

Default sorting

21 speed gear cycle

bikes

electric bike 46v battery, 650 bldc motor

CODE SNIPPETS

Welcome | JS JavaScript Code (main.js) Untitled-1 9+

```javascript
(()=>{
    var e = {
        d: (t,a)=>{
                })
        }
        ,
        o: (e,t)=>Object.prototype.hasOwnProperty.call(e, t)
    };
    (()=>{
        "use strict";
        const t = window.wp.domReady;
        var a = e.n(t);
        const o = ()=>window.location.href !== window.parent.location.href
          , n = "starter-templates-iframe-preview-data"
          , r = ()=>{
            let e = "";
            const t = document.querySelector(".site-logo-img img");
            return t && (e = t.src),
            e
        }
        ;
        let s = r();
        const l = (e,t)=>{
            if (!e)
                return "";
```

Welcome | JS JavaScript Code (main.js) Untitled-1 9+

```javascript
(()=>{
    (()=>{
          , i = e=>{
            switch (e.value.param) {
            case "siteLogo":
                const t = document.querySelectorAll(".site-logo-img img");
                "" === s && (s = r());
                let a = e.value.data.url || s;
                if (a = e.value.data.dataUri || a,
                0 === t.length && "" !== a) {
                    const t = document.createElement("span");
                    t.classList.add("site-logo-img");
                    const o = document.createElement("a");
                    o.setAttribute("class", "custom-logo-link"),
                    o.setAttribute("href", "#"),
                    o.setAttribute("aria-current", "page"),
                    t.appendChild(o);
                    const n = document.createElement("img");
                    n.classList.add("custom-logo"),
                    n.setAttribute("src", a),
                    o.appendChild(n);
                    const r = document.getElementById("ast-desktop-header").querySelectorAll(".ast-site-identity")[0]
                      , s = r.querySelectorAll(".ast-site-title-wrap")[0];
                    r.insertBefore(t, s);
```

Welcome | JS JavaScript Code (main.js) Untitled-1 9+

```javascript
(()=>{
    (()=>{
        , i = e=>{
                break;
            case "colorPalette":
                const o = e.value.data.colors || []
                  , n = starter_templates_zip_preview.AstColorPaletteVarPrefix
                  , i = starter_templates_zip_preview.AstEleColorPaletteVarPrefix;
                if (0 === o.length) {
                    document.querySelector("body").classList.remove("starter-templates-preview-palette");
                    const e = document.getElementsByClassName("starter-templates-preview-palette");
                    return void (e.length > 0 && e[0].remove())
                }
                document.querySelector("body").classList.add("starter-templates-preview-palette");
                const d = Object.entries(o).map(((e,t)=>[`--e-global-color-${i[t].replace(/-/g, "")}: ${e[1]};`, `${n}${t}: ${e[1]};`])).map((e=>e.join(""))).join("");
                let c = document.getElementById("starter-templates-preview-palette-css");
                c || (c = document.createElement("style"),
                c.id = "starter-templates-preview-palette-css",
                c.setAttribute("rel", "stylesheet"),
                document.head.appendChild(c)),
                c.innerHTML = `.starter-templates-preview-palette{ ${d} }`;
                break;
            case "siteTypography":
                if (!Object.keys(e.value.data).length) {
                    const e = document.getElementById("starter-templates-typography");
                    return void (e && e.remove())
                }
                (e=>{
                    if (!e)
                        return;
                    if (!document.getElementById("google-fonts-domain")) {
                        const e = document.createElement("link");
```

Welcome | JS JavaScript Code (main.js) Untitled-1 9+

```javascript
(()=>{
    (()=>{
        window.addEventListener("message", (function(e) {
        }
        ), !1),
        a()((()=>{
            if (!o())
                return;
            const e = document.createElement("style");
            e.id = "starter-templates-logo-css",
            document.getElementsByTagName("head")[0].appendChild(e),
            e.innerHTML = ".site-logo-img img { transition: unset; } #wpadminbar { display: none; } html{  margin-top: 0 !important; }}";
            const t = (a = n,
            JSON.parse(localStorage.getItem(a)));
            var a;
            t && Object.keys(t.data).map((e=>i({
                value: {
                    param: e,
                    data: t.data[e]
                }
            })))
        }
        ))
    }
    )()
}
)();
```

Welcome | JS JavaScript Code (main.js) Untitled-1 9+

```javascript
JavaScript Code (index.js)



((()=>{
    "use strict";
    const e = e=>Math.abs(parseInt(e, 10))
      , t = (e,t,a)=>{
        const n = new CustomEvent(`wpcf7${t}`,{
            bubbles: !0,
            detail: a
        });
        "string" == typeof e && (e = document.querySelector(e)),
        e.dispatchEvent(n)
    }
      , a = (e,a)=>{
        const n = new Map([["init", "init"], ["validation_failed", "invalid"], ["acceptance_missing", "unaccepted"], ["spam", "spam"], ["aborted", "aborted"], ["mail_sent",
        n.has(a) && (a = n.get(a)),
        Array.from(n.values()).includes(a) || (a = `custom-${a = (a = a.replace(/[^0-9a-z]+/i, " ").trim()).replace(/\s+/, "-")}`);
        const r = e.getAttribute("data-status");
        if (e.wpcf7.status = a,
        e.setAttribute("data-status", a),
        e.classList.add(a),
        r && r !== a) {
```

