A Project Report

on

LinkStack : a single link for all your links

Submitted By –

Group – 7

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December – 2021

Acknowledgement

We would like to thank our Guide, Dr. Uma Sheshadri and Shankar Biradar for giving us the opportunity to work on this project while letting us to inject our ideas into the project. Meanwhile, she always shares her thoughts with us whenever we consult her. It has been a great experience during the course of this project. Apart from that, we would also like to thank our friends and family for giving us support as well as ideas when we met some issues. Last but not least, this project would not be completed without the inspiration from all of the peoples that I mentioned above.

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ABSTRACT

LinkStack is a special tool that will boost user's presence on the internet. It provides user with one link to cover all of user's social media profiles, services, products, and content. It basically creates a simple landing page that hosts multiple links. It is very effortless to set up the linkStack. It is the freemium platform that allows user to place all the links he/she want to share with their friends and followers. User can easily add all your links over there. LinkStack has been established, out of annoyance regarding social media not allowing multiple hyperlinks in profiles. Like if anywhere we want to post our all social media info, blogs, contents etc. and that handle takes only a single link, to solve this problem LinkStack has been introduced. It makes your online content more discoverable, easier to manage and more likely to convert and it also allows user to create a personalized and easily customizable page, that houses all the important links. It features a very easy to use interface & it will ideally navigate all your followers in the right place. LinkStack allows you to create a fully customized web page for free. It is straightforward to manage, edit, modify, or delete links. You will get complete analytics of views, clicks, and click-through rate.

CHAPTER 1 INTRODUCTION

1.1 PROJECT AIMS AND OBJECTIVES

The project aims and objectives that will be achieved after completion of this project are discussed in this subchapter. The aims and objectives are as follows:

- Create a simple landing page or a single link that hosts multiple links.
- The link can be shared on Facebook posts, your Instagram bio, your profile on Twitter, along with many other platforms.
- Depending on user subscription, they can change fonts, add animated backgrounds, highlight priority links, get detailed analytics .
- The free version of the link stack will have limited functionality and will not allow user to add much branding. However, user can add a profile picture, get short analytics and change the colour of the background to one of our presets.

1.2 BACKGROUND OF PROJECT

LinkStack is a tool that allows you to share multiple links on social media. It basically creates a simple landing page that hosts multiple links. You pop the link to this landing page in your Instagram or any other social media platforms bio, in order to drive traffic to specific areas of your site. You can embed links to your social media channels, including TikTok, YouTube and Instagram.

You simply copy and paste your Link stack landing page URL into your Instagram bio to raise awareness of other parts of your site. These can be customised in various ways. Depending on your subscription, you can change your fonts, add animated backgrounds, highlight priority links and even schedule new links to go live .If you have a Pro subscription, you can access analytics so you can assess which links perform best, so you can tailor future marketing content to your audience.

Hosting	Heroku
Database	MongoDB Atlas (AWS)

CHAPTER 2 LITERATURE REVIEW

Linktree –

Linktree is an ingenious solution to Instagram's policy of not allowing hyperlinks in posts. The concept is simple: you get a short link to place in your bio that, when clicked, navigates to a webpage with a list of every link that you want active. From there, your audience can choose one and get directed to the content they're looking for. Throughout my testing, I found Linktree to be intuitive, quick to set up, and easy to use. The signup process takes only a minute and I had my Linktree page ready to go in less than five minutes. Linktree is available in two pricing tiers: a free plan and a PRO plan, which will set you back $6/month. Here's what separates them and some of the strengths and weaknesses of both.

Free Plan -

For basic or personal use, the free plan will provide pretty much everything you need: you get unlimited links, some basic analytics, some basic customization, a profile picture, and Amazon Influencer Program integration.

Unfortunately, the customizations on the free plan are pretty limiting. There are only nine color schemes to choose from, and if you don't already use one of those nine options in your branding, your page won't be very good as far as brand consistency is concerned. Additionally, you can't change the fonts or button styling, and there's no way to get rid of the Linktree logo at the bottom of the page. That cuts into your screen real estate and ends up drawing attention away from your links. All in all, the free plan gets the job done, but the lack of customization options makes it a poor choice for businesses. If you're lucky, and your branding fits one of the nine free color schemes, you may be able to make it work, but you'll still have to deal with the Linktree watermark at the bottom of the screen.

Pro Plan -

The PRO plan is a significant upgrade over the free one. With PRO, you unlock additional customization options, more in-depth analytics, and several very useful features like priority links, scheduling, and thumbnails on your links. You can finally get rid of the Linktree watermark as well.

Pros -

- **Easy to use:** Linktree is incredibly easy to use. Setting up and customizing a page with links took me less than five minutes, and after that I was ready to place the link in my bio.
- **Good design:** Despite the less than stellar customization options, Linktree's themes do mesh well with Instagram, no matter how you design your page. It makes for a pretty seamless transition from your profile to your content, almost as if Linktree were a built-in feature of Instagram.
- **Useful integrations:** With email, Amazon Influencer, and Facebook pixel integrations, Linktree offers pretty much everything you'd need in a link directory. It'd be nice to see Linktree support other email software, however.

Cons -

- **Lack of customizability:** Even with the PRO plan, the customization options felt lacking. Most of this came down to font choices alone, but on a webpage made almost entirely of text, that's kind of a big deal. That said, it's not a deal-breaker, and you should be able to make do well enough.
- **Hard to link to specific posts:** There's no way to make it particularly clear which posts your links are referencing. Other link directory apps mimic your Instagram feed and let your audience navigate by selecting the image of the post they're coming from. With Linktree, you can only add in a small thumbnail. If you have tons of links on your page, or lots of posts that direct your audience to your bio link, it can be difficult for your audience to find what they're looking for.

CHAPTER 3 SYSTEM ANALYSIS

In this chapter, we will discuss and analyze about the developing process of our project including software requirement specification (SRS). The functional and non-functional requirements are included in SRS part to provide complete description and overview of system requirement before the developing process is carried out.

3.1 SOFTWARE REQUIREMENT SPECIFICATION

3.1.1 GENERAL DESCRIPTION

PRODUCT DESCRIPTION :

LinkStack is a tool that allows you to share multiple links on social media. It basically creates a simple landing page that hosts multiple links. You pop the link to this landing page in your Instagram or any other social media platforms bio, in order to drive traffic to specific areas of your site .You can embed links to your social media channels, including TikTok, YouTube and Instagram.

PROBLEM STATEMENT :

One of Instagram's most annoying features is that it doesn't allow its users to include more than one link in the bio section. Usually, business owners need to add multiple links in the bio of their accounts, as one link isn't enough to promote for their different services.

3.1.2 SYSTEM REQUIREMENTS

3.1.2.1 NON-FUNCTIONAL REQUIREMENTS

EFFICIENCY REQUIREMENT - When LinkStack will be implemented then user will be able to manage all of his link's urls and important links all in one place.

RELIABILITY REQUIREMENT - The system should accurately performs member registration and email verification, member validation ,link management and subscription with payment gateway .

USABILITY REQUIREMENT -

The system is designed for a user friendly environment so that user can perform the various tasks on links easily and in an effective way.

IMPLEMENTATION REQUIREMNTS -

In implementing whole system it uses HTML, CSS with Bootstrap, JS in front end with NodeJS as server side scripting language which will be used for database connectivity and the backend i.e the database part is developed using MongoDb.

DELIVERY REQUIREMENTS -

The whole system is expected to be delivered in approx. one months of time with a weekly evaluation by the project guide.

3.1.2.2 FUNCTIONAL REQUIREMENTS

1. NORMAL USER

1.1 USER LOGIN

Description of feature -

This feature used by the user to login into system. They are required to enter username and password before they are allowed to enter the system .The username and password will be verified and if invalid id the user wont't be allowed to enter the system.

Functional requirements -

- Username is provided when they register.
- The system must only allow user with valid username and password to enter the system.
- The system performs authorization process which decides what user level can acess to.
- The user must be able to logout after they finished using system.

