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She Support(H)ers: A Django Based Web Application for Women's Empowerment

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Abstract: Empowering women socially, economically, and financially would help every woman in society reach heights. The availability of all the required resources helps women a lot in their life. The paper illustrates a website model with the help of which women can be able to access the portal which provides a discussion panel through which one can discuss any topic with each other by posting their views. A job portal to apply for a job of their interest. A web page containing basic information regarding healthcare and education. The website also contains a chatbot for easier access to the application. The project is implemented using the Django framework. For the front end, we have used HTML, CSS, and JavaScript using the Bootstrap framework. We used Python, SQLite database, and the Django Framework on the backend.

Keywords: Django, Bootstrap, Python, SQLite, HTML, CSS, JavaScript, SDLC, Google DialogFlow, Women Empowerment.

I. INTRODUCTION

The challenges faced by women today are innumerable. Be it health, occupation, education, or just day-to-day activities, these challenges arise because of a lack of resources, guidance, and knowledge. Also, due to social pressure many a time there is hesitation to open up the matter to other people and confront the issue. To overcome this, we provide a platform where they can discuss the matters with the concerned experts and get the solution.

Our intention is to develop an application to provide a one-stop platform to overcome the innumerable challenges faced by women, such as lack of guidance in any occupation, health, education, or legal policies. The solution has features like a Discussion Panel with which we provide a network for women to discuss their grievances and also provide solutions to other women. The application provides a job portal where users can be employers as well as employees. Those looking for jobs can post their resume and employers can check the CVs and go ahead with the recruitment process. A personalized chatbot is also made available to add quick access to solutions for simple queries.

The aim is to develop a women-centric platform that provides a community for women to discuss their day-to-day activities, providing an enormous amount of data, a discussion panel for women to discuss topics with other women around the world in general, and form a network of Women, by Women and for The Women of Today, Tomorrow and Forever.

The constant brainstorming sessions gave us insights and ideas as we chalked down our basic objectives as follows:

1) Create a website, that contains content related to healthcare, education, and finance.

2) A Chatbot will be developed to clear the user queries.

3) A discussion panel will be developed to create an array of topics wherein a network is created for women to share and receive ideas based on various topics.

4) To develop a Job Portal that showcases the available job opportunities depending on various categories.

II. LITERATURE SURVEY

M.J.Taylor, J Mc.William, H. Forsyth and S.Wade et.al [1], helped us learn about the importance of the website's Navigation Structure. Although Information Technology systems have been developed to allow users to locate the functionalities easily, still, it's difficult in web-based systems. Here, we realized that there is a great need for a clear

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navigational structure between the website pages. Thus, the structural design of a website determines how the users will be able to navigate through the website and utilize its benefits of the website.

Gayane Kabalyan et.al [2] proposed a paper from which we got an idea about our user interface, especially for the discussion panel. An important requirement of the website is the ease of the user interface. All of the features that the user might use have to be easily accessible, simple, and self-explanatory. The user has to know what to anticipate from each feature and where each link will take them. In case of an accidental click on a link, the user needs to have an easy way to go back to where they were. The paper also emphasized the need for responsive web pages. Because a large percentage of users today own smartphones and tablets, the layout needs to be responsive. Responsiveness allows the user to use the website's full functionality on a smaller screen, without having to zoom in on various parts of the website. The website will be as easy to use on a smartphone and tablet, as on a regular computer.

Adel Alshamrani and Abdullah Bahattab et.al [3] helped us analyse the common development life cycles that are in use and to narrow down to which approach is better suited for our needs and constraints. The study helped us realize that the Iterative Approach is best suited for our project. The iterative development model combines the strengths of both the Waterfall Model and the Spiral Model. The linear approach of the waterfall model is used here as well. Just that here, each linear sequence produces deliverable increments of the software. The first increment addresses the basic requirements, in later stages, the core features are also implemented. Therefore, in each subsequent release, new functionality is implemented.

Nuruldelmia Idris, Cik Feresa Mohd Foozy and Palaniappan Shamala et.al [4] gave us insights into various components of web development including Python and Bootstrap for Frontend and how Django and Flask can be used for web development. They provided a list of properties and advantages of Django and Flask and depending upon one's needs, the developers can use their choice of framework. For our project, we are using Django Framework.

Roberto Reyes, David Garza, Leonardo Garrido, Victor De la Cueva, and Jorge Ramirez et.al [5] helped us in understanding the in-depth working of the chatbot powered by Google DialogFlow. The entire methodology, use of intents, entities, integration, testing, and other aspects of DialogFlow were explained in this paper. Dialog Flow is a Google service that runs on the Google Cloud Platform which basically allows any user to build engaging voice and text-based conversational interfaces. without having prior knowledge of chatbots or AI, can be capable of creating, modifying, and implementing changes to this educational tool in a simple and efficient manner. We took advantage of the API provided by Dialogflow to implement a Google sheet capable of modifying and creating a chatbot with Dialog Flow, without working directly on that platform. As it is still robust, it is more stable and friendly.

III. METHODOLOGY

A. System Architecture:

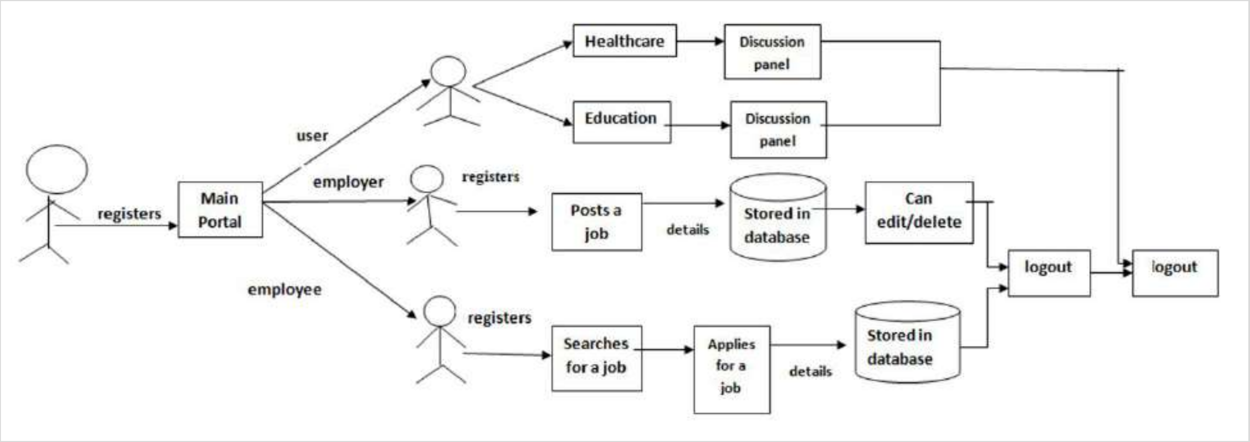

Fig. 1. System Architecture

The above diagram (Fig.1) represents the system architecture of the web application. The user first registers himself and accesses the web application. Users can access the discussion panel on healthcare and education respectively. In order to post a job, the user needs to register himself as an employer and provide details of the company and himself. All the details are stored in the database. The employer can even edit the details later as per his requirements. In order to

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apply for a job, the user needs to register himself as an employee. After registering the user can search for a job according to his interest, provide his details, and later can apply for the job. All the details of the employee are stored in the database.