Welcome | JS JavaScript Code (main.js) Untitled-1 9+

```javascript
((()=>{
      , n = e=>{
        return r.reduceRight(((e,t)=>a=>t(a, e)), (e=>{
                body: 1
            }).then((e=>Promise.resolve(e).then((e=>{
                if (e.status >= 200 && e.status < 300)
                    return e;
                throw e
            }
            )).then((e=>{
                if (204 === e.status)
                    return null;
                if (e && e.json)
                    return e.json().catch((()=>{
                        throw f
                    }
                    ));
                throw f
            }
            ))), (()=>{
                throw u
            }
            ))
        }
        ))(e)
    }
      , r = [];
    function o(e, t={}) {
        const {target: n, scope: r=e, ...o} = t;
```

Welcome | JS JavaScript Code (main.js) Untitled-1 9+

```javascript
257 (()=>{
415     const c = (e,t,a,n)=>{
417         , c = `${e.wpcf7?.unitTag}-ve-${t}`.replaceAll(/[^0-9a-z_-]+/gi, "")
418         , s = e.querySelector(`.wpcf7-form-control-wrap[data-name="${t}"] .wpcf7-form-control`);
419         (()=>{
420             const t = document.createElement("li");
421             t.setAttribute("id", c),
422             s && s.id ? t.insertAdjacentHTML("beforeend", `<a href="#${s.id}">${a}</a>`) : t.insertAdjacentText("beforeend", a),
423             e.wpcf7.parent.querySelector(".screen-reader-response ul").appendChild(t)
424         }
425         )(),
426         r.querySelectorAll(`.wpcf7-form-control-wrap[data-name="${t}"]`).forEach((e=>{
427             const t = document.createElement("span");
428             t.classList.add("wpcf7-not-valid-tip"),
429             t.setAttribute("aria-hidden", "true"),
430             t.insertAdjacentText("beforeend", a),
431             e.appendChild(t),
432             e.querySelectorAll("[aria-invalid]").forEach((e=>{
433                 e.setAttribute("aria-invalid", "true")
434             }
435             )),
436             e.querySelectorAll(".wpcf7-form-control").forEach((e=>{
437                 e.classList.add("wpcf7-not-valid"),
438                 e.setAttribute("aria-describedby", c),
439                 "function" == typeof e.setCustomValidity && e.setCustomValidity(a),
440                 e.closest(".use-floating-validation-tip") && (e.addEventListener("focus", (e=>{
441                     t.setAttribute("style", "display: none")
442                 }
```

```javascript
257 (()=>{
826     document.addEventListener("DOMContentLoaded", (e=>{
840                                 ...null !== (t = wpcf7) && void 0 !== t ? t : {}
841                             },
842                             document.querySelectorAll(".wpcf7 > form").forEach((e=>{
843                                 wpcf7.init(e),
844                                 e.closest(".wpcf7").classList.replace("no-js", "js")
845                             }
846                             ));
847                             for (const e of wpcf7.schemas.keys())
848                                 n({
849                                     endpoint: `contact-forms/${e}/feedback/schema`,
850                                     method: "GET"
851                                 }).then((t=>{
852                                     wpcf7.schemas.set(e, t)
853                                 }
854                                 ))
855                         } else
856                             console.error("Your browser does not support String.replaceAll().");
857                     else
858                         console.error("Your browser does not support NodeList.forEach().");
859                 else
860                     console.error("Your browser does not support window.FormData().");
861             else
862                 console.error("Your browser does not support window.fetch().");
863         else
```

CONCLUSION

The online product rental system is designed to revolutionize the way consumers access items, offering a seamless and efficient rental process. It promotes cost-effectiveness, sustainability, and access-based consumption by allowing users to rent a diverse array of products. Transparent transactions, smooth user experiences, and robust security measures foster trust and engagement. The system's versatility is evident in its potential applications across different industries, indicating its adaptability and broad adoption potential. Overall, it offers a novel approach to consumption, paving the way for a more efficient, equitable, and sustainable future.

RESULT & DISCUSSION

The project's product rental website offers a transparent, safe, and easy-to-use platform for renting goods, benefiting the general public in the process. It encourages community involvement, small business support, and sustainable consumption—all of which go a long way towards building a more diverse and ecologically conscious society.

On completion, major outcomes will be:

- **Accessible Platform for Renting Products**
- **Transparent Product Information**
- **Convenient and Personalized User Experience**
- **Secure Transactions**
- **Community Engagement**
- **Support for Small Businesses**
- **Product safety**
- **Contribution to the Sharing Economy**

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