1.2 REGISTER NEW USER

Description of feature -

This feature can be performed by all users to register new user to create account. A verification link will be generated and sent to his email for verification before usage.

Functional requirements –

- Usernames may only contain letters, numbers, underscores ("_") and periods (".").
- Username should be converted to Lowercase at backend before processing.
- Password : minLength: 8, minLowercase: 1, minUppercase: 1, minNumbers: 1, minSymbols: 1.
- System must be able to verify information.
- System must be able to delete information if information is wrong.

3.1.3 SOFTWARE AND HARDWARE REQUIREMENTS

This section describes the software and hardware requirements of the system.

3.1.3.1 SOFTWARE REQUIREMENTS

- Operating system – All OS. As this is a web project it only requires a web browser to run.

- Database MongoDB - MongoDB is a document database used to build highly available and scalable internet applications. It also allows you to immediately start building your application without spending time configuring a database.

- Development tools and Programming language - HTML is used to write the whole code and developed webpages with CSS using Bootstrap , JS for styling work and NodeJS with Express framework for sever side scripting.

3.2 SOFTWARE TOOLS USED

The whole Project is divided in two parts the front end and the back end.

3.2.1 Front end

The front end is designed using HTML, CSS, Bootstrap , JQuery and JS.

HTML –

HTML or Hyper Text Markup Language is the main markup language for creating web pages and other information that can be displayed in a web browser.HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>), within the web page content. HTML tags most commonly come in pairs like <h1> and </h1> although some tags represent empty elements and so are unpaired, for example <img> The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags). In between these tags web designers can add text, further tags, comments and other types of text-based content. The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page.HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

CSS –

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL. CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation.CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification. of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the

structural content (such as by allowing for table less web design).CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille-based, tactile devices. It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed. While the author of a document typically links that document to a CSS file, readers can use a different style sheet, perhaps one on their own computer, to override the one the author has specified. However, if the author or the reader did not link the document to a specific style sheet the default style of the browser will be applied.CSS specifies a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called cascade, priorities or weights are calculated and assigned to rules, so that the results are predictable.

JS –

Java script (JS) is a dynamic computer programming language. It is most commonly used as part of web browsers, whose implementations allow client side scripts to interact with the user, control the browser, communicate asynchronously, and alter the document content that is displayed. It is also being used in server-side programming, game development and the creation of desktop and mobile applications. JavaScript is a prototype-based scripting language with dynamic typing and has first-class functions. Its syntax was influenced by C. JavaScript copies many names and naming conventions from Java, but the two languages are otherwise unrelated and have very different semantics. The key design principles within JavaScript are taken from the Self and Scheme programming languages. It is a multiparadigm language, supporting object-oriented, imperative, and functional programming styles. The application of JavaScript to use outside of web pages—for example, in PDF documents, site-specific browsers, and desktop widgets—is also significant. Newer and faster JavaScript VMs and platforms built upon them (notably Node.js) have also increased the popularity of JavaScript for server-side web applications. On the client side, JavaScript was traditionally implemented as an interpreted language but just-in-time compilation is now performed by recent (post-2012) browsers.

3.2.2 Back end

The back end is designed using Node Js and MongoDB.

Node Js –

Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser. Node.js lets developers use JavaScript to write command line tools and for server-side scripting—running scripts server-side to produce dynamic web page content before the page is sent to the user's web browser. Consequently, Node.js represents a "JavaScript everywhere" paradigm, unifying web-application development around a single programming language, rather than different languages for server-side and client-side scripts.

Apart from this, we have also used these JS frameworks –

- validator - for string validation
- express
- ejs/pug - Templating Engine
- jwt token - security purpose and validation
- nodemailer - email system
- mongoose - mongoDB Js ODM
- bcrypt - security and hashing purpose
- axios - http requests

MongoDB –

MongoDB is an open-source document database built on a horizontal scale-out architecture that uses a flexible schema for storing data. Founded in 2007, MongoDB has a worldwide following in the developer community. Instead of storing data in tables of rows or columns like SQL databases, each record in a MongoDB database is a document described in BSON, a binary representation of the data. Applications can then retrieve this information in a JSON format.

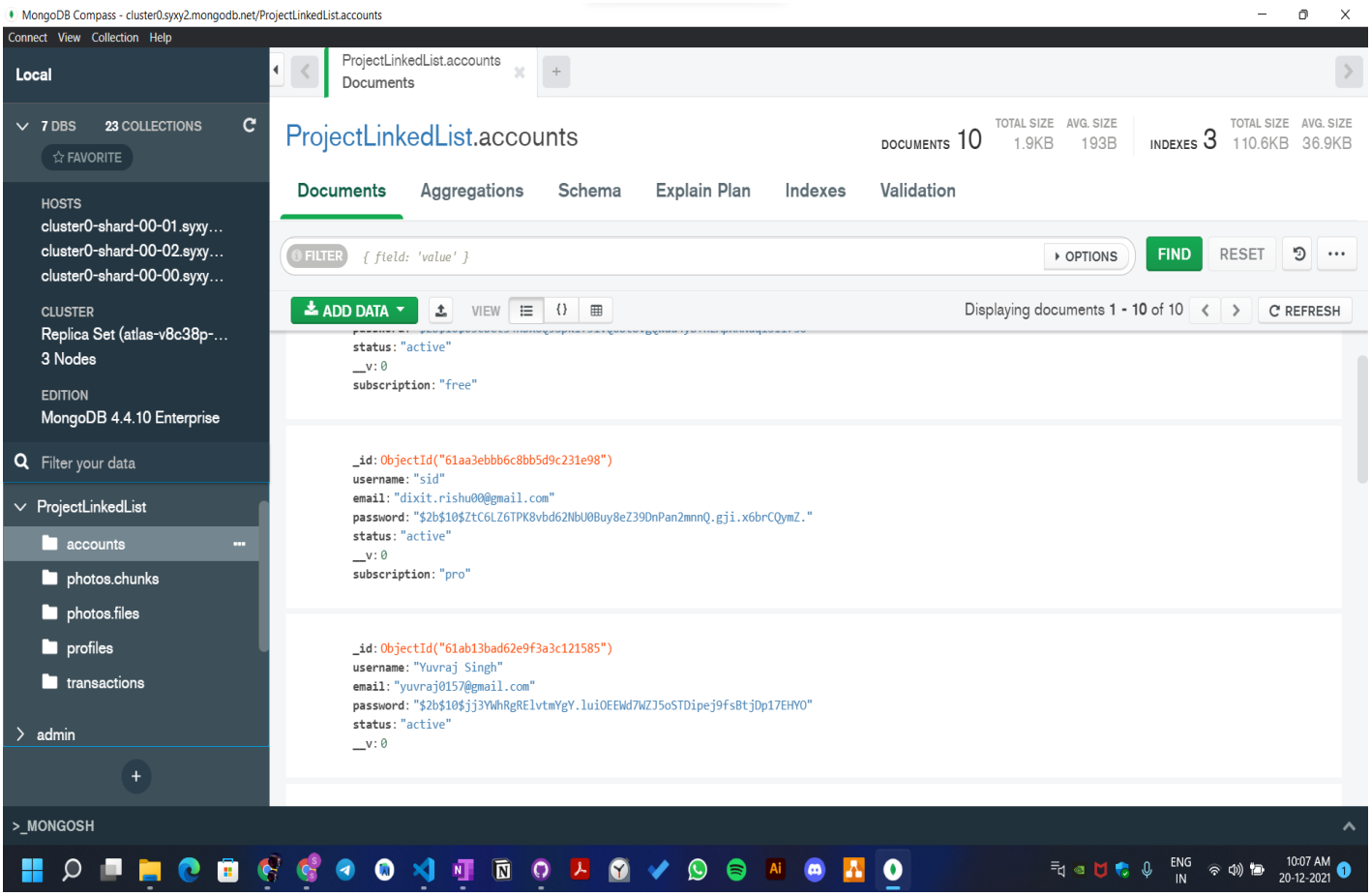
Document databases are highly flexible, allowing variations in the structure of documents and storing documents that are partially complete. One document can have others embedded in it. Fields in a document play the role of columns in a SQL database, and like columns, they can be indexed to increase search performance. From its founding, MongoDB was built on a scale-out architecture, a structure that allows many small machines to work together to create fast systems and handle huge amounts of data.