B. Block Diagram:

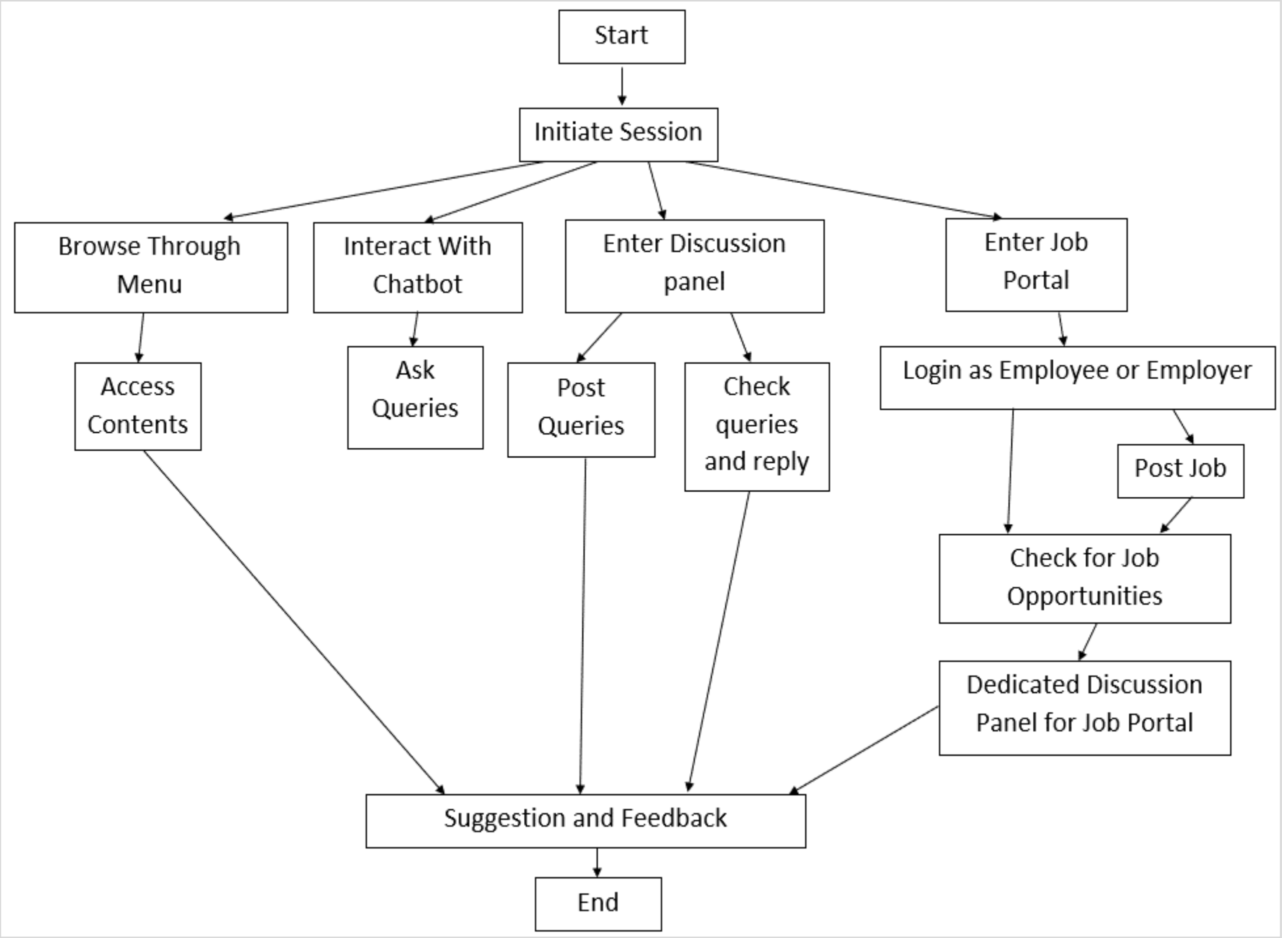


Fig. 2. Block Diagram

As shown in the Block Diagram (Fig 2), the website's functionalities can be accessed by first registering ourselves to the website. Next for all further services, we can log in into the website. Next once the login is completed, the sessions are initiated, and the different services (functionalities of the website) can be utilized. We can browse through the header menu, wherein the services are mentioned later, access the contents there and interact with the system. Next, any queries related to a particular topic can be asked to She-Magica, our inbuilt chat bot powered by Google Dialog Flow. We then provide another functionality, i.e., the Discussion Panel. Here the users can post their queries and other users can answer their queries. This helps in building a social network of like-minded people discussing topics of their choice. One more functionality is the Job Portal. We have built a dedicated Job Portal. Here a user needs to again login to confirm if they are the Employer or the Employee. The Employer can post Jobs. The Employee can access the jobs, save or apply for the job. Once an employee applies for a job, it gets reflected on the employer's portal, then the employer can later contact the candidate on their mentioned email. Any user can give in their feedback by writing a mail to the mentioned email address.

C. Software Development Life Cycle Model:

The development of our project follows an iterative model of Software Development (Fig 3). The iterative process model is the implementation of the software development life cycle in which the initial development is started based on the initial requirements and more features are added to the base software product with the ongoing iterations until the final system is created.[3]

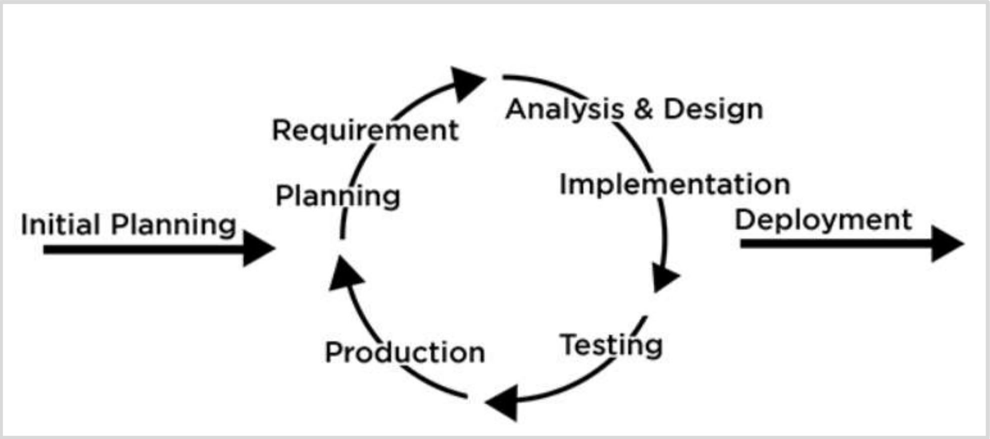
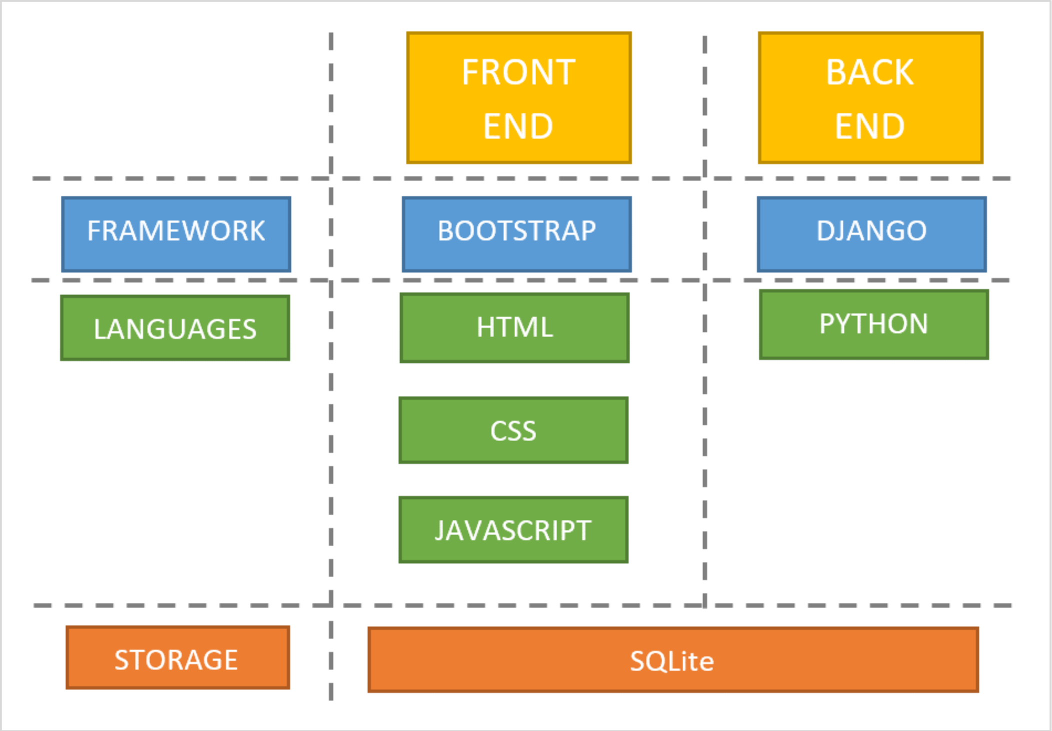


