Team PatanjaliHax

Aim - :)

The act of research sets the course for the development of any product or service. Without comprehensive research, all stages that follow in research activities could be greatly affected. Finding the required information for research can be difficult as the resources and information on internet and otherwise are often located in dispersed places, and accessing the right content can be time consuming. In this context, a single State research portal is needed to be designed in a manner that it can serve as a one-stop research portal for all the State Universities and colleges comprising the essential areas/parameters. Few of the areas to be incorporated are as given below:

A. Navigating to information: It should be built on user experience best practices. As researchers are used to accessing websites (whether in their personal or professional lives) that respond to their screen size and are optimized for mobile, but also contain ideal user experience elements to make it easy to navigate (think single search bar front and center, clear organization of content etc.).

B. Uploading research, discovery of and access to information: It should be a user-friendly research portal wherein the researchers can search and discover the right information and content for their work. They also be able to upload their research work university/college/miscellaneous wise which may further be categorized department/areas of study wise. A discovery service is the next tool to consider integrating into research portal. Consider how metadata is used, the methodology around searching and retrieving search results, how the tool anticipates users' needs, and what can be integrated into the discovery tool.

C. Authentication: As research and collection of information resources become increasingly digital, authentication will be a key component to ensure the security of users and their content. For example, your collection may offer users access to various publisher or research platforms/portals that all have varying requirements for authentication. Entry into these resources is expected to be seamless and intuitive by researchers.

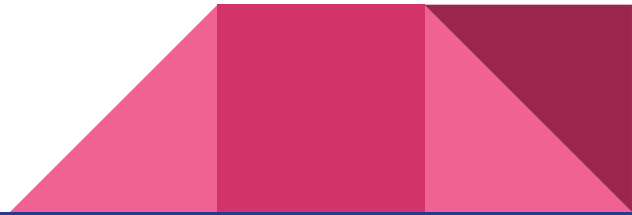
Frameworks used:

Our team discussed about pros and cons of various frameworks to be used for this task and converged to the idea of using Django (with the default SQLITE database).

Here is Why Django ?

Django was developed by bunch of experienced PHP developers back in 2005, when they felt use of a **more robust framework** that could handle more complicated tasks at large scale. A website built upon Django is easy to set-up and deploy.

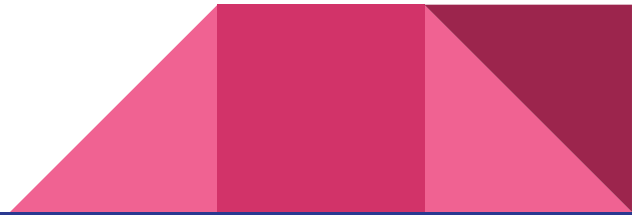
Today, various popular websites like **YouTube, Quora, Dropbox, Instagram, Spotify** etc. that see large user base (in billions) are **built on the top of Django** framework. When a website is scaled up, to fulfil needs of large number of people, Django has a clear advantage over its popular alternatives like NodeJS, ExpressJS, PHP, etc.



Features offered by Django

Django uses in house **Form Validation** methods, provided by the Django developers, so that we can avoid the whole hassle of creating a secure form from scratch. Website Vulnerability is a major issue and costs a lot money to ensure security. Django has implemented all the **major security checks** such as **SQL Injection**, **XSS (Cross-Site Scripting)**, etc that can leak confidential data, which we surely don't want with a website that handles confidential research work.

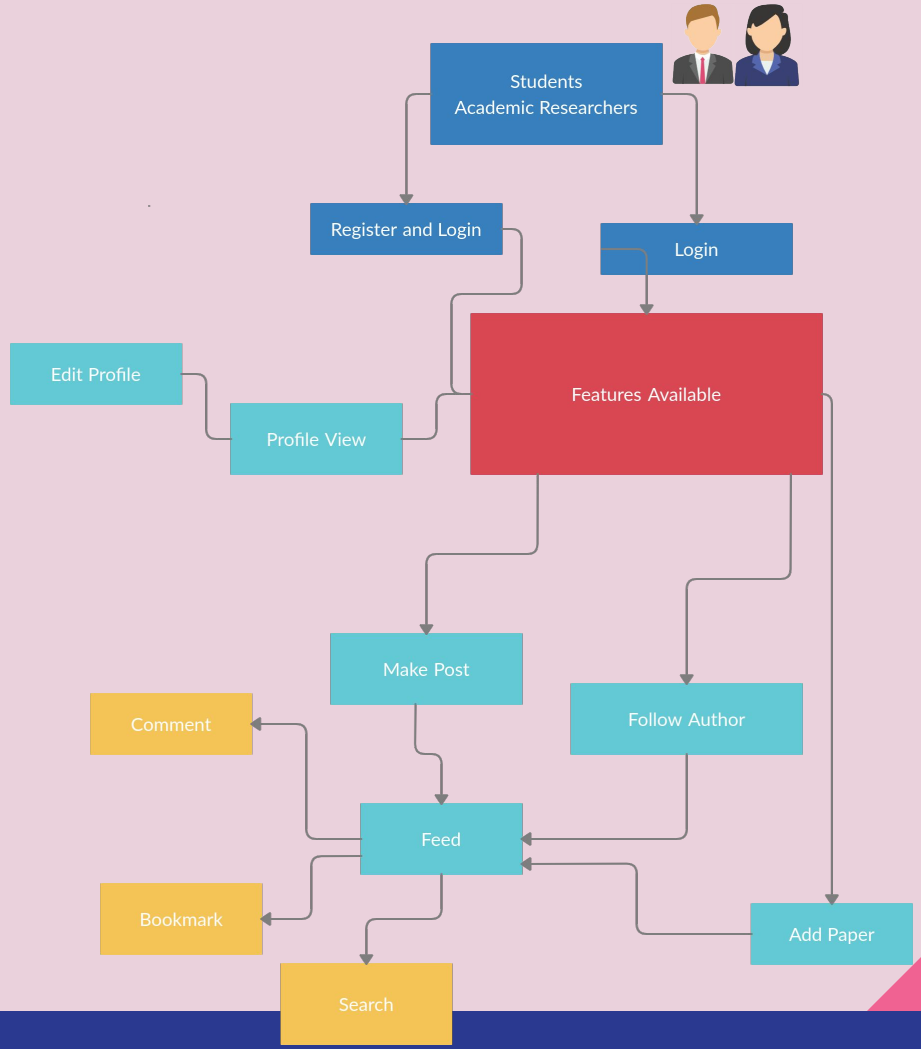
Django comes with a **preinstalled Admin Panel**, which reduces a lot of hassle and helps to develop apps faster. Also all the data in the database (which includes all the **research papers**) can be **accessed easily** by the admin account.