CHAPTER 4 SYSTEM DESIGN

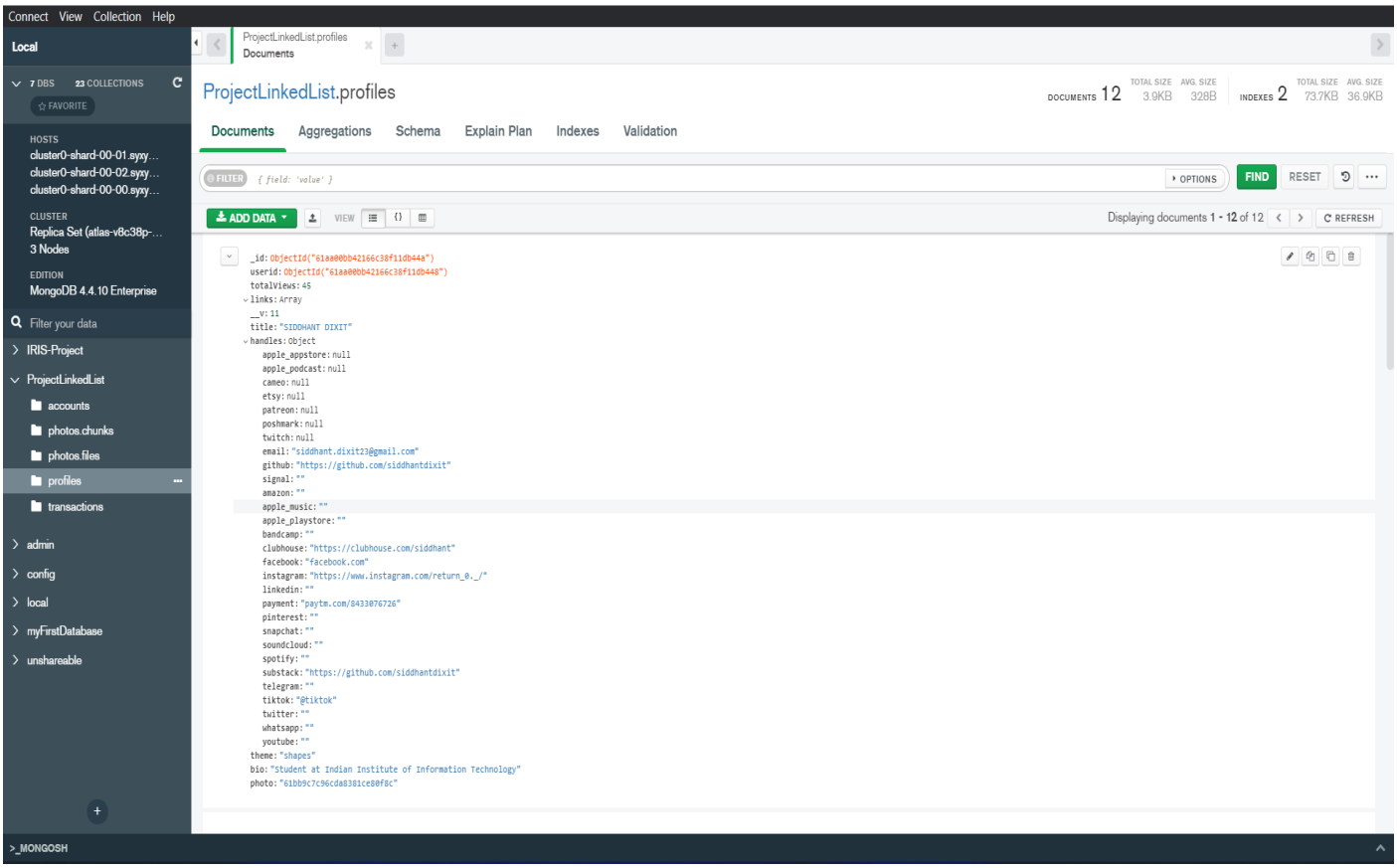
4.1 TABLE DESIGN

Various collections to maintain information -

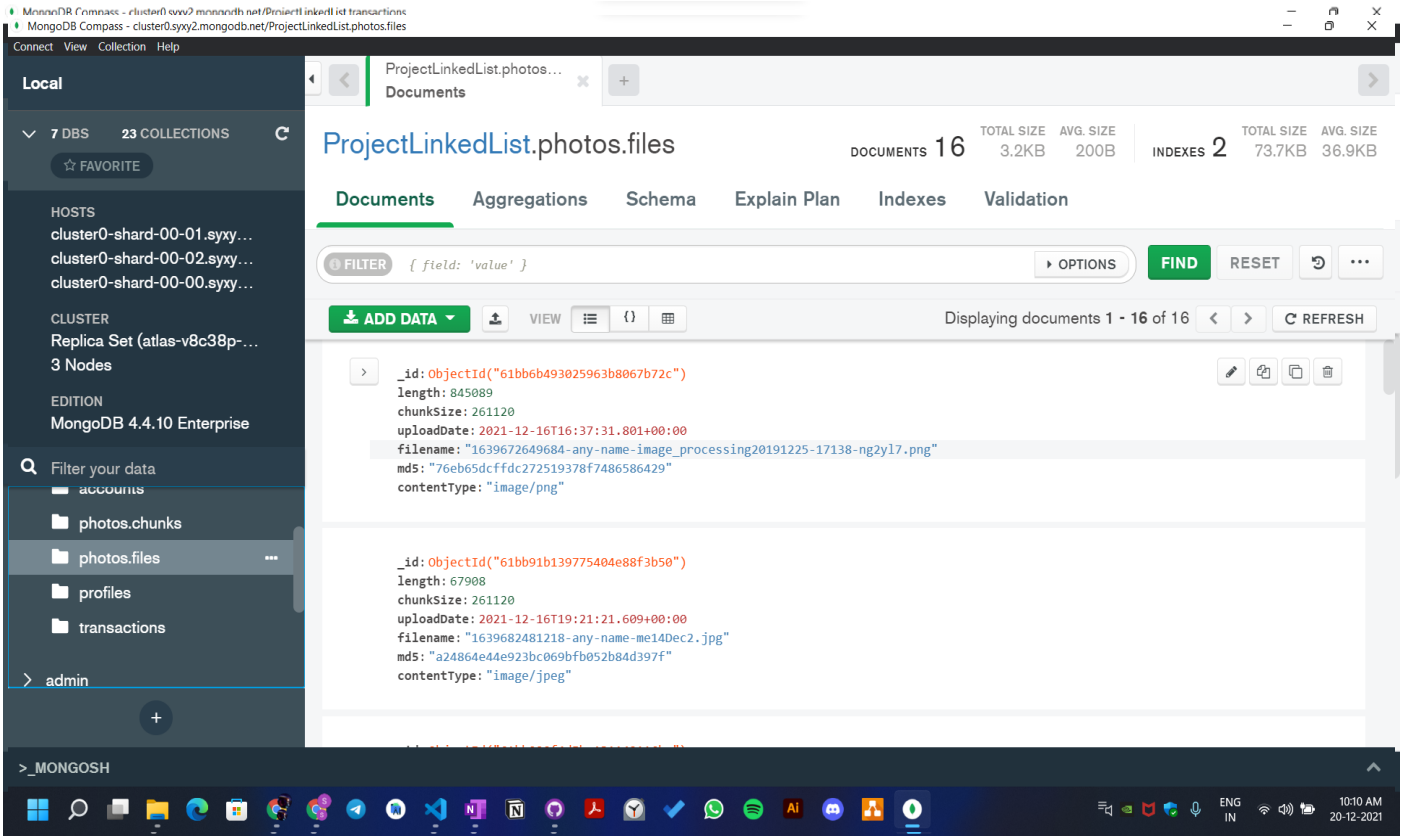
- **Accounts collection from Database -**