Fig.3. Software Development Life Cycle Model: Iterative Process Model

The iterative model is designed as an improvement to the existing Waterfall Model. It follows the linear approach of the Waterfall model, but here, the functionalities are implemented in increments during each iteration.
Initially, the discussion panel was implemented. Later we integrated a chatbot into it. Then, some modifications and updates took place. Next, the Job Portal was implemented. In the end, all functionalities were checked again and the website development was completed.

IV. IMPLEMENTATION



	FRONT END	BACK END
FRAMEWORK	BOOTSTRAP	DJANGO
LANGUAGES	HTML CSS JAVASCRIPT	PYTHON
STORAGE	SQLite	

Fig. 4. Classification of Front End and Back End Technologies used for Implementation.

A. Technologies Used:

a. Framework:

i.Front End Framework: Bootstrap

In recent years, Bootstrap has become the most popular front-end framework. Web projects can be easily created using the Bootstrap Framework. It is a sleek, intuitive, and powerful mobile-first front-end framework designed to make web development faster and easier. It makes use of HTML, CSS, and JavaScript

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ii. Back End Framework: Django

The entire project has been implemented using Django Framework. Django follows the MVT architecture. The MVT (Model View Template) is a software design pattern. It is a collection of three important components Model View and Template.

- The Model helps to handle the database. It is a data access layer that handles the data.
- The Template is a presentation layer that handles the User Interface part completely.
- The View is used to execute the business logic and interact with a model to carry data and renders a template.

Although Django follows the MVC pattern but maintains its own conventions. So, control is handled by the framework itself. There is no separate controller and the complete application is based on Model View and Template. That is why it is called the MVT application

b. Front End:

i. HTML:

HTML, or Hypertext Markup Language, is a markup language for the web that defines the structure of web pages. To understand what “HTML" is, let us consider each word in the abbreviation:

- Hypertext: text (often with embeds such as images, too) that is organized in order to connect related items
- Markup: a style guide for typesetting anything to be printed in hardcopy or soft copy format
- Language: a language that a computer system understands and uses to interpret commands.

HTML determines the structure of web pages.

ii. CSS: Cascading Style Sheets (CSS) is a style sheet language used to describe the look and formatting of a markup-language-written document. It is a method of giving HTML style. The style sheet is the presentation of the document, whereas the HTML is its meaning or content.

iii. JavaScript: JavaScript is a dynamic computer programming language. It is lightweight and is most commonly used as part of web pages, where implementations allow client-side scripts to interact with the user and create dynamic pages. It is an interpreted programming language with object-oriented capabilities.

c. Back End:

i. Python:

Python is one of the most popular programming languages today. It is due to its simplicity and easy-to-read syntax. Python is used in several fields to develop various types of applications such as desktop applications, Machine Learning models, and so on. Web Development is one such field.

Python is useful for a wide range of tasks, including web development. Python can be used to build web apps in a variety of ways, such as server-side web apps and RESTful web APIs.

ii. SQLite: SQLite is a free, open-source, public-domain software package for managing relational databases (RDBMS). RDBMS (relational database management systems) are database management systems that store user-defined records in large tables. In a data storage and management system, a database engine can execute complex query commands that integrate data from multiple tables to generate reports and data summaries.

Django supports SQLite 3.9.0 and later. SQLite provides an excellent development alternative for applications that are predominantly read-only or require a smaller installation footprint. As with all database servers, though, there are some differences that are specific to SQLite that you should be aware of including Substring matching and case sensitivity.

B. Hardware and Software Requirements:

The following specifications are required for the project to run on any device.

a. System Specifications

i. Processor: Intel(R) Core (TM) ie-5005U CPU @ 2.00GHz

ii. RAM: 2 GB

iii. System Type: 32-bit/64-bit operating system, x32 or x64based processor

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iv. Operating System: Windows 7/8/10.

b. Software Interface

i. Framework: Python, Bootstrap

ii. Front End: HTML, CSS, JavaScript

iii. Backend: Python, SQLite

iv. Local Access Link: localhost:8000

V. RESULTS AND DISCUSSION

A. Home Page:

The entire project is then given styling and made easy to use with UI/UX implemented using Bootstrap, along with HTML, CSS, and JavaScript. The connectivity of the pages is then achieved, thereby providing a hassle-free GUI for the users. The Home page of our website is as shown in Fig.5.

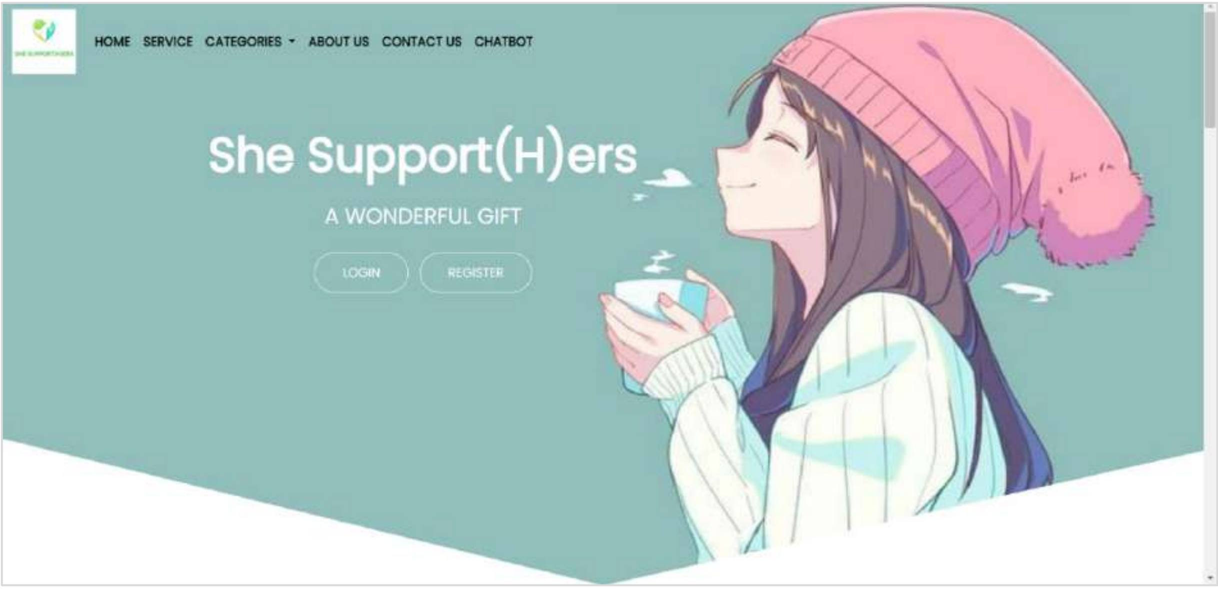
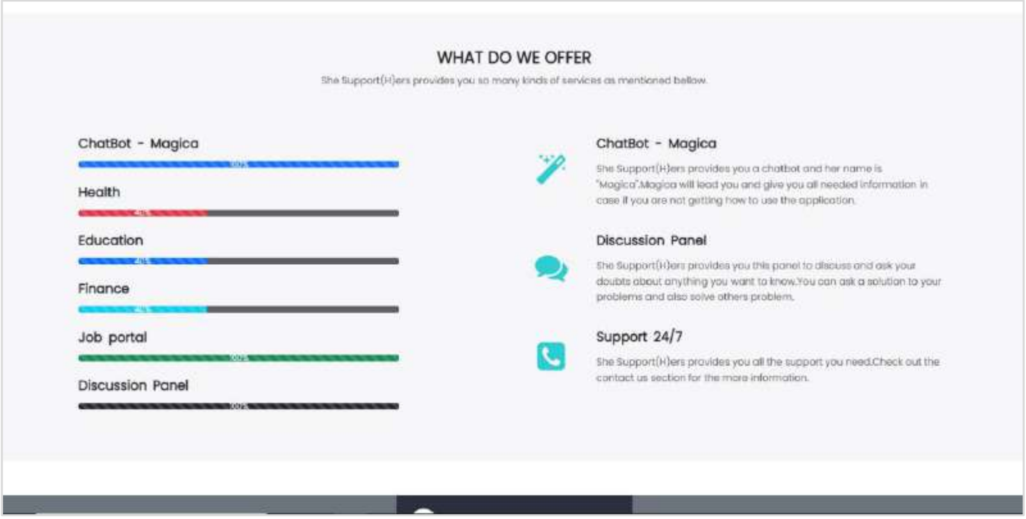


