

Project Design Document

Team 34

Casual Labour Job Finder

| Serial No. | Name |
|------------|----------------------|
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Introduction

- Most online job portals cater to white collar jobs. The few that do cater to blue collar jobs, are available in only major languages, like English or are too technologically complex for an average blue collar worker to grasp, understand and use. Even for the employers seeking to hire people for blue collar vacancies, it is a tedious and time-taking process.
- The "Casual Labour Job Finder" aims to address all of these problems by offering a toll-free number where job seekers can call and enquire about job vacancies near them, in their vernacular language, as well as employers can use a website to post job openings and get responses for the same.
- The purpose of this document is to provide an overview of Casual Labour Job Finder and discuss the various system interfaces, models and design rationales that have been used in this project so far.

System Overview

- The software system being developed for the project consists of a toll-free number (intended for job seekers) and a website (intended for job posters).
- The toll-free number will be used by blue collar job seekers to find vacancies according to their preferences, in their vernacular language and also show interest in the same. They can also provide feedback for the same in their vernacular language.
- After calling the number, the job seeker shall be asked for their job preferences, such as location, duration, type, wage, etc. They can reply about their preferences in vernacular language. Their query will be processed and they shall get a response for the same, back in their vernacular language. They can show interest in the job options, by pressing numbers on their keypad.

- The website is for blue collar job posters. After registering on the website, the user will be able to:
 - post new jobs
 - manage previously posted jobs (edit and delete them)
 - view and manage responses (view information of job seekers and change their status for the job)
 - edit and delete their profile
 - provide feedback
 - contact for support or help
 - read FAQs
- All of the above functionality will be available to job posters, through our website.
- Few real life scenarios for our product use can be:
 - A security agency (job poster), might require more security personnel for an event and may hire for same
 - A manual labour worker (job seeker), whose job includes moving heavy stuff, such as bricks and construction material, can use our platform to find construction sites with vacancies.
 - An organisation (job poster), might require painters for repainting their walls. They can easily post vacancies for the same and hire painters.
 - A cleaner (job seeker), might use our platform to find jobs.
 - A farmer (job poster), might require hand help during their harvest season and so may seasonally hire help through our app.
- All of the above use cases show that for job seekers, they can easily find vacancies for themselves and aren't limited by factors like language and technology. For job posters, their process for hiring becomes easier and more organised. They can easily find employees, from their own comfort.

Design Overview

The web application, uses React.js as client side framework, MongoDB as database and GraphQL as server side framework

Architectural design

On the next page

Project Modules:

1. User Management
 - a. Job Poster
 - i. Job Poster Registration
 - ii. Job Poster Login
 - iii. Manage account
 - b. Job Seeker
2. Jobs & Responses
 - a. Posting new job
 - b. Manage previously posted job
 - c. Manage job responses
3. Pipeline
 - a. Vernacular Audio Interaction
 - i. Audio Play Module
 - ii. Audio Record Module
 - b. Vernacular - English Translation
 - c. English - Machine Query Translation
 - d. Query Processing and Response
 - i. English to Machine Query Translation
 - ii. Query Processing
 - iii. Machine Query Response to English Translation
 - e. Response Recording
4. Customer Support
 - a. Feedback
 - b. FAQ
 - c. Contact Us

Detailed Description:

1. User Management

This module shall be used by users themselves to handle their information. It contains the following sub-modules:

a) Job Poster

This shall handle all the information of the job poster. It contains the following sub-modules:

i) Job Poster Registration

The job poster shall be able to register themselves as a user through this module. It shall input their basic details to generate them as a user on the platform.

ii) Job Poster Login

The job poster shall be able to login themselves to the platform through this module. They can use their set username and password to login.

iii) Manage Account

This module shall enable the user to manage their account. They can view their homepage, edit their profile and set preferences.

b) Job Seeker

This shall handle the information of the job seeker. When the job seeker calls the toll free number, this module shall be used to save their information in the database.

2. Job & Responses

This module shall be used to handle posting jobs and vacancies by the job poster. It contains the following submodules:

a) Posting a new job

As and when a new vacancy opens up, the job poster shall be able to post about it on the website. Upload details will include relevant information about the job like location, duration, job type, pay, work hours etc

b) Manage previously posted jobs

This module will enable the job poster to view their previously posted vacancies and manage them. They can edit the specifications of the job as per their need

c) Manage Job Responses

The job poster shall be able to view all job seekers' names and their phone numbers that show an interest in filling the vacancy. They shall also be able to accept or reject a particular response based on their individual judgement.