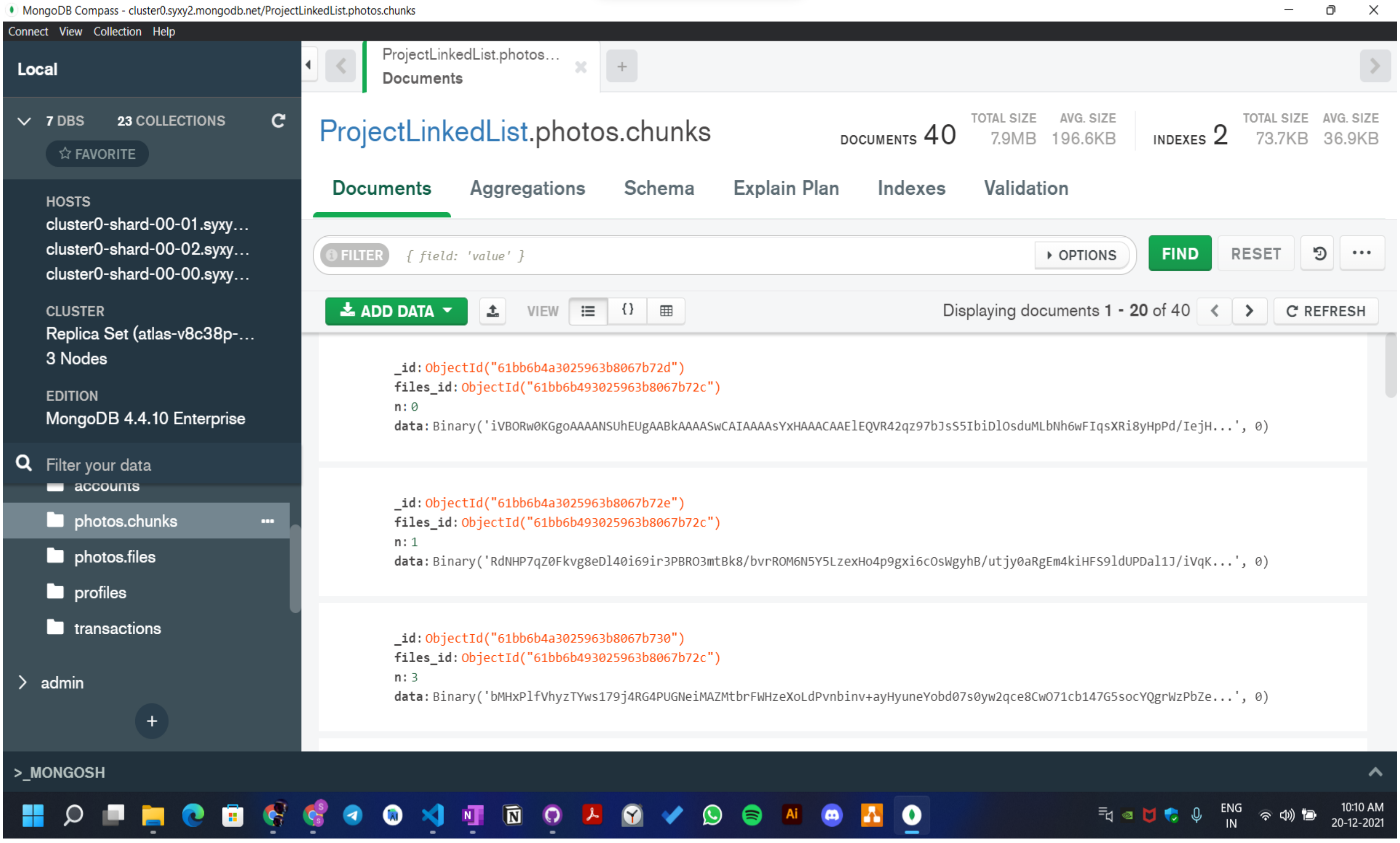
- **Profile collection from Database -**



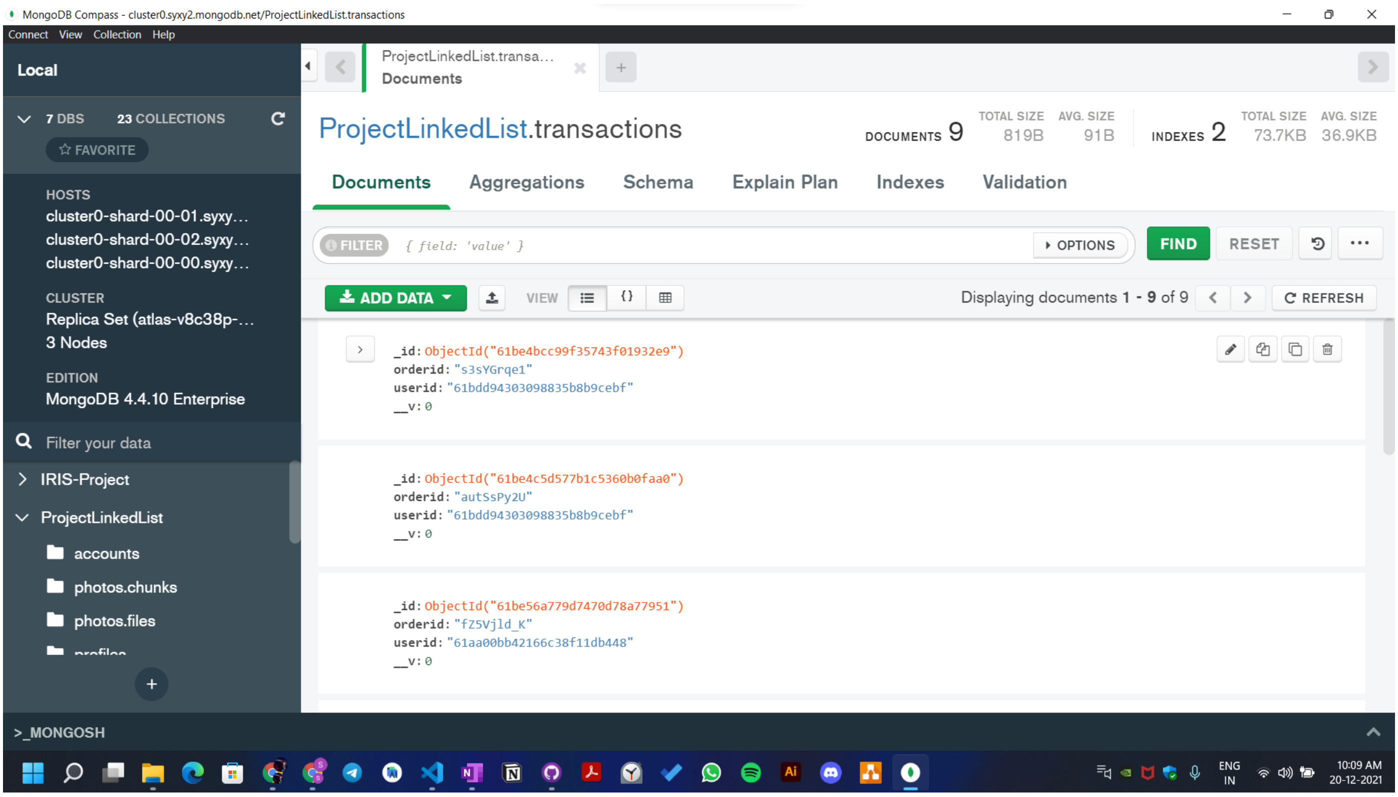
- **Photos files collection from Database -**