Fig. 5. Home Page

B. Our Services:

Fig.6 gives us a glimpse of all the services provided in the website. We have a implemented our Chatbot and named it Magica. Then we have stored some informative content in the field of HealthCare, Education and Finance. We have a dedicated Job Portal and Discussion Panel.



WHAT DO WE OFFER

She Support(H)ers provides you so many kinds of services as mentioned bellow.

ChatBot - Magica

She Support(H)ers provides you a chatbot and her name is "Magica".Magica will lead you and give you all needed information in case if you are not getting how to use the application.

Discussion Panel

She Support(H)ers provides you this panel to discuss and ask your doubts about anything you want to know.You can ask a solution to your problems and also solve others problem.

Support 24/7

She Support(H)ers provides you all the support you need.Check out the contact us section for the more information.

Fig. 6. Our Services

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C. Login and Registration:

The registration (Fig 7) and login (Fig 8) for the website are implemented using inbuilt forms provided by the Django framework. New users register themselves by providing basic information such as name, email id, and password. Once registered, they can log in anytime by using the same credentials. The credentials are stored in the framework's inbuilt SQLite Database.

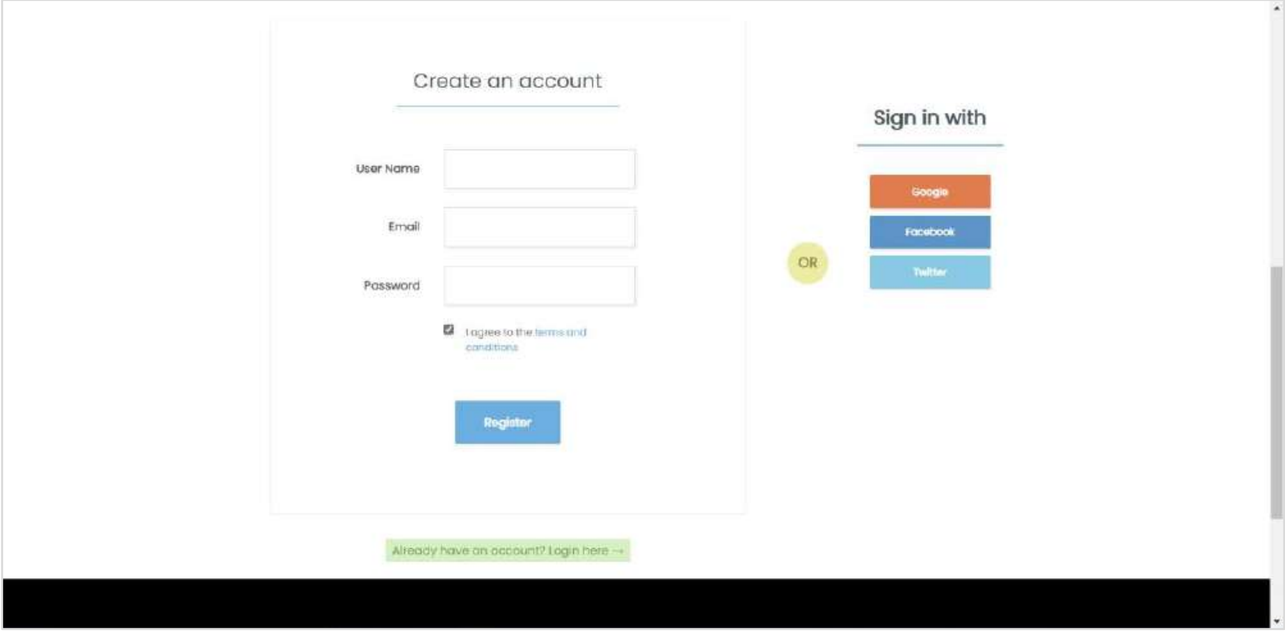
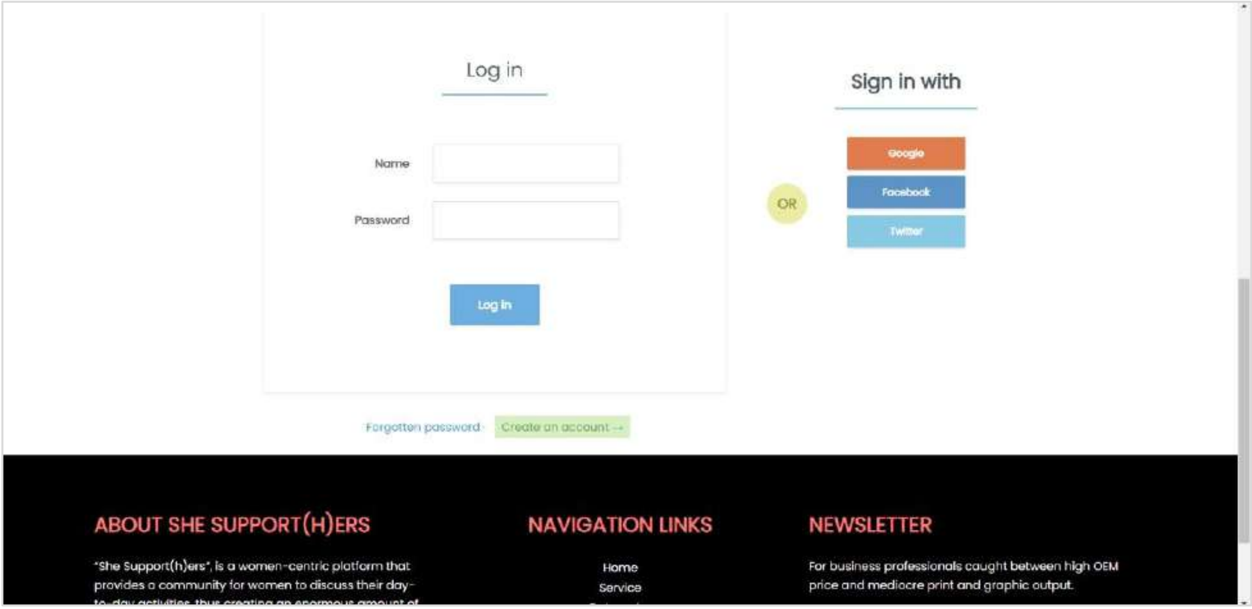


Fig. 7. Registration Page



"She Support(h)ers", is a women-centric platform that provides a community for women to discuss their day-to-day activities, thus creating an enormous amount of

For business professionals caught between high OEM price and mediocre print and graphic output.