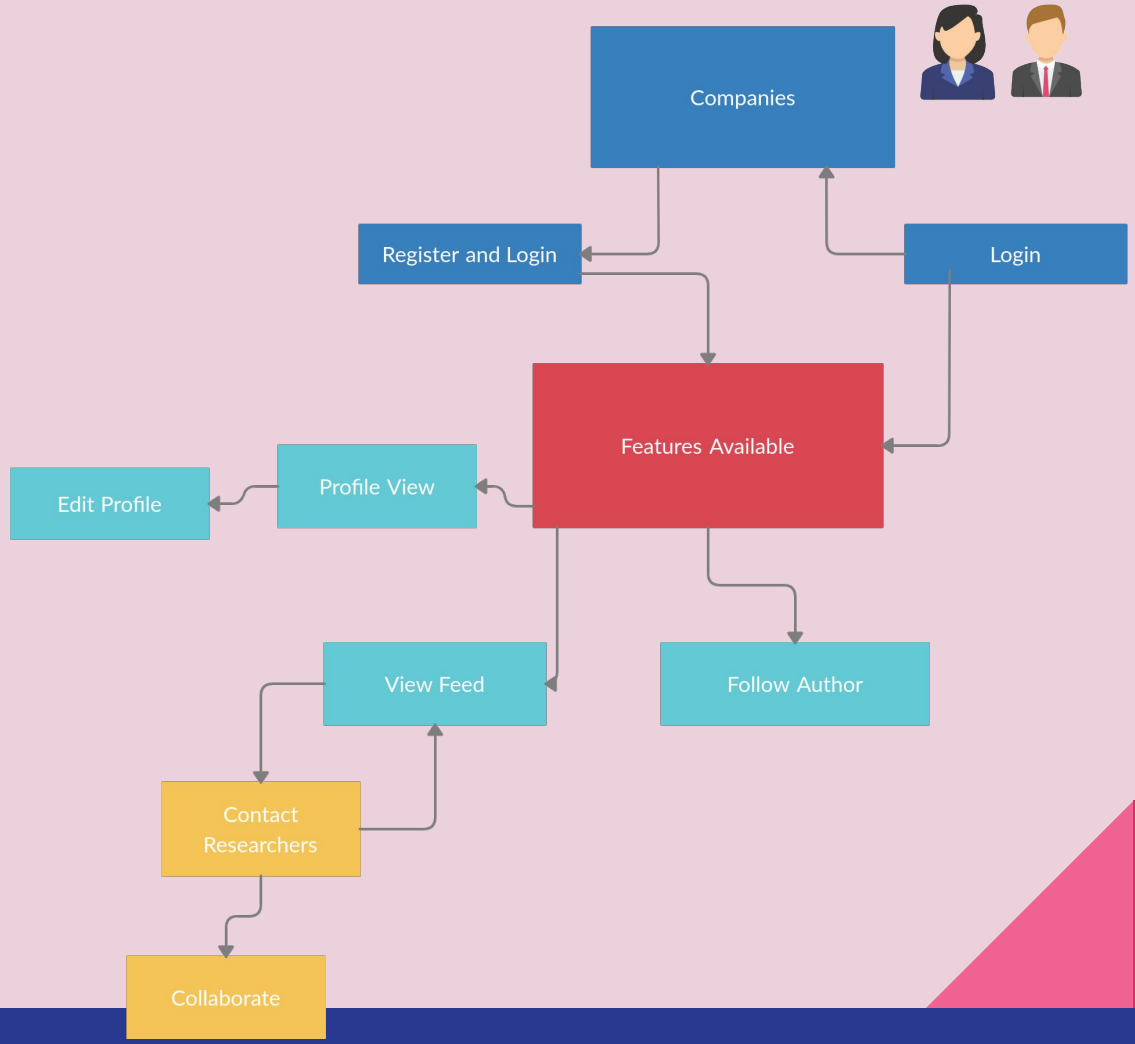
Flow Chart

The flow has been divided into 2 paths:

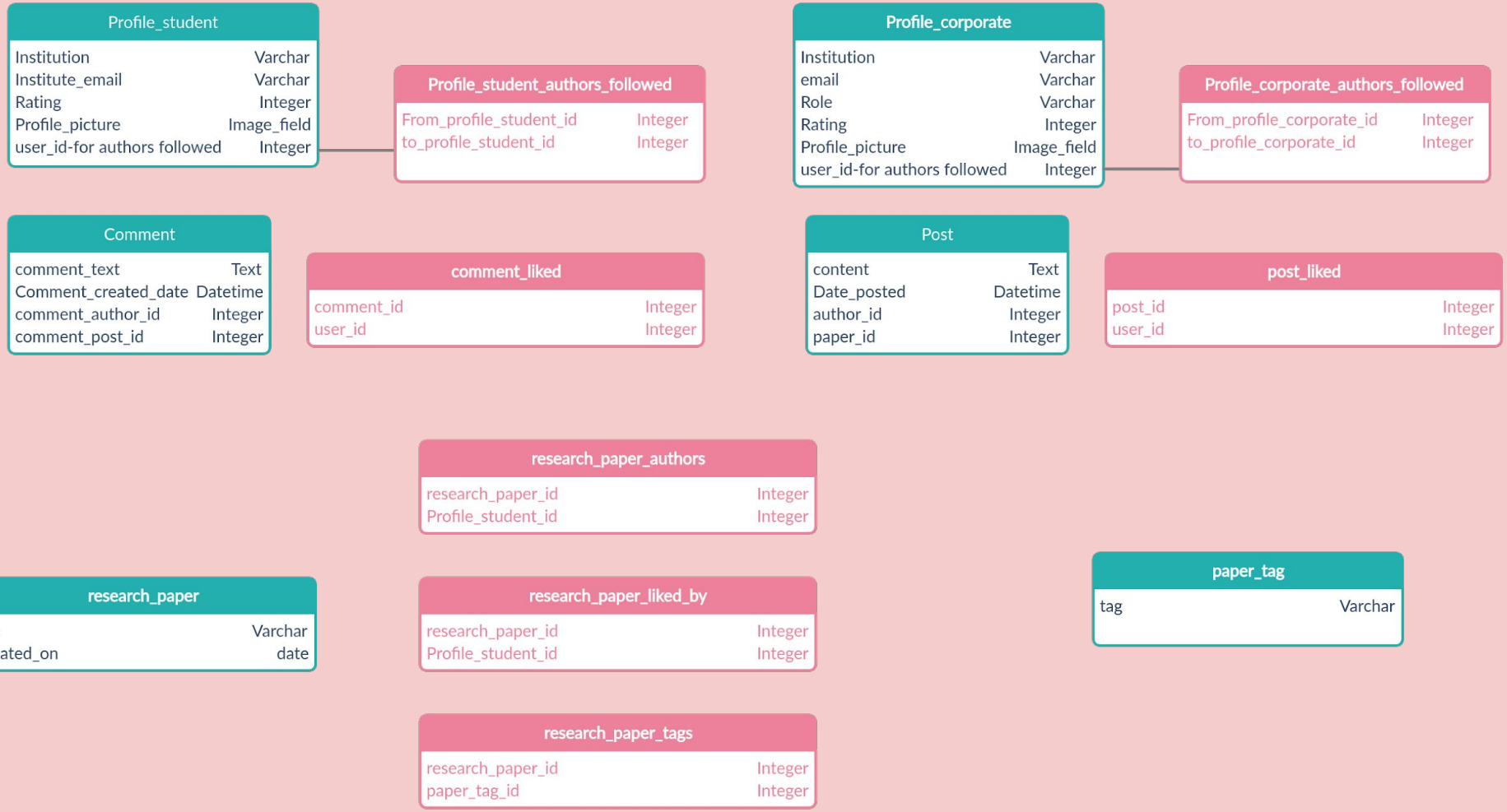
Path 1


Students
Academic Researchers
Register and Login
Login
Edit Profile
Profile View
Features Available
Make Post
Comment
Follow Author
Feed
Bookmark
Add Paper
Search

Path 2


Companies
Register and Login
Login
Features Available
Edit Profile
Profile View
View Feed
Follow Author
Contact Researchers
Collaborate

Database Tables



Functionalities

Our portal can be summarised as a LinkedIn for researchers. We are incorporating various unique functionalities offered by various social media websites and crafting it into a UI relevant to all researchers and research organisations.

The functionalities offered by this portal can be divided into various modules, each of which are unique with respect to existing research portals, such as:

- User Profile and Authentication
- Research paper publishing
- Post Feed
- Search
- ELO based Rating

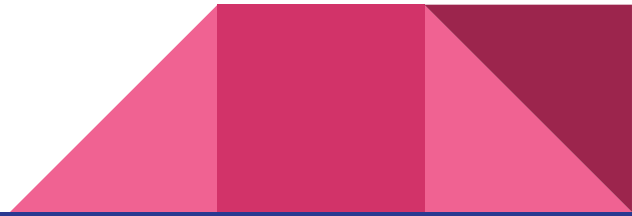
User Profile and Authentication

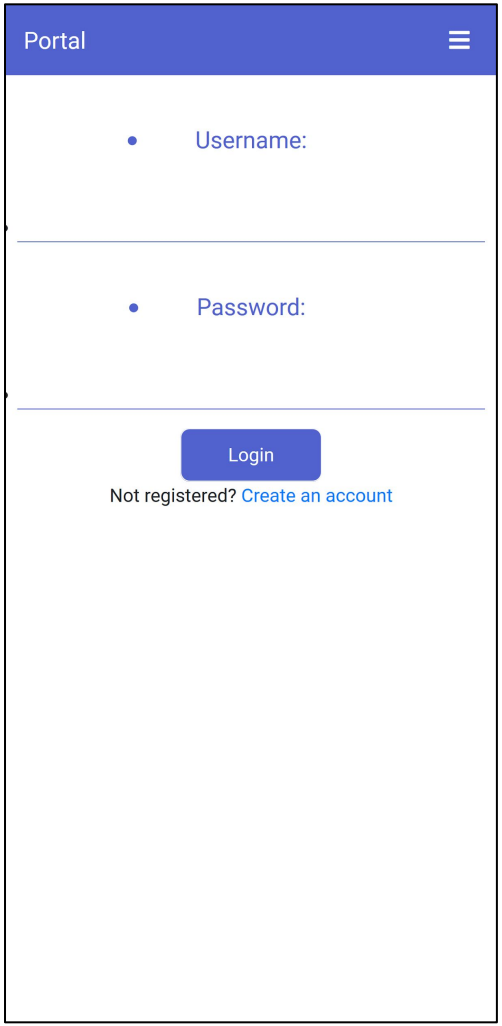
User Authentication

We have divided our audience into two types -

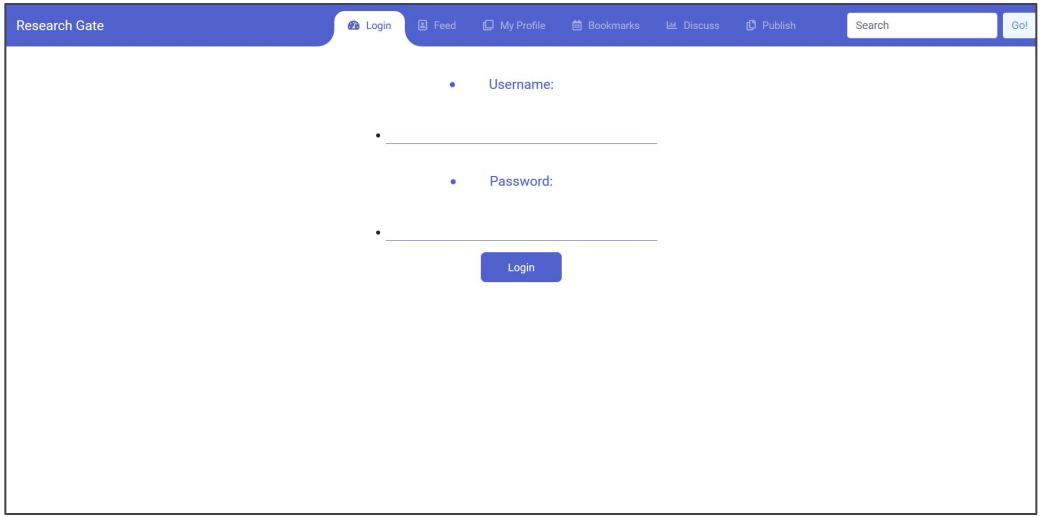
1. Academic Researchers and Students
2. Companies

The authentication itself is handled by Django’s inbuilt Authentication views!