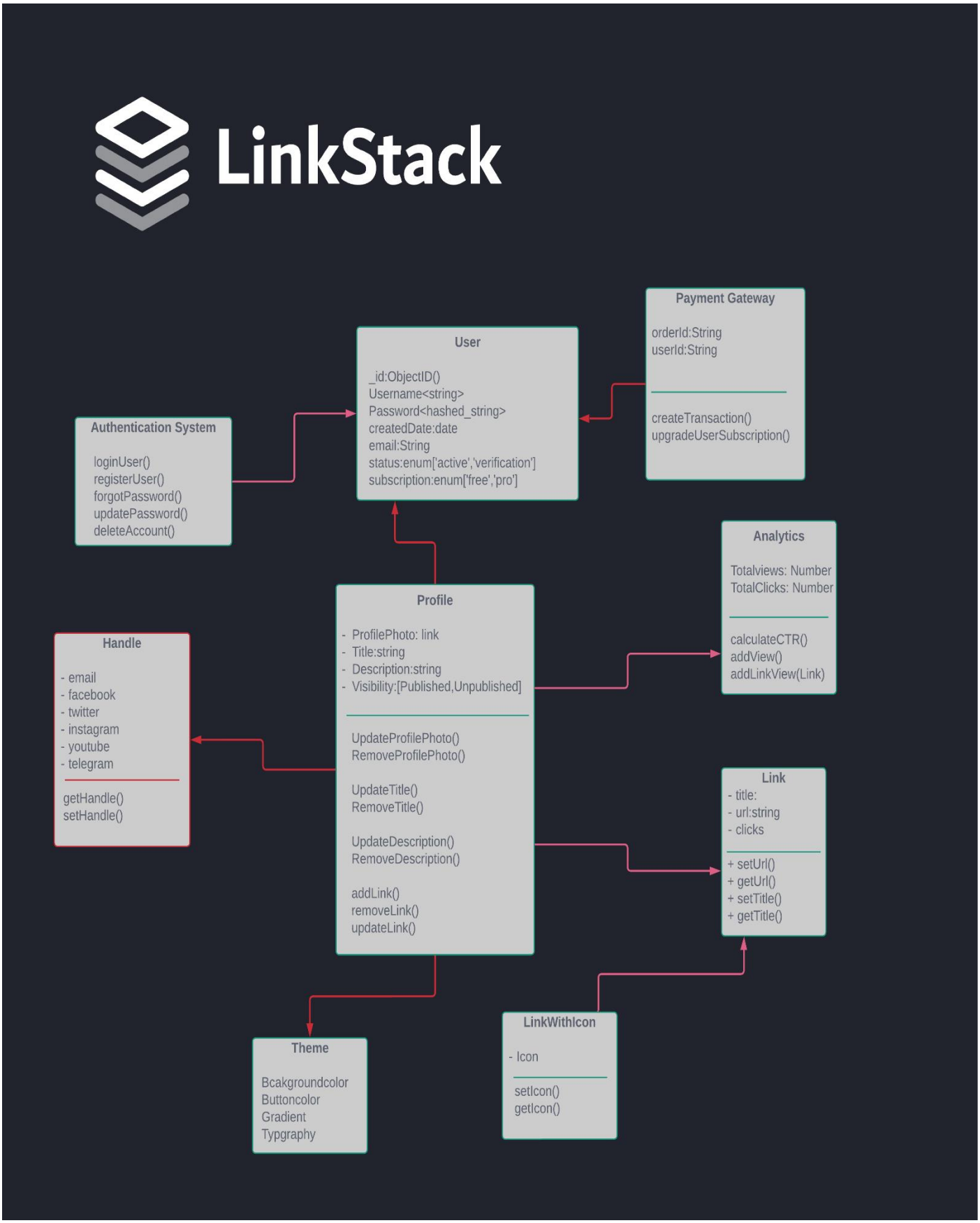
- **Photos collection from Database -**



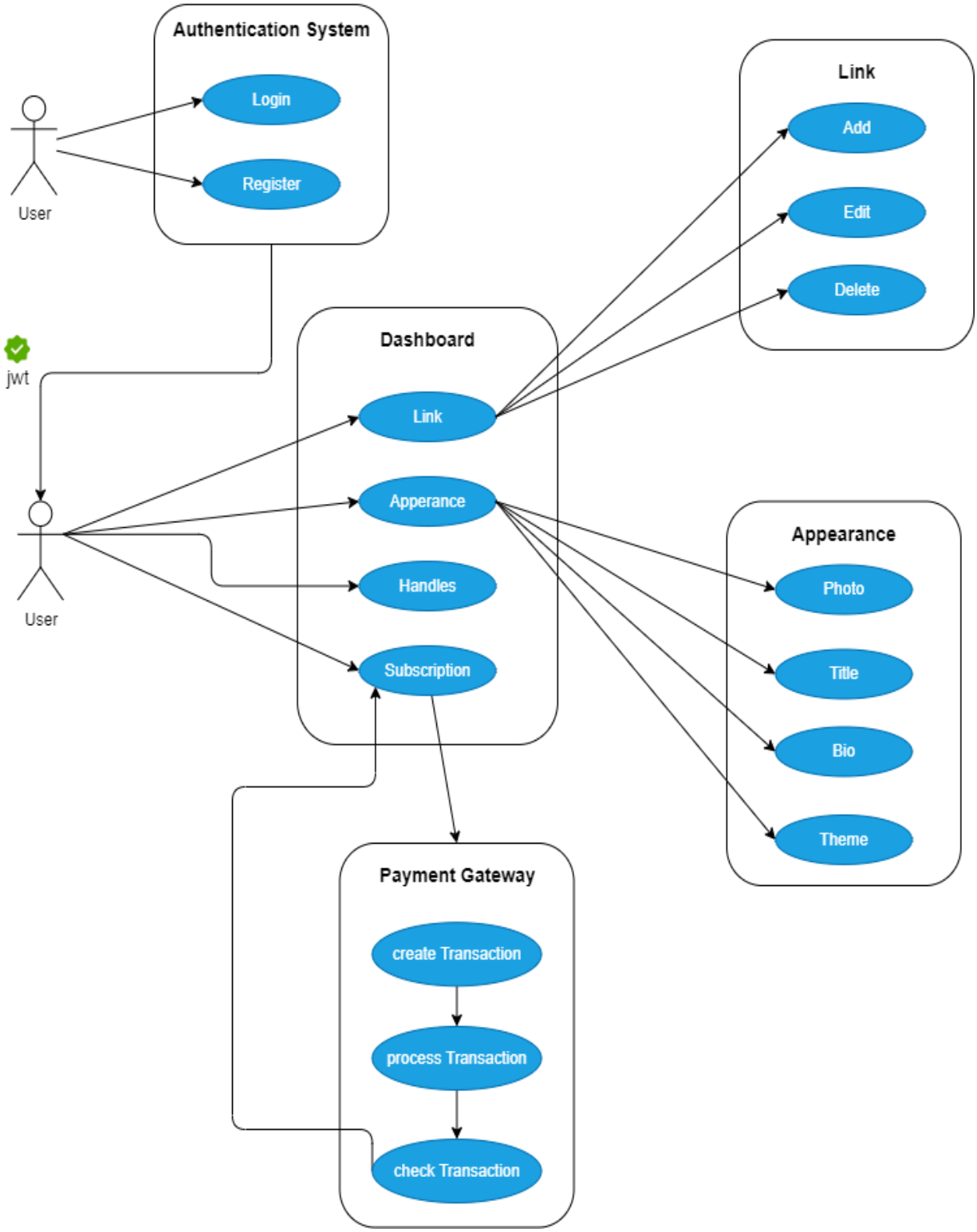
- **Transactions collection from Database -**



4.2 UML DIAGRAM



4.3 DATA FLOW DIAGRAM



CHAPTER 5 SYSTEM TESTING

The aim of the system testing process was to determine all defects in our project.The program was subjected to a set of test inputs and various observations were made and based on these observations it will be decided whether the program behaves as expected or not. Our Project went through two levels of testing –