Fig 8. Login Page

D. Chatbot:

To implement the chatbot (Fig 9), we used Google DialogFlow API. Here we added the responses of small talk. Then we created entities for different attributes and later integrated them with the intents of the chatbot. We named our chatbot "Magica" and pasted the URL for its icon in the settings. The URL was made by creating a logo and uploading it on the internet. The training, testing, and integration were done in Dialogflow API itself. Later, the integration was made into our Django project, by adding the code at the <body> of our HTML page. Once the chatbot integration is enabled, it starts working on the Website. We have implemented Health Advice, Diet Advice, Exercise Advice, Education Advice, and Financial Advice.

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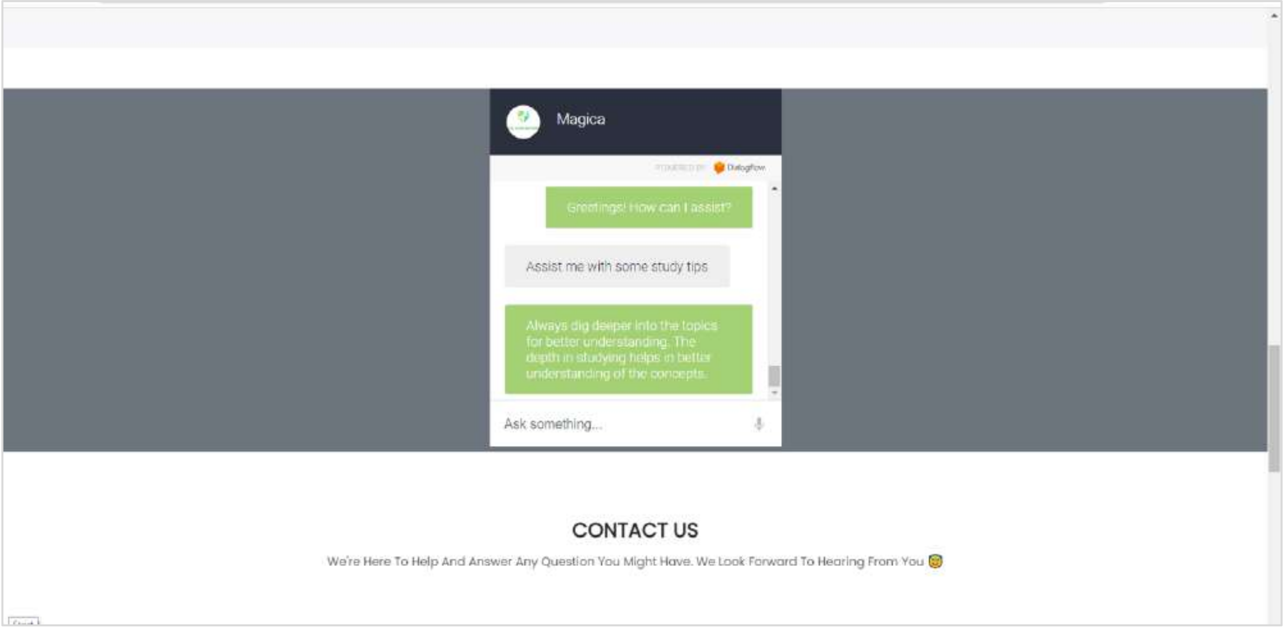


Magica

Greetings! How can I assist?

Assist me with some study tips

Always dig deeper into the topics for better understanding. The depth in studying helps in better understanding of the concepts.

Ask something...

CONTACT US

We're Here To Help And Answer Any Question You Might Have. We Look Forward To Hearing From You 😊

Fig. 9. Chatbot

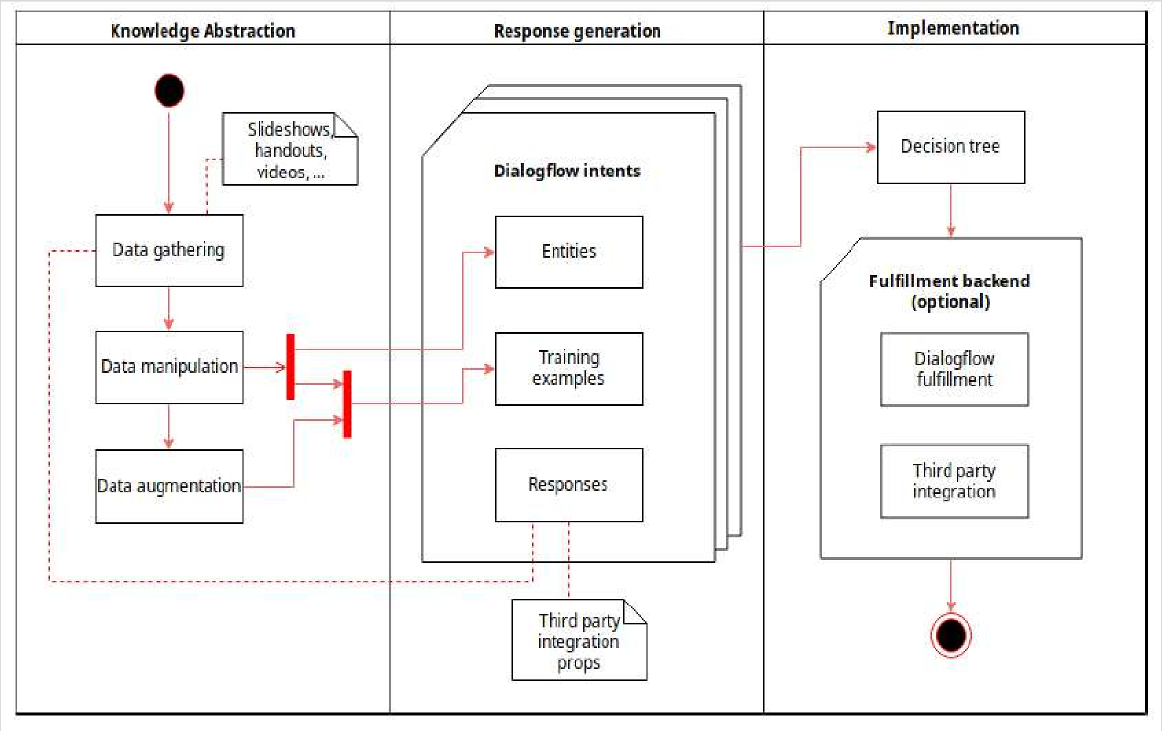
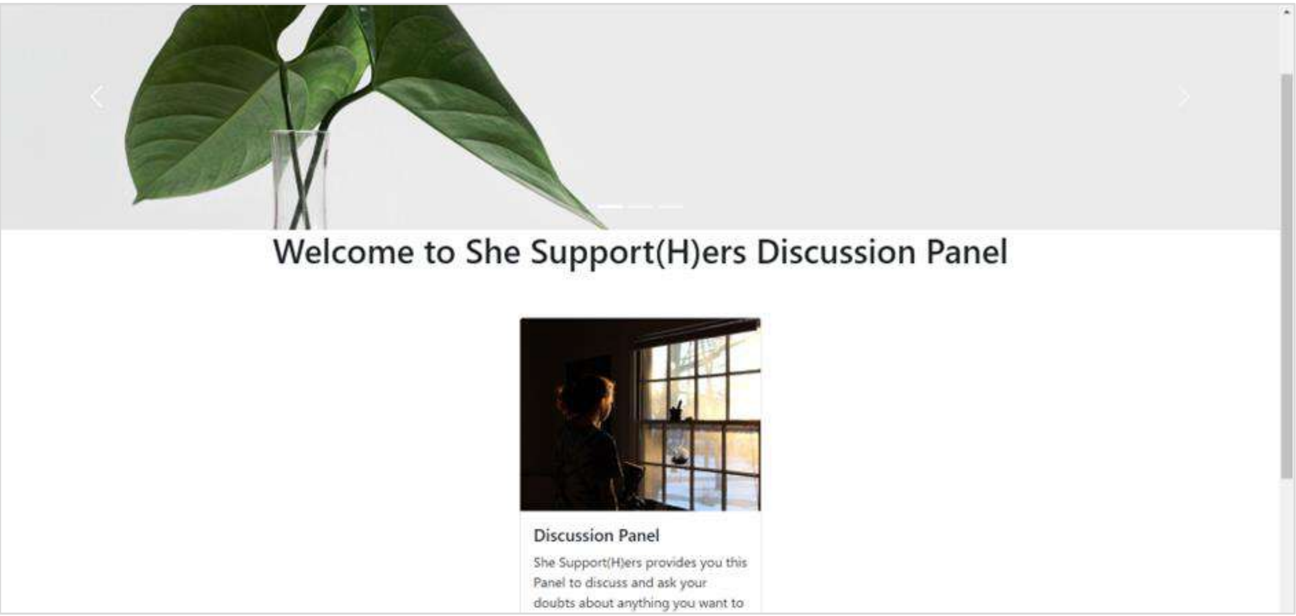