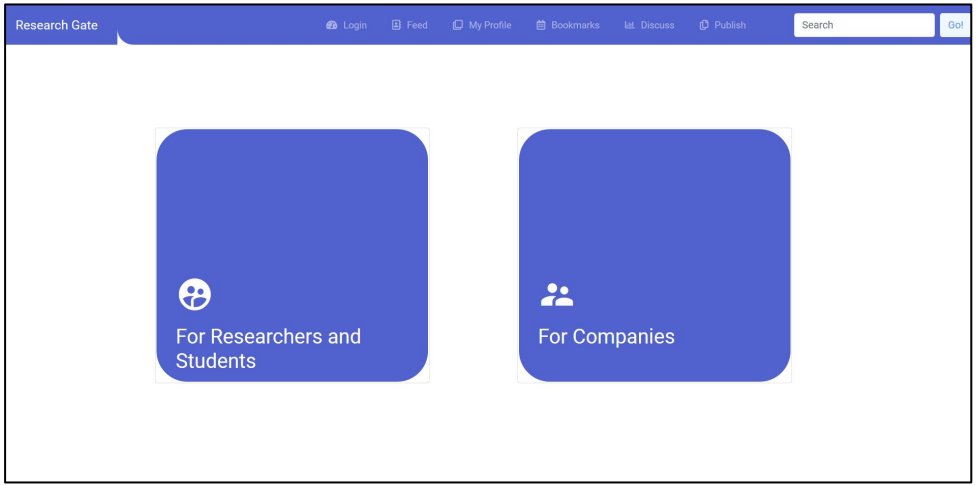


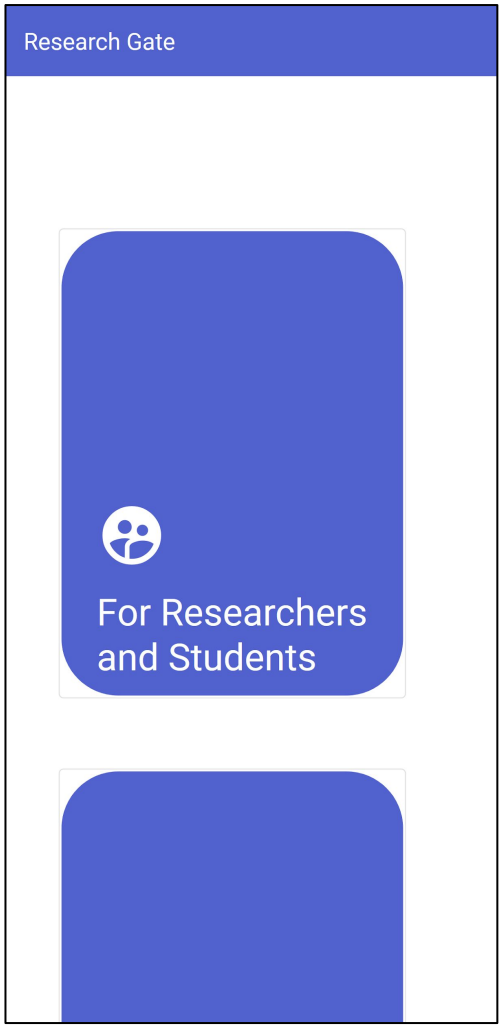
Responsive view!

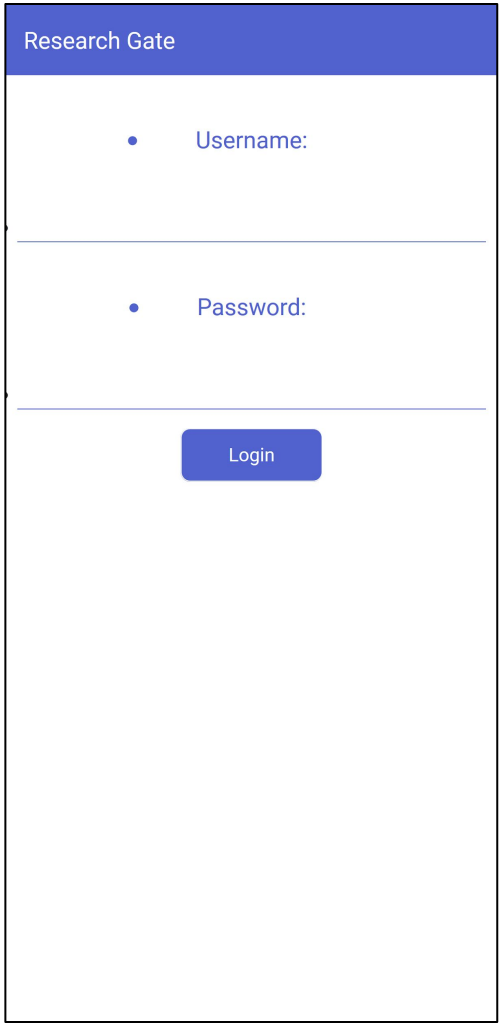


Login Page

Register Page

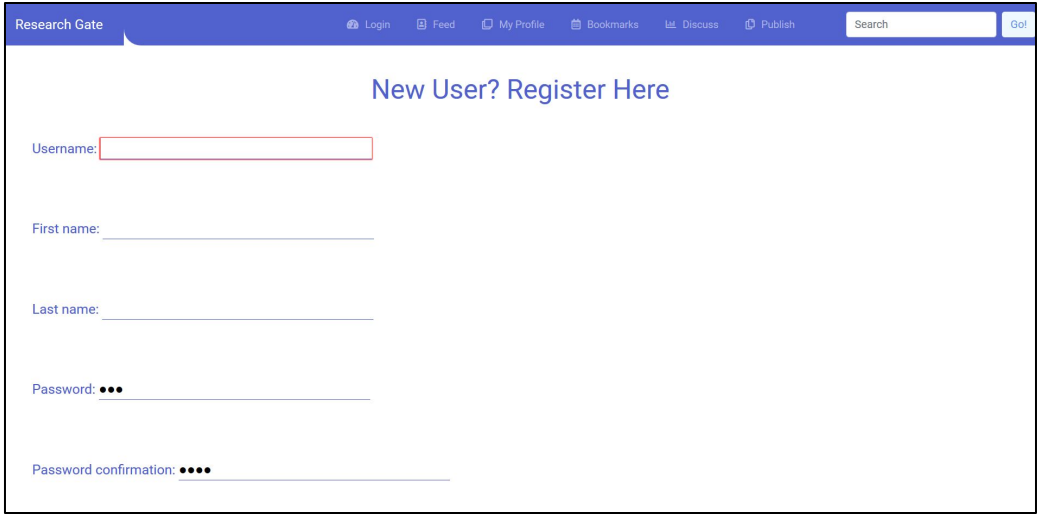






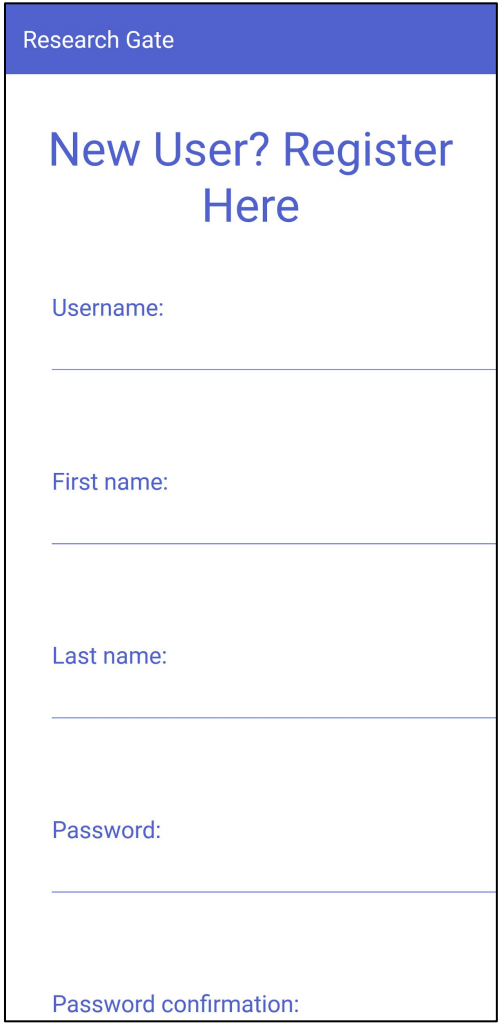
Sign up page and login page mobile view!