3. Pipeline

a) Vernacular Audio Interaction

The job seeker shall be able to call the toll-free number and talk in their vernacular. The machine that picks up the phone also shall respond back in the vernacular

i) Audio Play Module

This module shall be used to talk to the job seeker (Eg : Ask them about their contact details and job specifications like job type)

ii) Audio Record Module

This module shall be used to record the responses of the job seeker.

b) Vernacular-English Translation

With the help of the provided APIs , the audio input received from the job seeker in vernacular must be translated to English and the Query response in English should be converted back to audio.

c) Query Processing and Response

i) English to Machine Query Translation

The English translated details shall be converted to machine understandable query.

ii) Query Processing

The Machine understandable query shall be processed by fetching relevant job details from the database

iii) Machine Query Response to English Translation

The query response shall be converted back to English.

d) Response Recording

The job seeker shall be able to respond by selecting a vacancy and this interest shall be notified to the job poster

4. Customer Support

a) Feedback

i) For the Job Poster

The job poster shall be able to post his feedback on his website.

ii) For the Job Seeker

The job seeker shall be able to convey his feedback in their vernacular by calling the toll-free number .

b) FAQ

The job poster shall be able to get frequently asked questions and their answers on the website.

c) Contact Us

It allows the job poster to contact the support staff of the company, for any assistance they might require.

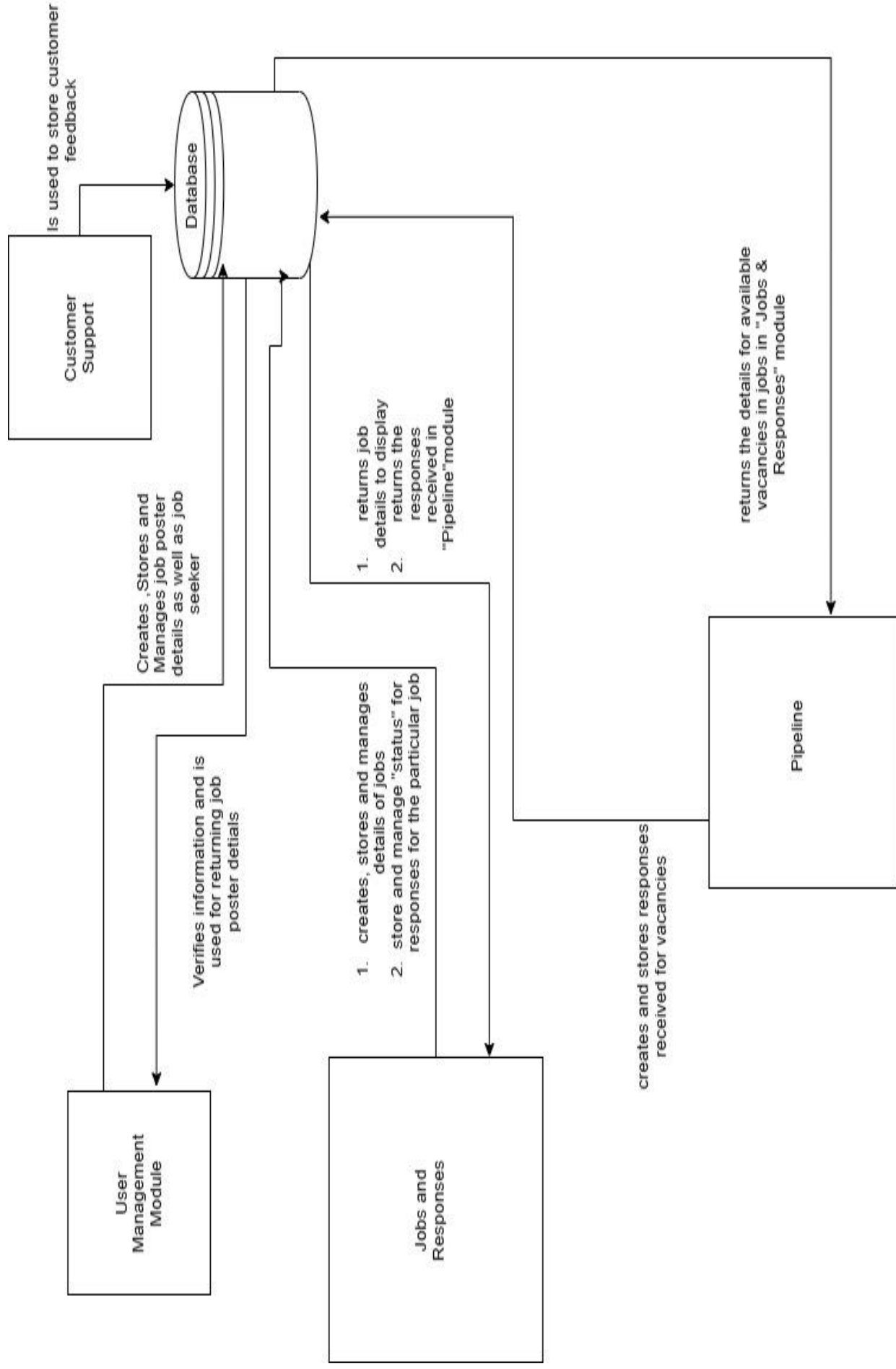
Relations between modules:

1. Job poster module in User Management is used for creation of a user and their verification. Without it, a job poster cannot use any of the features of other modules
2. “Job & Responses” and “Pipeline” modules are heavily interlinked in the following ways:
 - a. Jobs posted by job poster, in the “Jobs & Responses” module are what the “Query Processing” module returns to the job seeker.
 - b. Responses recorded in “Response recording” in “Pipeline” are the responses shown to the job poster by the “Manage Responses” in “Jobs & Responses”

Relationship Diagrams

The following is the diagram between modules, data repositories and their interconnections.

On the next page



System interfaces

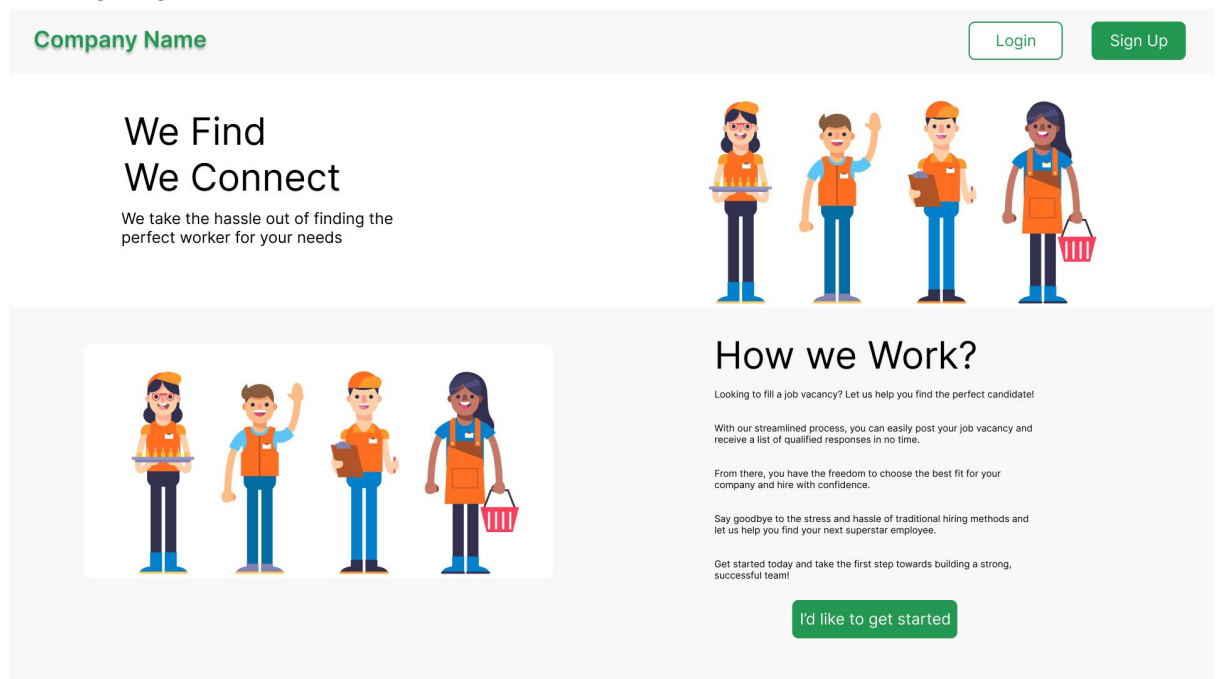
User Interface

For job poster:

The job poster will have access to our website. They can use our website to make a new account, login, post new jobs, manage previously posted jobs, edit their profiles and manage responses that they receive on the posted jobs.