Fig 10. Graphical representation for the sections in which we divide the methodology and how they are related to each other [4]

E. Discussion Panel:

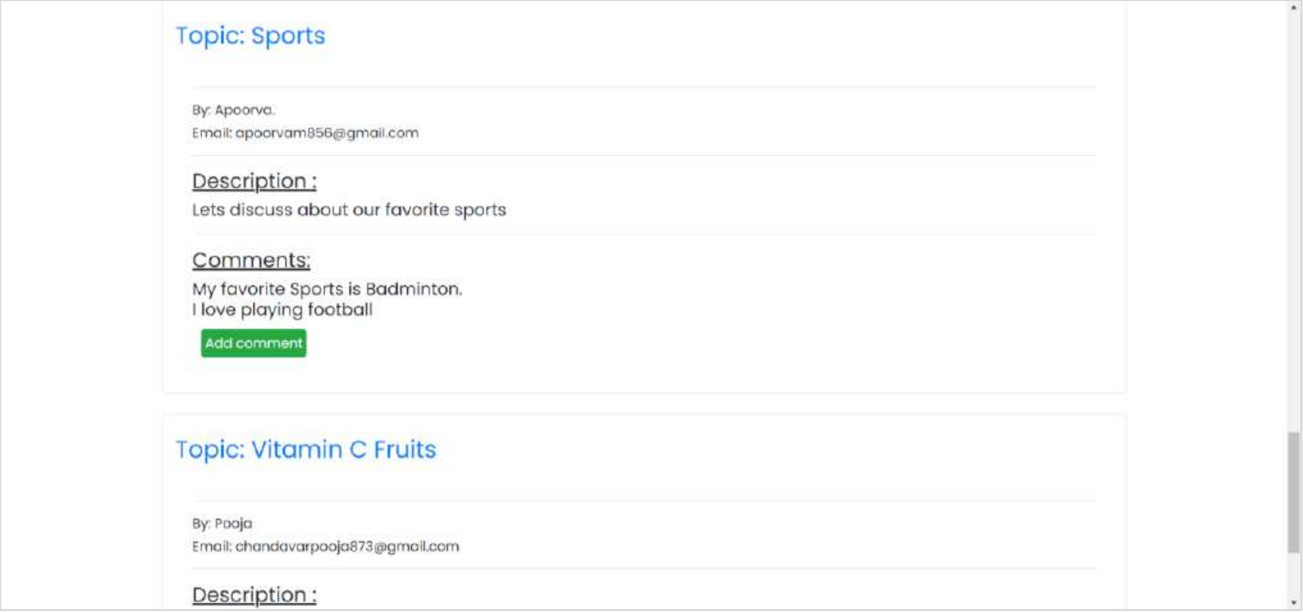


Welcome to She Support(H)ers Discussion Panel

Discussion Panel

She Support(H)ers provides you this Panel to discuss and ask your doubts about anything you want to

Fig. 11. Discussion Panel Home Page



Topic: Sports

By: Apoorva.
Email: apoorvam856@gmail.com

Description :
Lets discuss about our favorite sports

Comments:
My favorite Sports is Badminton.
I love playing football

Add comment

Topic: Vitamin C Fruits

By: Pooja
Email: chandavarpooja873@gmail.com

Description :

Fig. 12. Discussion Panel

The Discussion Panel (Fig 11, Fig 12) is implemented using Django Framework. The number of topics can increase, thus creating a network of people, sharing an array of ideas. For creating a topic, a user must enter their name, email id, a topic they want to discuss, its description, and link if any that is related to the topic. Other users can add comments to an existing topic, by pressing the comment section and then adding their valuable comments. All the discussed information is stored in the framework's inbuilt SQLite Database.

F. Job Portal:

Fig.13 shows the home page of Job Portal. In the Job Portal, a user can log in as an employee or employer. Fig.14 shows the sign-up page for employers and employees. As an employee, the user can log in and search for jobs of their choice. Later they can view jobs (Fig.15), bookmark the jobs (Fig 18) that they have liked and apply for jobs (Fig 19) that they wish to join.

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As an employer, the user can post the jobs. They can also edit the posted jobs. The user can access the list of posted jobs (Fig 16) and check the number of applicants who applied for each job. Later they can check the details of the applicants (Fig 17) and contact the applicants for the further hiring process.
We also have an option for updating the profile (Fig.20), to modify the name, email and/or password.
The main goal of the job portal is to make aware of the possible job opportunities the employers are willing to seek.

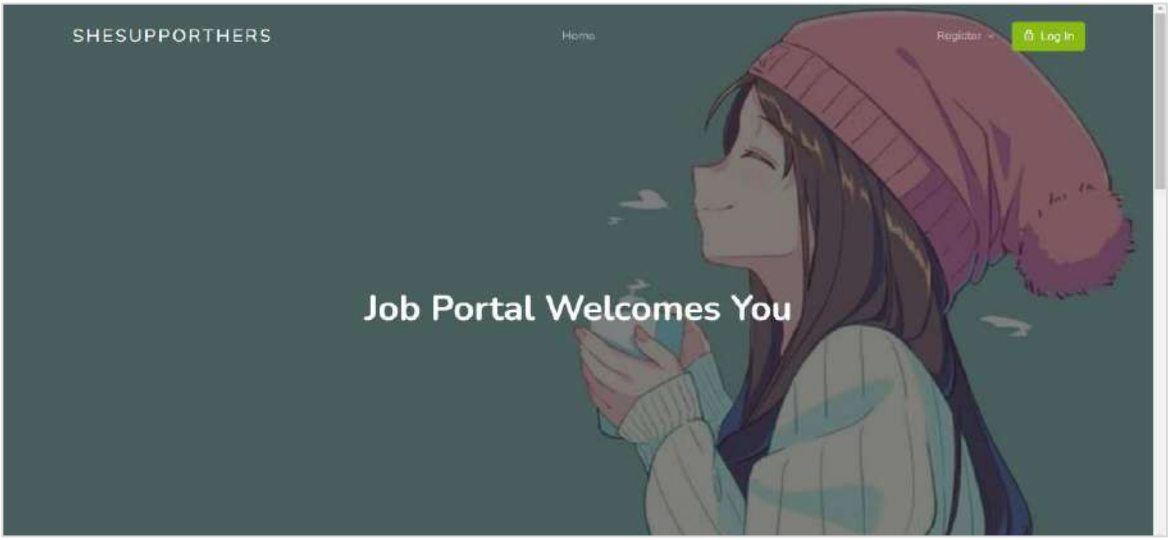
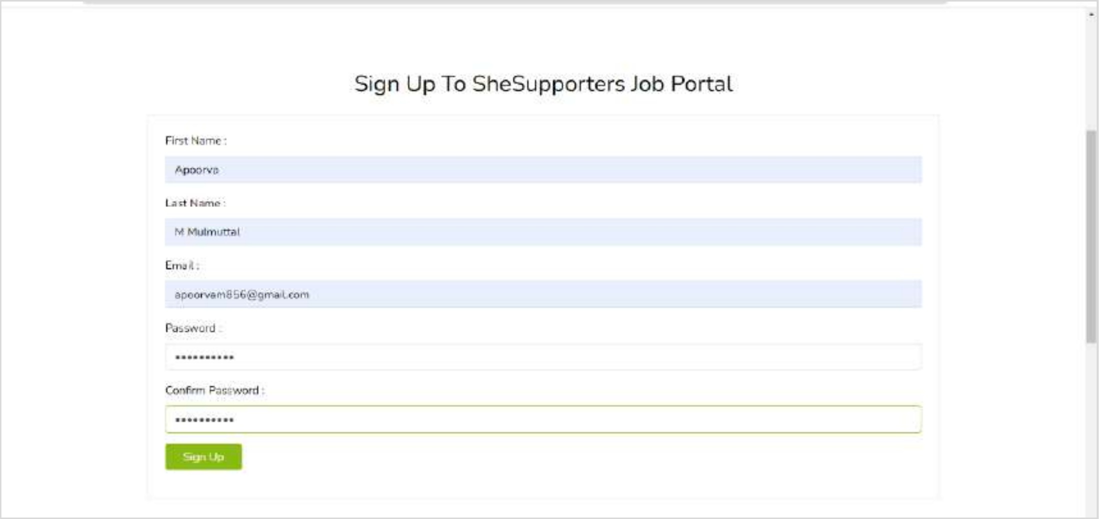