Made with Bootstrap 4 !



Desktop View and Mobile view of the Register User page!

Made responsive for all screen sizes using Bootstrap 4!



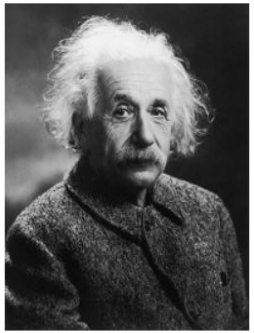
User Profile

The user profile displays all the information about the user.

On top we have the Display picture of the user. To the right of the display picture, we display the full name as well as the rating of the user.

Below that we have a navigation tab with 2 options:

- Basic Info: Displays username, email address and Institution (to all the viewers), and authors followed (to the logged in user only)
- User Feed: List of all the posts made by the user whose profile is being viewed.



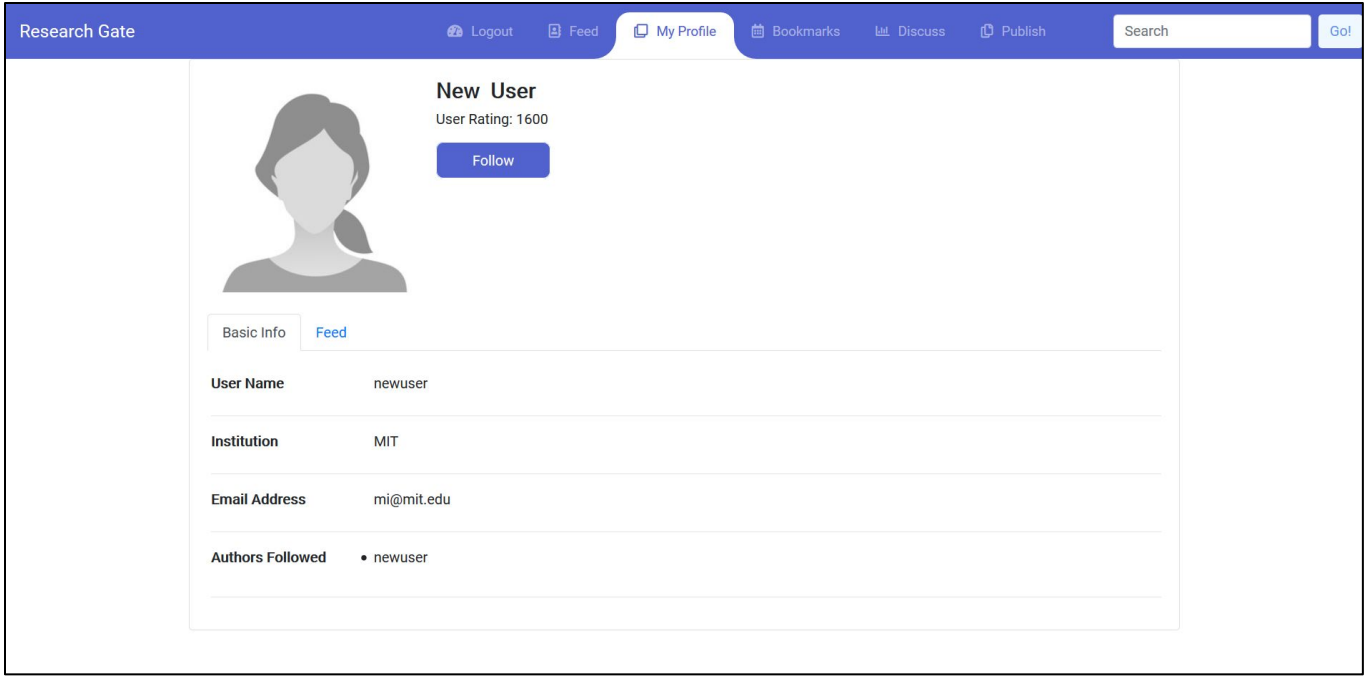
Albert Einstein

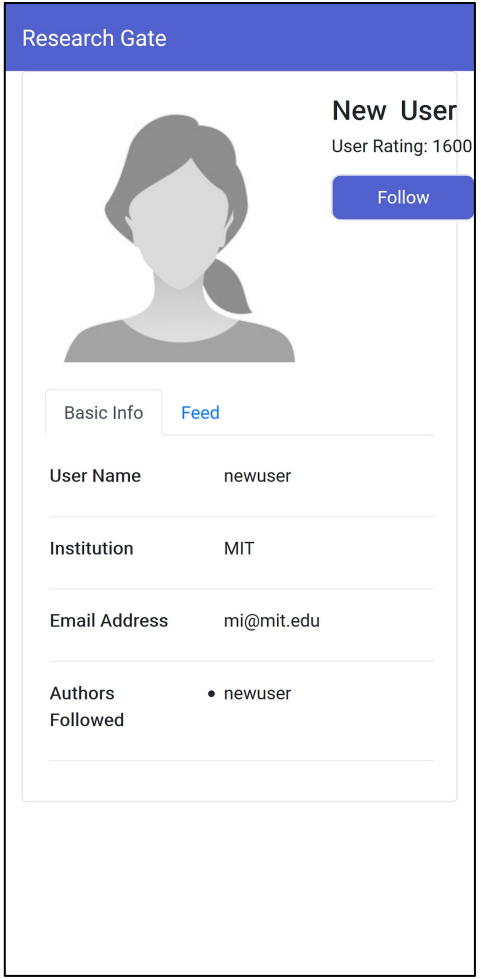
User Rating: 1900

Follow

Basic Info | Feed

User Name	einstein
Institution	Princeton University
Email Address	einstein@princeton.edu
Authors Followed	• AlanTuring • einstein • newton





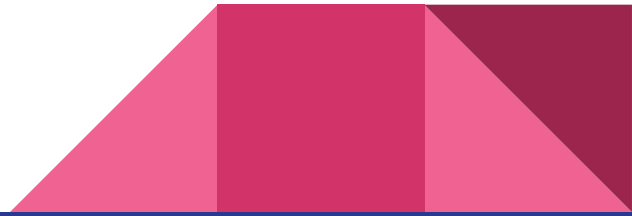
Desktop View and Mobile view of the profile page visualised!