1.Unit testing
2.Integration testing

UNIT TESTING

Unit testing is undertaken when a module has been created and successfully reviewed. In order to test a single module we need to provide a complete environment i.e besides the module we would require –

- The procedures belonging to other modules that the module under test calls
- Non local data structures that module accesses
- A procedure to call the functions of the module under test with appropriate parameters

Unit testing was done for dashboard module
Test for the dashboard module –

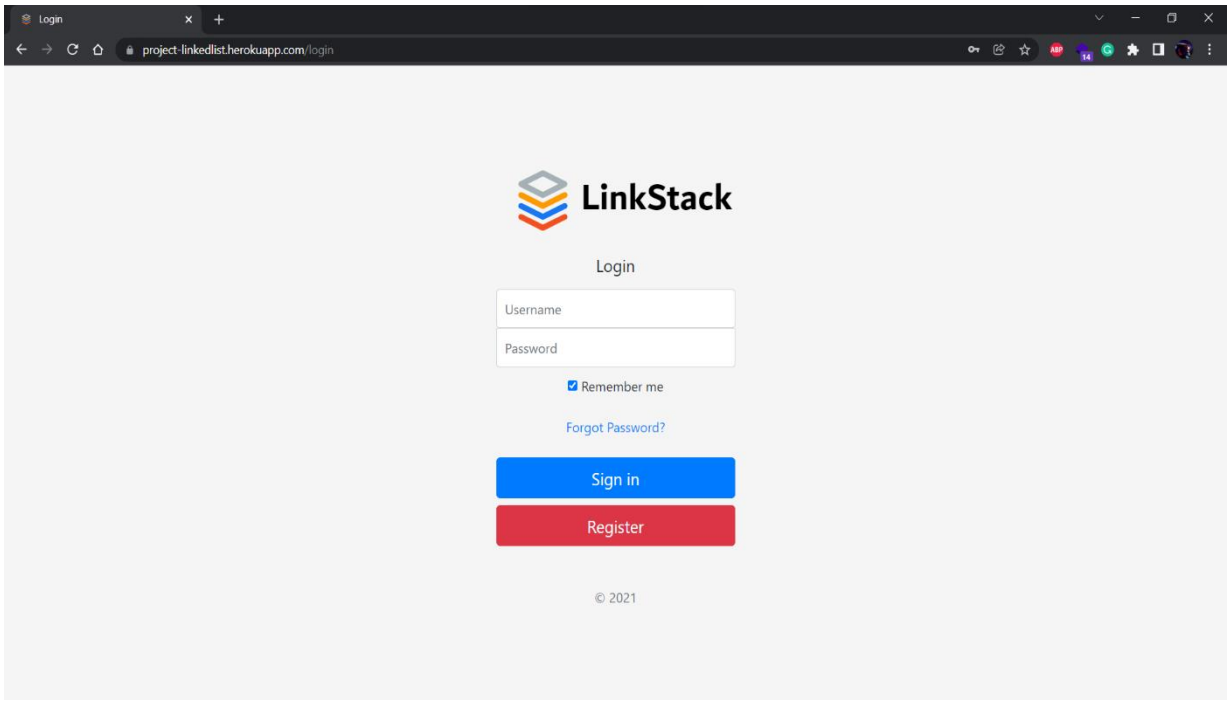
- Testing admin login form - This form is used for log in of administrator of the system.In this we enter the username and password if both are correct administration page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for username and password
- Testing dashboard panel - In this section the user can manage the links handles and appearance on their public profile page and in the backend these things will be validated and stored in the database.

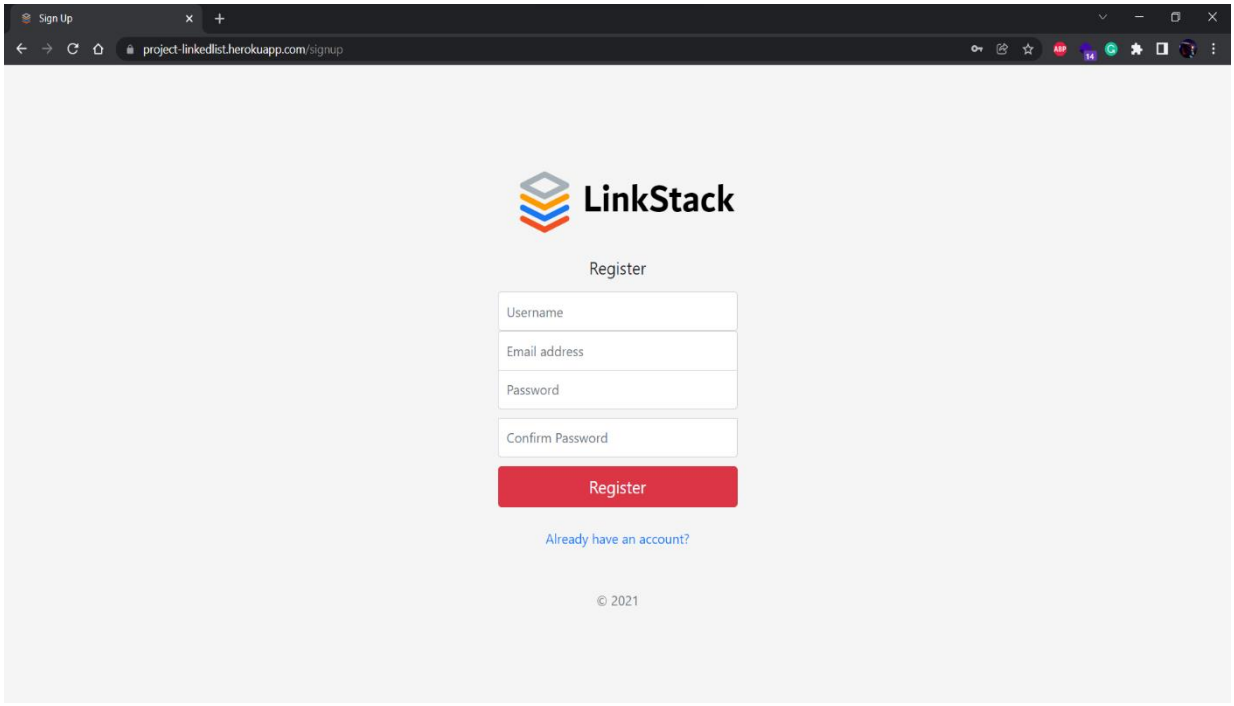
Integration testing

In this type of testing we test various integration of the project module by providing the input. The primary objective is to test the module interfaces in order to ensure that no errors are occurring when one module invokes the other module.