Fig. 13. Job Portal Home Page



Sign Up To SheSupporters Job Portal

First Name : Apoorva

Last Name : M Mulmuttal

Email : apoorvam856@gmail.com

Password : ••••••••••

Confirm Password : ••••••••••

Sign Up

Fig. 14. Job Portal Sign-Up Page

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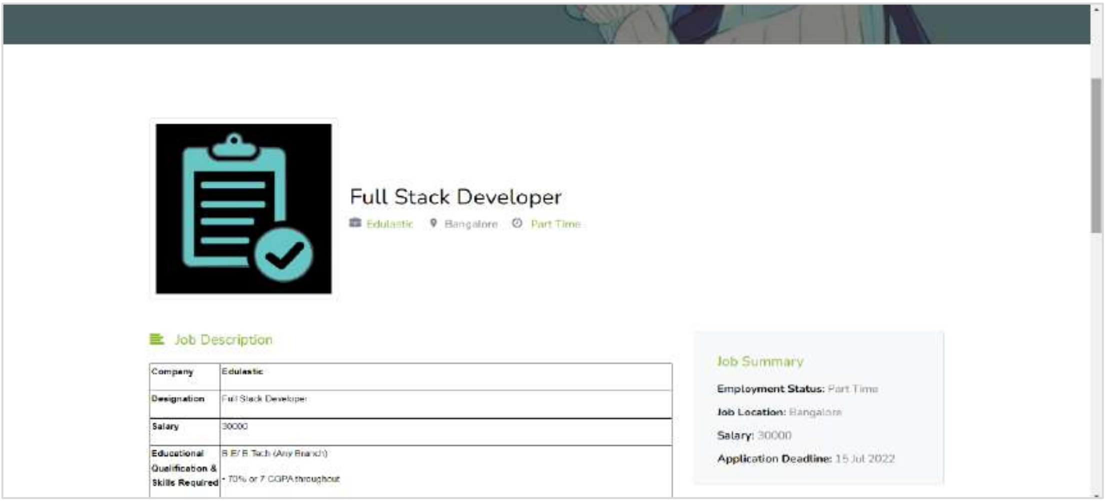


Full Stack Developer

Edulastic · Bangalore · Part Time

Job Description

Company	Edulastic
Designation	Full Stack Developer
Salary	30000
Educational Qualification & Skills Required	B.E/ B.Tech (Any Branch) - 70% or 7 CGPA throughout

Job Summary

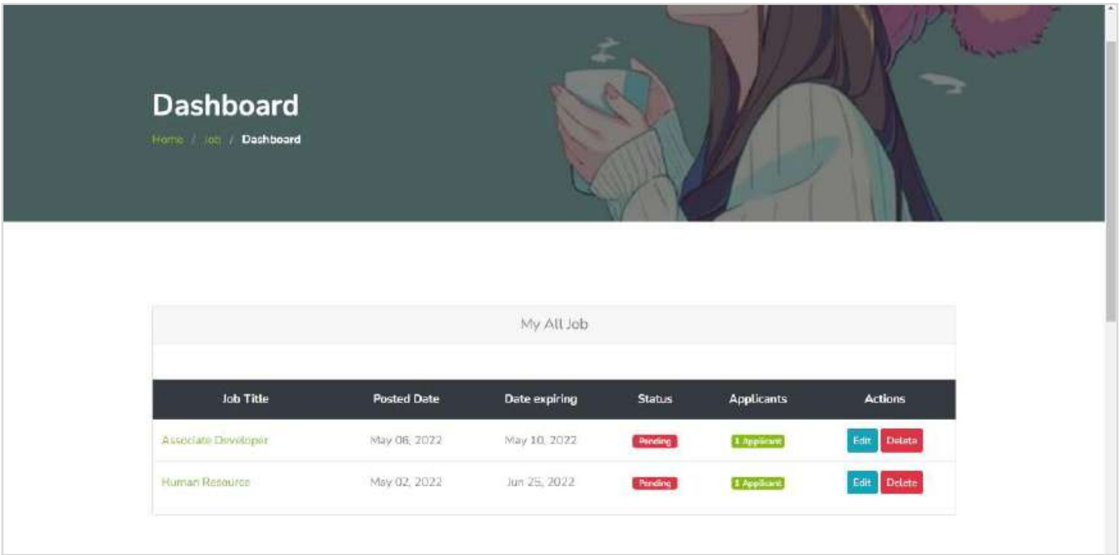
Employment Status: Part Time

Job Location: Bangalore

Salary: 30000

Application Deadline: 15 Jul 2022

Fig. 15. Job posted, as viewed on the Employee's side



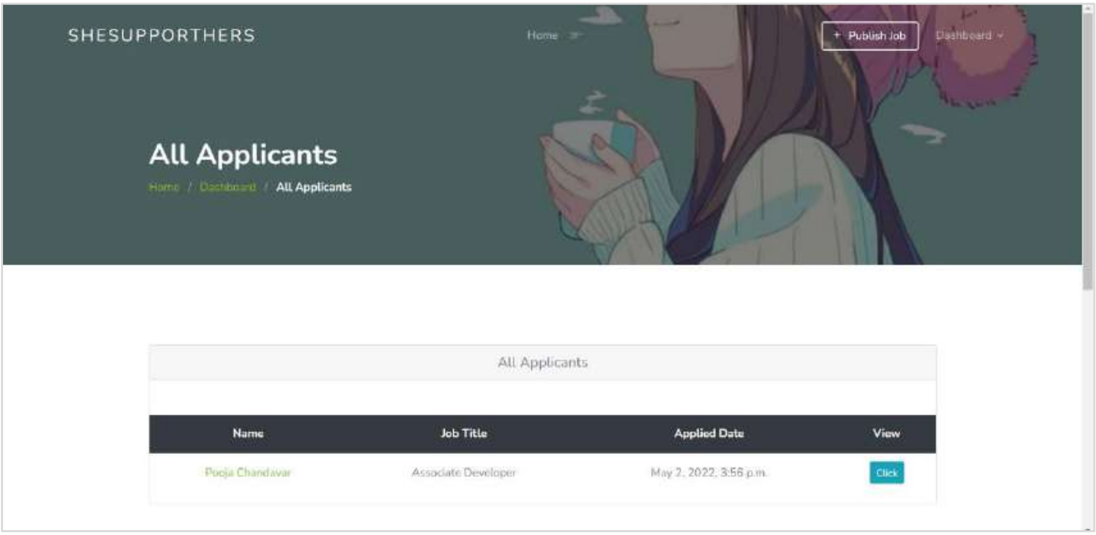
Dashboard

Home / Job / Dashboard

My All Job

Job Title	Posted Date	Date expiring	Status	Applicants	Actions
Associate Developer	May 06, 2022	May 10, 2022	Pending	1 Applicant	Edit Delete
Human Resource	May 02, 2022	Jun 25, 2022	Pending	1 Applicant	Edit Delete