Made responsive for all screen sizes using Bootstrap 4!

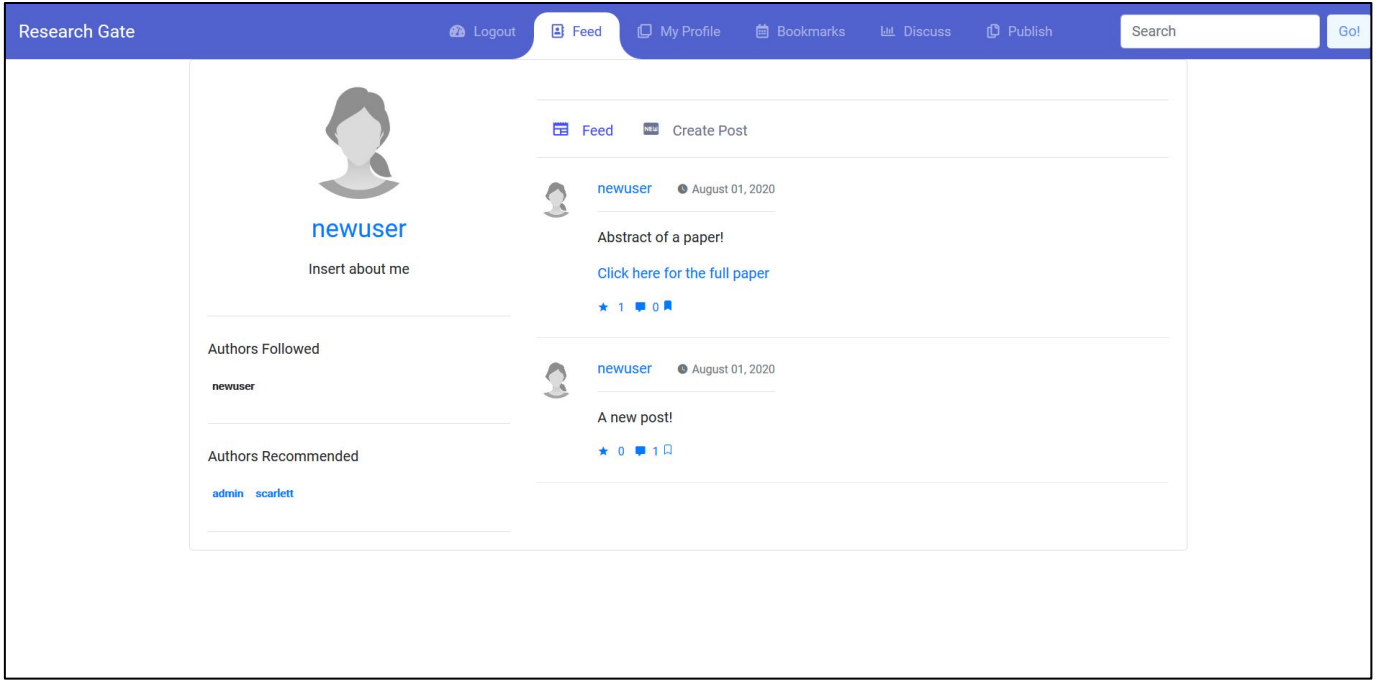
User Profile

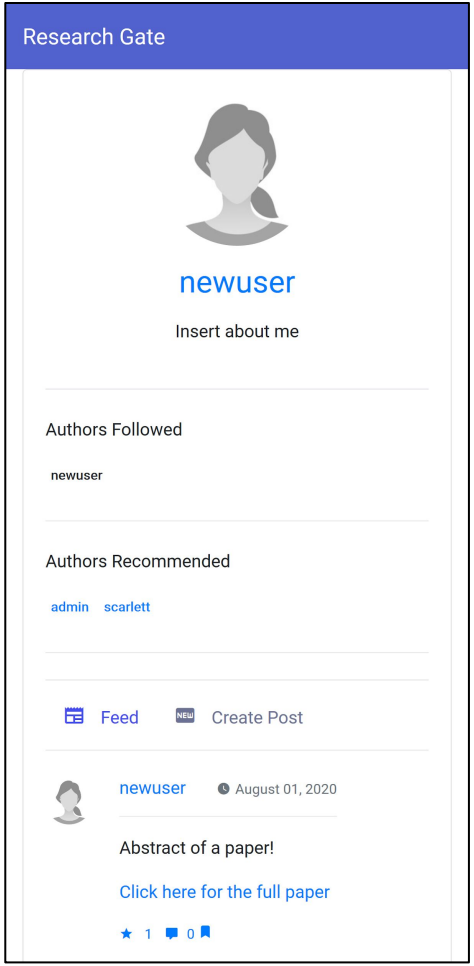
Clicking on the User Profile tab in the navigation menu, takes us to the Profile of the logged in user. This tab can only be pressed after the user is logged in.

In case the user is not logged in, he is directed to the login page.



User Feed





Feed template UI, both for Desktop and Mobile view!

Feed

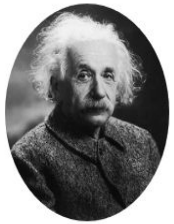
After logging in, a user is redirected to his feed.

On the top there will be a Navigation Bar for ease of accessibility.

On the left, we will have a sidebar, which contains all the information of the logged in User.

On the feed itself you can find all the relevant posts listed down one by one.

The feed also has an option to create a new post, which redirects the user to a form.



einstein

Insert about me

Authors Followed

AlanTuring einstein newton

Authors Recommended

stephen

Feed | Create Post

einstein August 03, 2020

Who is this new guy Stephen Hawking? Is he any good?

★ 0 0

newton August 03, 2020

This paper is supposed to be hidden from Einstein!

Authors: admin;

Click here for the full paper

★ 1 1

newton August 03, 2020

The Principia deals primarily with massive bodies in motion, initially under a variety of conditions and hypothetical laws of force in both non-resisting and resisting media, thus offering criteria to decide, by observations, which laws of force are operating in phenomena that may be observed. It attempts to cover hypothetical or possible motions both of

Navigation Menu

The navigation menu items change on the basis of user authentication.