Following are the screenshots for job poster's website:

1. Landing Page



The user will initially land here when they come to our website. They can navigate to login or registration.

2. Sign Up Page



Sign Up

First Name Last Name

Username

Email ID

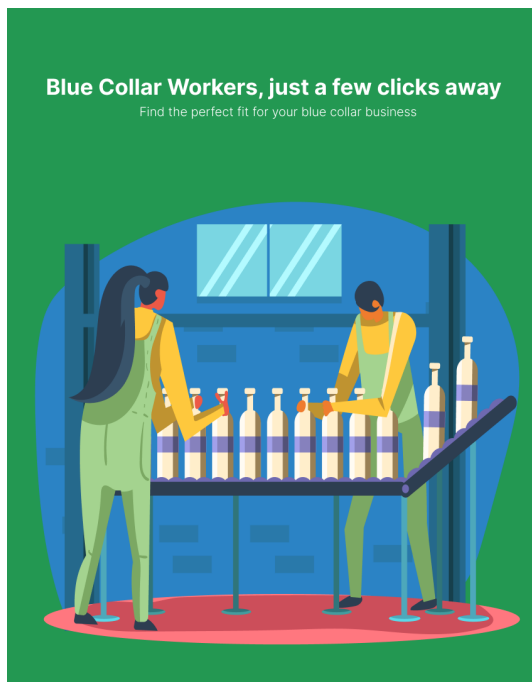
Password Confirm Password

[Sign Up](#)

Already a user? [Login](#)

They can sign up if they haven't signed up here.

3. Login Page



Login

Email ID / Username

Password

[Login](#)

Don't have an account? [Sign Up](#)

Already registered users can use their credentials to login.

4. Home Page-Recently Posted Jobs

The screenshot shows the Home Page of a job portal. The header includes the 'Company Name' logo, navigation links for 'Home', 'Jobs & Responses', 'Contact Us', and 'FAQ', a 'Logout' link, and a user profile icon for 'Emma Poole'. The main content area is divided into three sections. On the left, there's a 'Recently Posted' section with three job listings. Each listing includes a job title, a description, job tags, and statistics for vacancies, duration, and responses. A 'View All Posted Jobs' button is at the bottom of this section. In the center, there's a 'New vacancy? Start your hiring right now!' section with a form to 'Get started by filling out these basics details'. The form fields include 'Job Title', 'Job POC', 'Job Description', 'Job Tags', and an 'Add Custom Tags' button. A 'Post' button is at the bottom of the form. On the right, there's a user profile section for 'Emma Poole' with an 'Edit Profile' button.

After successful login, the users will be navigated to the home page. They have various options. By default, they can view recently posted jobs. They can also post a new job's details.

5. New Job Page (continued)

The screenshot shows the 'New Job Page (continued)'. The header is similar to the Home Page, but the 'Jobs & Responses' link is highlighted. The main content area features a form titled 'You're almost there!' and 'Just a few more details before you begin hiring'. The form fields include 'Phone No (POC)', 'Email ID (POC)', 'Wages', 'Vacancies', 'Start Date', 'End Date', 'Area', and 'Location'. A 'Post' button is at the bottom of the form.

They can continue the form details on this page for the new job.


6. Home Page-Recent Responses

Company Name

HomeJobs & ResponsesContact UsFAQ

Logout


Recently PostedRecent Responses



Job Title

Most Recent Response: 6:05 p.m. 18/01/2023


View All Responses for this Job



Job Title

Most Recent Response: 6:05 p.m. 18/01/2023


View All Responses for this Job



Job Title

Most Recent Response: 6:05 p.m. 18/01/2023

View All Responses for this Job



Job Title

Most Recent Response: 6:05 p.m. 18/01/2023

View All Responses for this Job

View All Recent Responses

New vacancy? Start your hiring right now!