Fig. 16. List of Jobs and number of Applicants for each job as viewed on Employer's side



All Applicants

Home / Dashboard / All Applicants

All Applicants

Name	Job Title	Applied Date	View
Pooja Chandavar	Associate Developer	May 2, 2022, 3:56 p.m.	Click

Fig. 17. Details of all Applicants as viewed on Employer's Side

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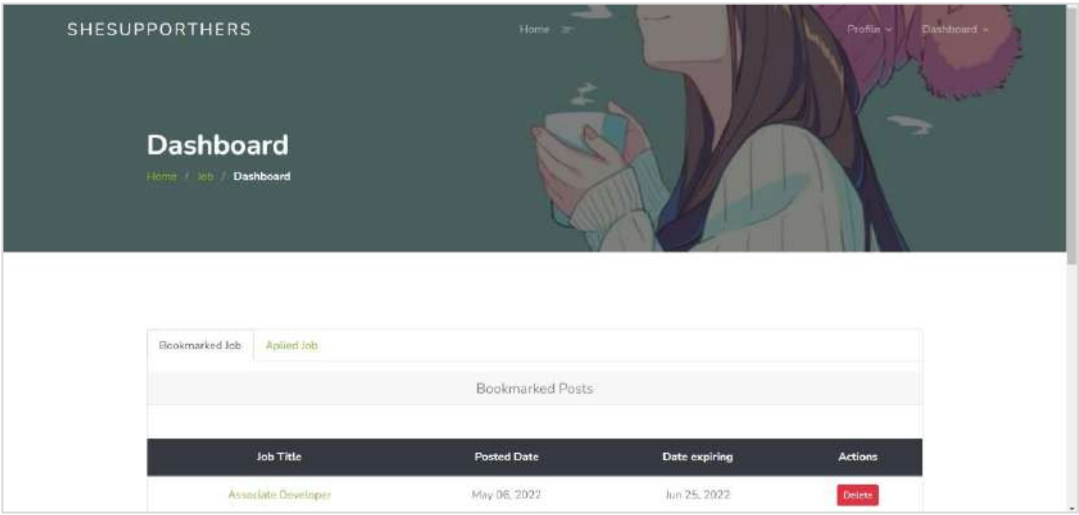


Dashboard

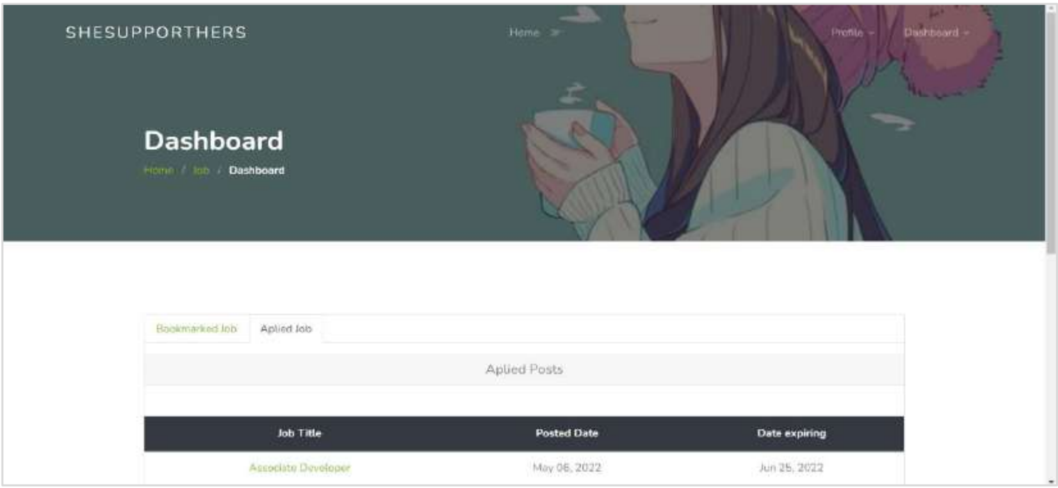
Home / Job / Dashboard

Bookmarked Job | Aplied Job

Bookmarked Posts

Job Title	Posted Date	Date expiring	Actions
Associate Developer	May 06, 2022	Jun 25, 2022	Delete

Fig. 18. List of Bookmarked (Saved) Jobs on Employee’s side



Dashboard

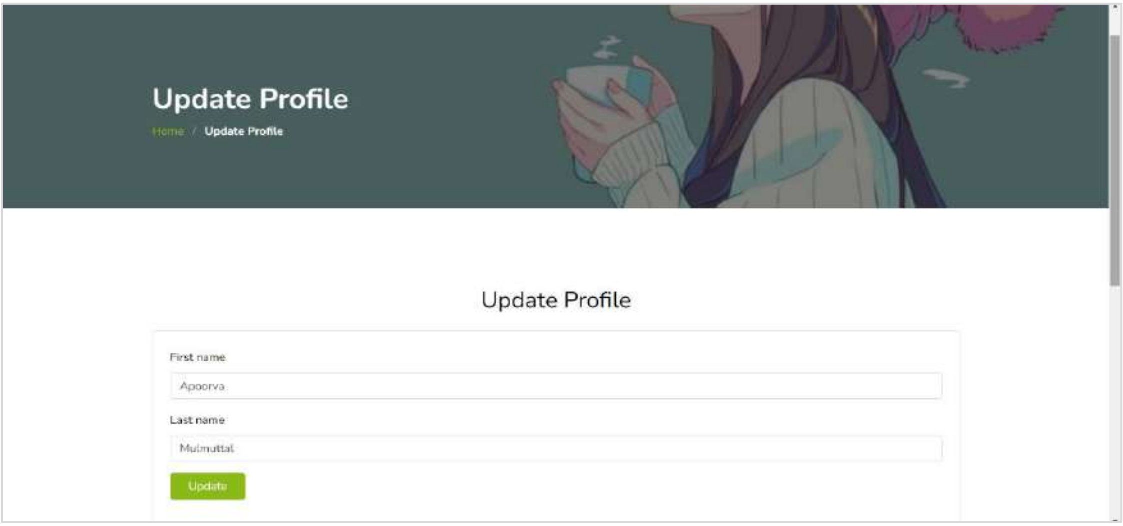
Home / Job / Dashboard

Bookmarked Job | Aplied Job

Aplied Posts

Job Title	Posted Date	Date expiring
Associate Developer	May 06, 2022	Jun 25, 2022

Fig. 19. List of Applied Jobs on Employee’s side



Update Profile

Home / Update Profile

Update Profile

First name: Apoorva

Last name: Mulmuttal

Update

Fig. 20. Option to update profile

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VI. CONCLUSION AND FUTURE SCOPE

To conclude, we aim to provide an application that will help society to empower women, providing useful resources and a platform for women to share their ideas/thoughts in order to help each other. The whole web application will henceforth create an atmosphere of like-minded users helping each other in their lives. The Job Portal is aimed to create awareness of the existing job opportunities thereby helping them to become independent.

In future, the project can be extended by adding several more informative contents and innovative features. Also, the project can be hosted for use across the globe.

ACKNOWLEDGEMENT

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