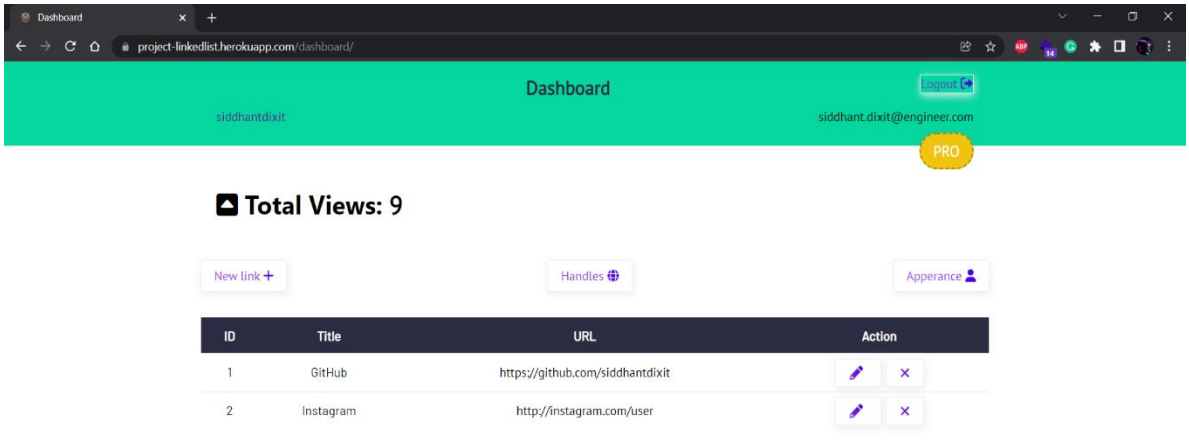
CHAPTER 6 SYSTEM IMPLEMENTATION

6.1 Screenshot of authentication system

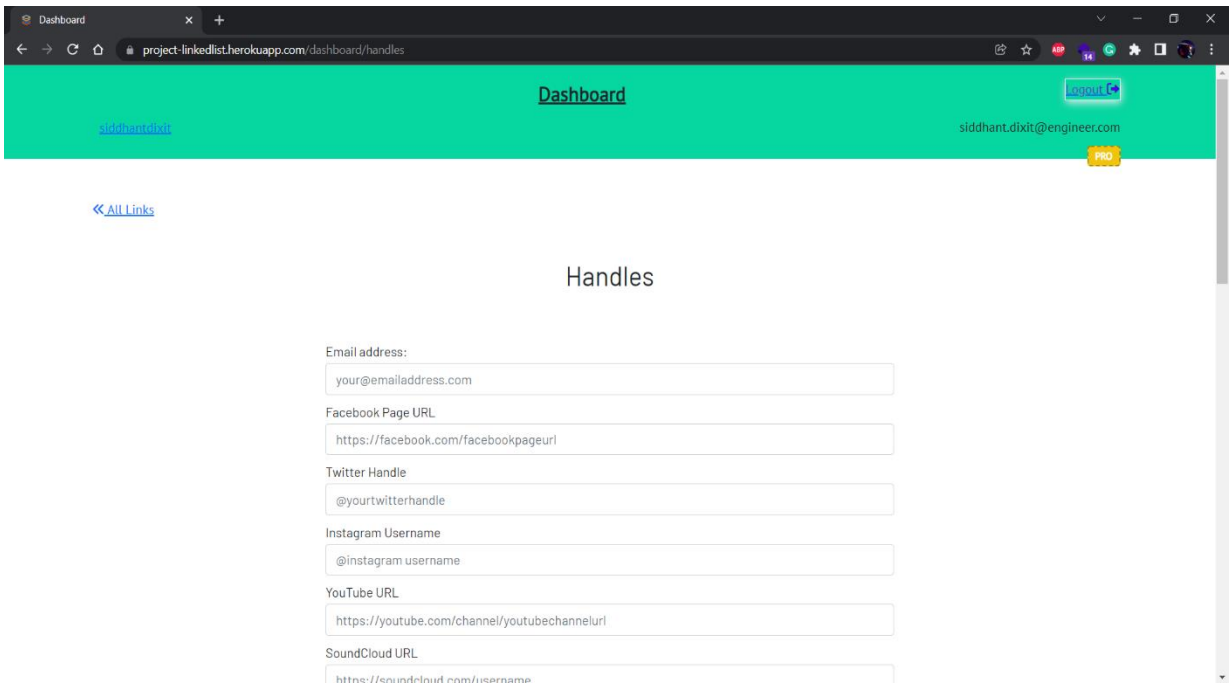




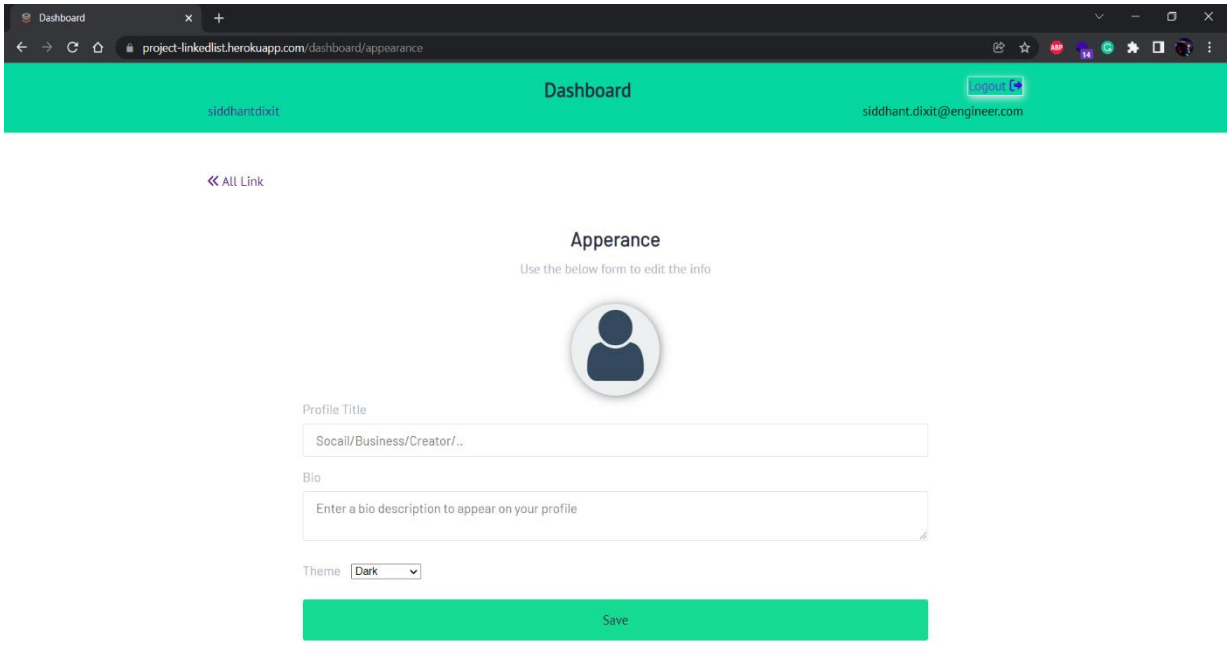
6.2 Screenshot for dashboard



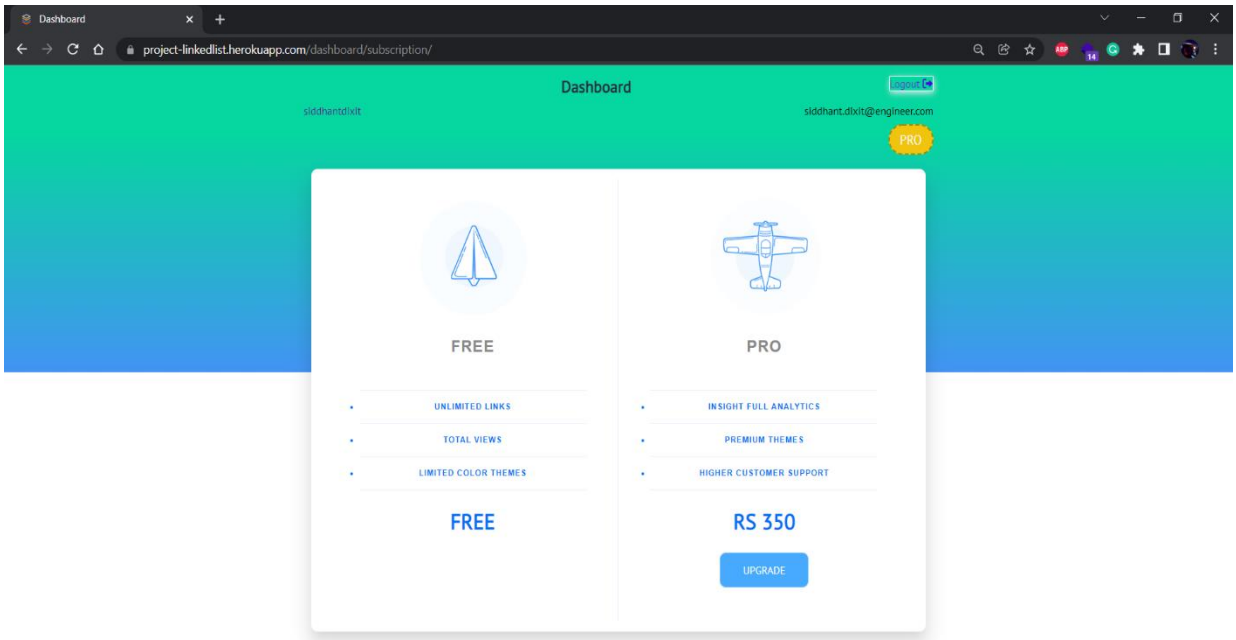
6.3 Screenshot of handles page



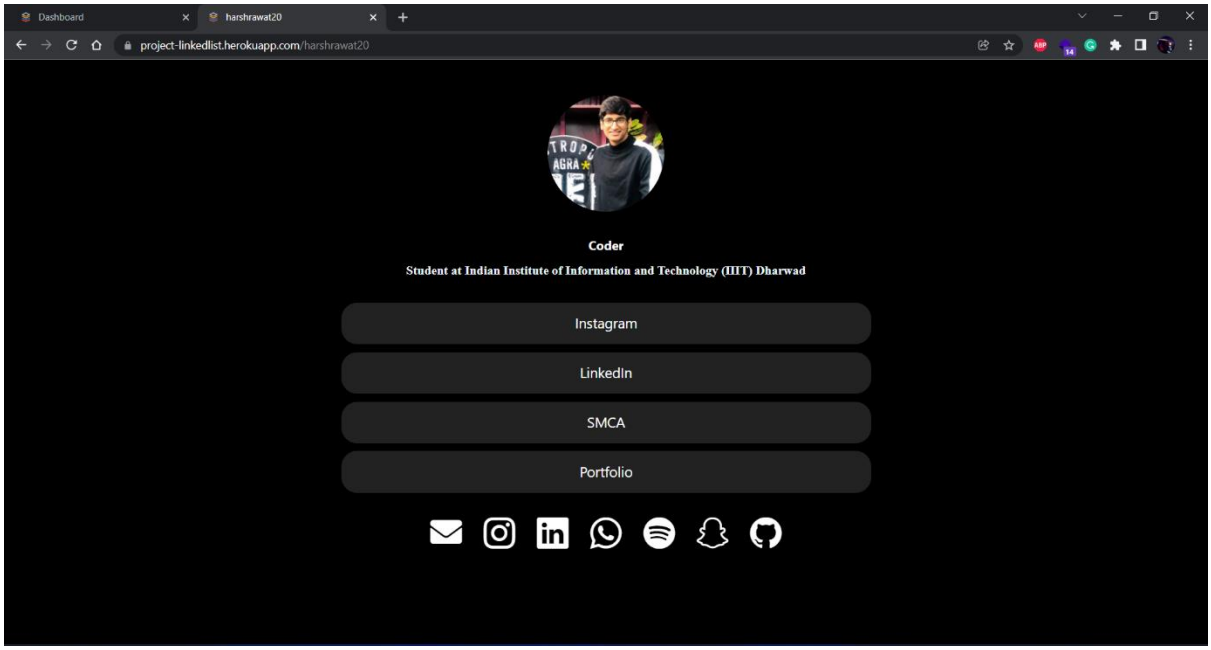
6.4 Screenshot of appearance page

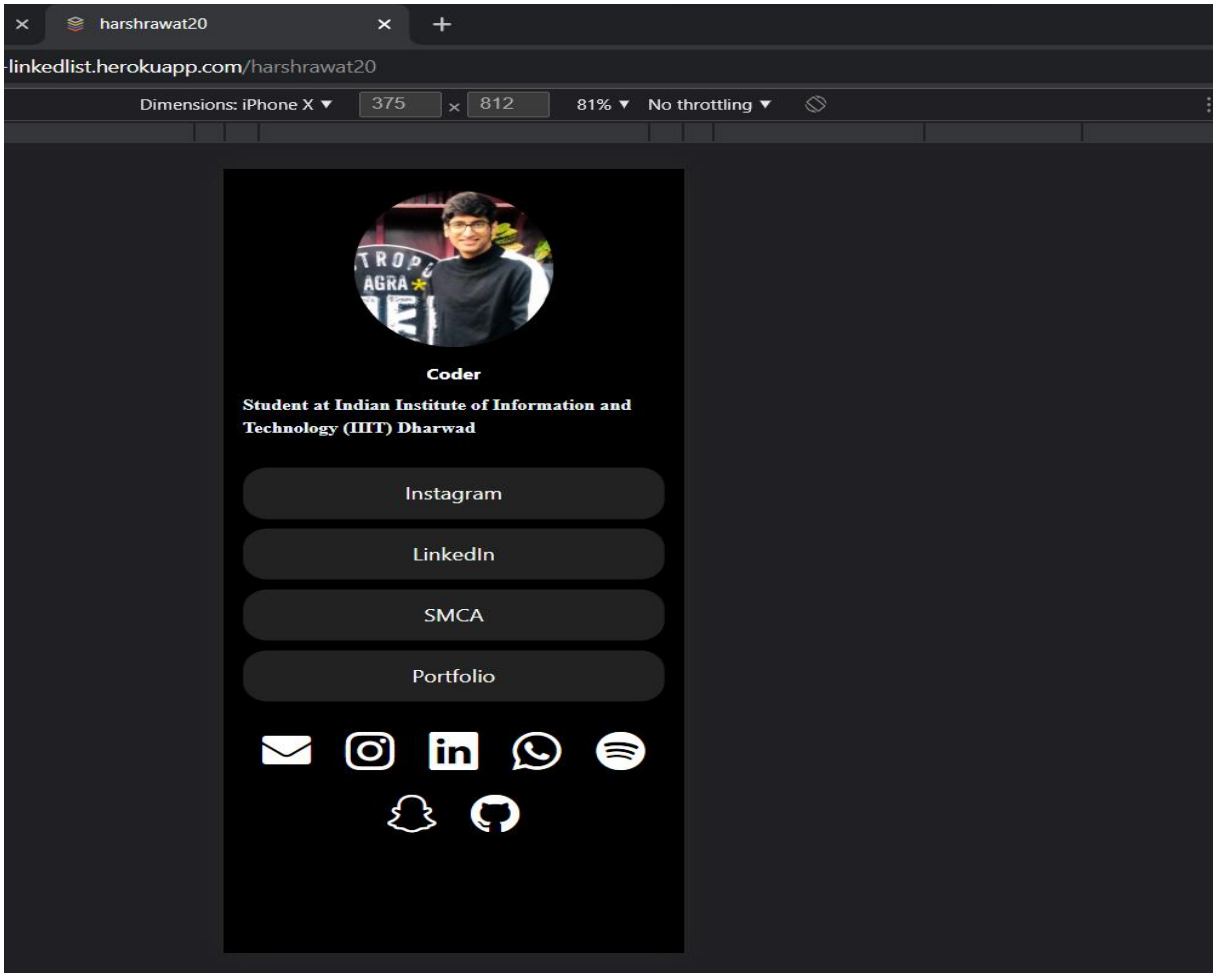


6.5 Screenshot of subscription page



6.6 Screenshot of user public page





CHAPTER 7 CONCLUSION & FUTURE SCOPE

LinkStack is social media reference landing page that's a Bio Link tool which is a single link for all your links and accounts. It will allow you to create a personalized and easily customizable page, that houses all the important links you want to share with your audience. It can be used on social platforms like Instagram, TikTok, Twitch, Facebook, YouTube, Twitter, or LinkedIn and many social handles or you can use it to aid discovery of your work, brand, or business. In the premium version user can get detailed analytics of their profile and links.

There is a future scope of this facility that many more features such as link shortener, contact management system that can be synced with google contacts and facebook friends which will allow user to know, which of their friends are using LinkStack can be added. We were also planning to implement privacy features that will allow to hide links from anonymous users.

In PRO version the more detailed analytics, the user can see the number of clicks on the specific links, the user can know the target audience regions.

CHAPTER 8 REFERENCES

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- https://nodejs.org/
- https://getbootstrap.com/
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