After a user logs in, the navigation menu will have options to:

- Logout: Closes his session and signs the user out
- Feed: The default login redirect tab, links to the user feed.
- Profile: Opens the user profile
- Bookmarking: To save posts to view later or for safekeeping
- Publish: To post/publish a research paper.
- Search bar

Sidebar (Left side)

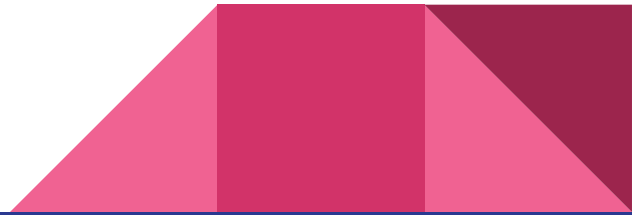
The sidebar on the left side of the feed will contain all the information of the logged in user, which includes:

- Display Picture
- Username
- An About-me section
- A list of Researchers/Authors followed.
- An ML based recommender system to show a list of recommended authors.

Post Feed

The feed lists posts by users/researchers/authors followed by the user, to avoid unnecessary clutter on the feed. A User can be followed by clicking on the follow button on the User's profile. The posts are of two type:

- Text Posts: These types of posts can be created by anyone. To create a text post, you click on the Create Post tab on the feed itself.
- Research paper discussion post: When a paper is publically pushed, a post is created with the abstract of the paper and a link to the paper.



Stephen Hawking

User Rating: 1600

Follow

Basic Info | Feed

stephen August 03, 2020

You need to ask me to access this exclusive research work!

Click here for the full paper

★ 0 0

stephen August 03, 2020

If I invite a time traveller to my dinner party, do you think he will come?

★ 0 0

stephen August 03, 2020

Was there a beginning of time? Could time run backwards? Is the universe infinite or does it have boundaries? These are just some of the questions considered in the internationally acclaimed masterpiece by the world renowned physicist-generally considered to have been one of the world's greatest thinkers. It begins by reviewing the great theories of the cosmos from Newton to Einstein, before delving into the secrets which still lie at the heart of space and time, from the Big Bang to black holes, via spiral galaxies and strong theory. To this day A Brief History of Time remains a staple of the scientific canon, and its succinct and clear language continues to introduce millions to the universe and its wonders. This new edition includes recent updates from Stephen Hawking with his latest thoughts about the No Boundary Proposal and offers new information about dark energy, the information paradox, eternal inflation, the microwave background radiation observations, and the discovery of gravitational waves. It was published in tandem with the app, Stephen Hawking's Pocket Universe.

Click here for the full paper

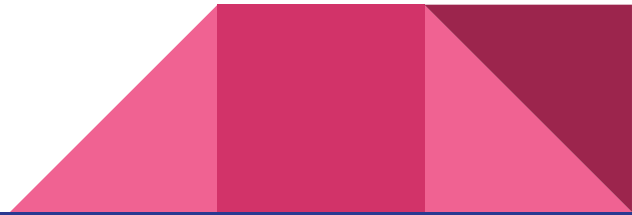
★ 0 0

Posts

Both types of posts can be liked by a user. A user can also **add a comment** on a post. The **comments can also be liked** by any user. All posts can be **bookmarked** for future reference.

Below each post, post likes and comment stats are displayed. We can click on it to view the full post and its discussion.

The likes on text posts have only cosmetic value but the likes on a Research Paper discussion determines the rating of the paper, which in turn determines the rating of the paper authors.



einstein

User Rating: 1900

User Institution: Princeton University

User Email: einstein@princeton.edu

Update Post Delete

einstein Aug. 3, 2020, 9:17 a.m.

The relativity theory in physics is reviewed for the purpose of suggesting a relativistic metatheory for life span developmental psychology. Developmentalists might find this metatheory useful in describing complex individual biological, social, and psychological development in a historical context. Some expected uses of the approach in episte-mological and developmental studies are outlined.

Authors: einstein; newton;

Click here for the full paper

★ 1 1

Add comment

Comments:

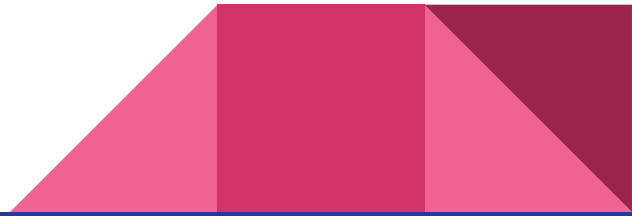
einstein
Aug. 3, 2020, 9:34 a.m.

Isn't this better than your Classical Mechanics?
★ 1

Bookmarks

The posts can be saved from anywhere as bookmarks, in case we wish to **refer to them later**. The bookmarked posts can be viewed by clicking on the bookmark tab on the navigation menu.

Clicking on the bookmark icon will remove the post from bookmarks.



Portal

Logout | Feed | My Profile | Bookmarks | Discuss | Publish

Search | Go!

einstein

Insert about me

Authors Followed

AlanTuring einstein newton

Saved Posts

AlanTuring August 02, 2020

ML in Agriculture lol!

Click here for the full paper

★ 1 2

newton August 03, 2020

This paper is supposed to be hidden from Einstein!

Click here for the full paper

★ 1 1

Home · About AP Government · Faq · Contact

Paper Publishing

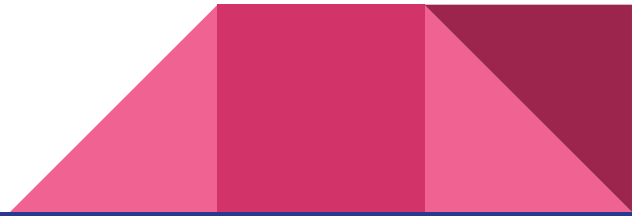
Paper Publish

Users can add their already published papers on portal.

They will have option to restrict the access to their paper.

We have categorised papers into two types:

1. Public
2. Private



- File:

- Browse... Letter.pdf

- Title:

- Title of the paper!

- Authors:

AlanTuring
einstein
newton
- stephen

- Tags:

Physics
Astrophysics
Quantum
- ClassicalPhy

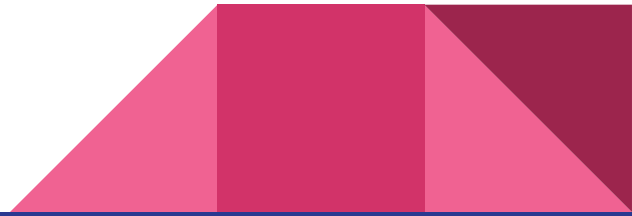
- Private:

- ☑

Save

Public

Full content of the paper will be available for every user of the portal.

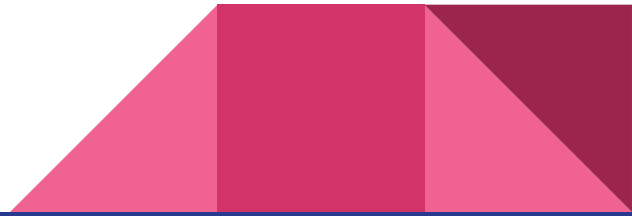


Private

Other users will be allowed to see only abstract of the paper.

Full content will be shared only after author’s permission.

User can anytime convert private paper to public.



Post on Public Paper

After user adds paper new post is created for the paper.

This helps to make discovery of the paper easier and notify followers about the recent work of the user.

Plagiarism Testing Before Post

We will be doing plagiarism check before posting a paper on portal.

Tags

Each paper will be tagged with all the relevant tags.

This helps to categorize paper based on departments and areas.

Users can search the paper based on paper tags.

Note: Tags cannot be added by users, so as to avoid redundancy and ensure easy discovery of relevant papers. A new tag can be added upon request from the user!

Discovery and Access to Info

Search bar : A user friendly approach

To make discovery and access to info **simpler and effective** we are using a search bar as a tool to access all the information stored in database.
The search will be capable of searching the **keyword** in each major database (user, research papers, and posts) so that information can be retrieved in **user friendly** manner.
Searching papers outside our database is done by a **multithreaded web scraping algorithm** on the sites of ResearchGate and Google Scholar
The search bar also give autofill suggestions, for faster discovery!
The search will be easy to understand and more easier to use, also at the same time giving accurate results !

Showing results for "Principia Mathematica"

Paper | Users | Posts | Web

Papers by Title

Principia Mathematica
Aug. 3, 2020
Authors : newton ,

Papers by author

Papers by tag

How Searching will work

The keyword is searched in the following ways

Research Paper	Title, Tags, Authors
User	Username,Full name, Institute
Post	Content of the post, Authors, Title of research paper if any
Web	Papers which are scrapped from ResearchGate and Google Scholar

Portal Logout Feed My Profile Bookmarks Discuss Publish Search Go!

Showing results for "AlanTuring"

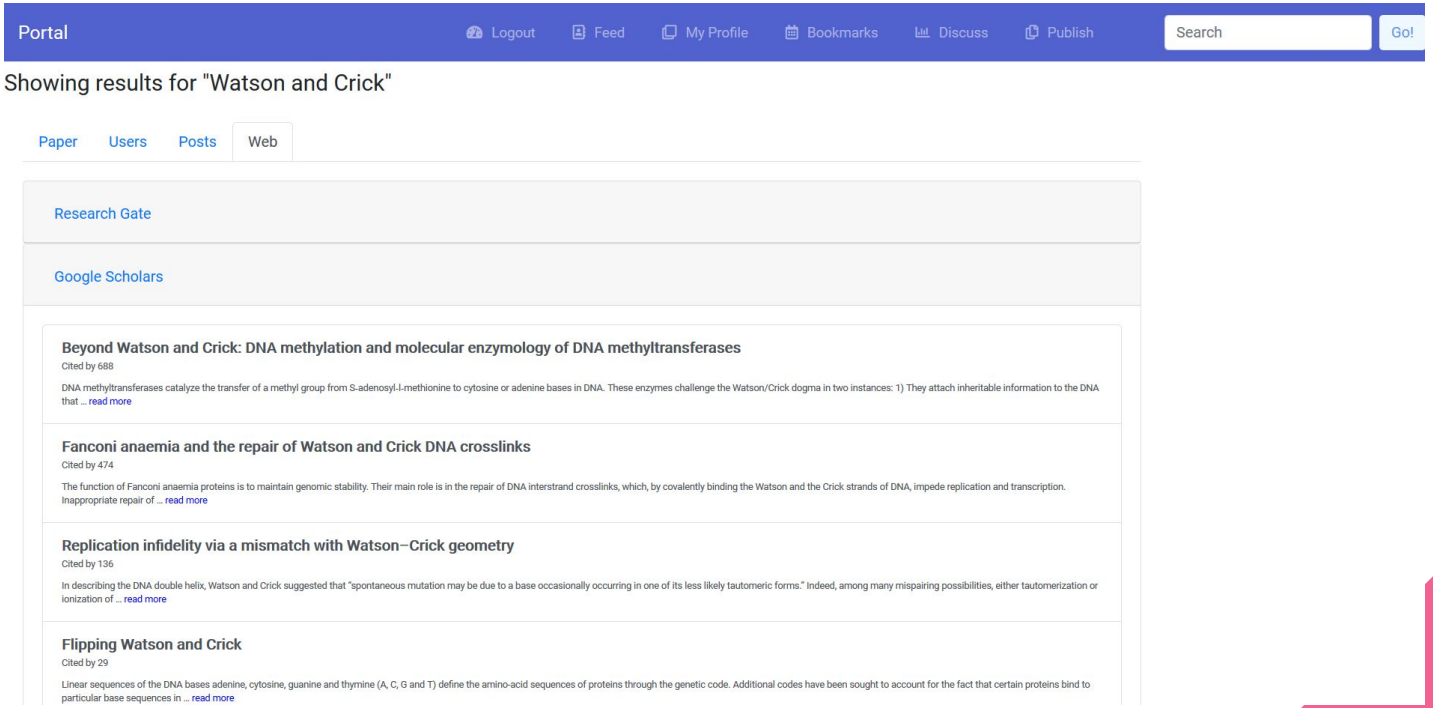
Paper Users Posts Web

Users by name

AlanTuring 1800
Alan Turing | Student

Users by Institution

Search the internet with **web scraping**



Portal Logout Feed My Profile Bookmarks Discuss Publish Search Go!

Showing results for "Watson and Crick"

Paper Users Posts Web

Research Gate

Biophysics: Flipping Watson and Crick Article — Feb 2011
Authors : Barry Honig, Remo Rohs

Watson and Crick Model Chapter — Jan 2008
Authors : George P. Rédei

Just before Watson and Crick Article — May 2003
Authors : L B Slobodkin

Human face of Watson and Crick Article — Jul 1974
Authors : Peter Newmark

Beyond the static DNA model of Watson and Crick Chapter — Jan 2020
Authors : Jonathan M Fogg, Lynn Zechiedrich

DNA bases beyond Watson and Crick Conference Paper — Jan 2014
Authors : T. Carell

The multiple personalities of Watson and Crick strands Article — Feb 2011

Rating system

Understanding the Rating System

- Each researcher has a default rating.
- An **effective deterministic Mathematical model** to be created to help in deciding the rating change.
- Rating to be updated on publishing new research paper and considering its popularity and approval among other researchers.
- The model to take into consideration all parameters like researchers current rating, rating of researchers who like the published paper, relevancy of paper etc.
- Rating is also used as an important parameter in user **recommender system**.

Summary

Secure and **Scalable** portal with ideal user experience and compatible with all **screen sizes** for

Academic researchers and

Companies for easy discovery of information.

Thank You :)