Get started by filling out these basics details

Job TitleJob POC

Job Description

Job Tags

Post

Emma Poole

Edit Profile


They can also switch and view recent responses they received on posted jobs

7. Profile

Company Name

HomeJobs & ResponsesContact UsFAQ

Logout



Emma Poole

@emmapoole

18 Total Jobs Posted

267 Responses Received

159 Total People Hired

Name

EmmaPoole

Username

@emmapoole

Email ID

emmapoole@gmail.com

Password

EditDelete

They can view their profile and edit their details. They can also delete their account.

8. All Jobs

Company Name

HomeJobs & ResponsesContact UsFAQLogout

You have posted the following jobs:
Click on a job to know more and edit

Filter & Sort

Filter :

Completed

Pending

Category


Sort :

Date

Responses

Vacancies

Apply

Job Title
Description: long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Job Tag #1


Vacancies : 150

Job Tag #2

Duration : 50 hours

Job Tag #3

Responses : 7

Job Title
Description: long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Job Tag #1


Vacancies : 150

Job Tag #2

Duration : 50 hours

Job Tag #3

Responses : 7

Job Title
Description: long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Job Tag #1


Vacancies : 150

Job Tag #2

Duration : 50 hours

Job Tag #3

Responses : 7

Job Title
Description: long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

The user can view all the jobs they have posted in the past. They can also apply sort and filter for easier views.

9. All Responses

Company Name

HomeJobs & ResponsesContact UsFAQLogout

You have received the following responses for a job:
Click on a job to know more and edit

Filter & Sort

Filter :

Completed

Pending

Category


Sort :

Date

Responses

Vacancies

Apply

Job Title
Description: long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Job Tag #1

Vacancies : 150


Job Tag #2

Duration : 50 hours

Job Tag #3

Responses : 7

View All Responses

Job Title
Description: long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Job Tag #1

Vacancies : 150


Job Tag #2

Duration : 50 hours

Job Tag #3

Responses : 7

View All Responses

Job Title
Description: long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Job Tag #1

Vacancies : 150


Job Tag #2

Duration : 50 hours

Job Tag #3

Responses : 7

View All Responses

Job Title
Description: long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

The user can view responses they have received for all the jobs in brief.

10. Job In Detail


Company Name

HomeJobs & ResponsesContact UsFAQLogout

Responses Received

| Name | Phone Number |
|------|--------------|
| Ramu | 9876543210 |
| Ramu | 9876543210 |
| Ramu | 9876543210 |
| Ramu | 9876543210 |
| Ramu | 9876543210 |
| Ramu | 9876543210 |
| Ramu | 9876543210 |
| Ramu | 9876543210 |
| Ramu | 9876543210 |

View All Responses for this Job



Job Title
Description long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Job Tags:

Job Tag#1Job Tag#2Job Tag#3

Wages 500 to 700 per day

Start Date 05/03/2023

End Date 18/03/2023

Duration 50 hours

POC Mr. XYZ

Phone No 1234567891

Email ID xyz@gmail.com

Area Gachibowli

Location Bakul Nivas, IIIT Hyderabad

Vacancies 50

Responses received 7

EditDelete


They can view details of a particular job and edit them.

11. Manage Responses

Company Name

HomeJobs & ResponsesContact UsFAQLogout

All Jobs



Job Title
Description long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Job Tags

Job Tag #1Job Tag #2Job Tag #3Job Tag #4

Filter & Sort

Filter :

CompletedPendingStatus

Sort :

Date & TimePrevious HireVacancies

Apply

All Responses

You have received a total of 7 responses for this job

| Date | Name | Phone No | Previous Hires | Status |
|--------------------|---------|------------|----------------|-----------|
| 6:05 PM 18/02/2023 | Ramu | 1234567891 | 4 | Completed |
| 6:05 PM 18/02/2023 | Shambhu | 1234567891 | 4 | Completed |
| 6:05 PM 18/02/2023 | Ramu | 1234567891 | 4 | Pending |
| 6:05 PM 18/02/2023 | Shambhu | 1234567891 | 4 | Pending |
| 6:05 PM 18/02/2023 | Ramu | 1234567891 | 4 | Completed |
| 6:05 PM 18/02/2023 | Shambhu | 1234567891 | 4 | Completed |
| 6:05 PM 18/02/2023 | Ramu | 1234567891 | 4 | Pending |

They can view detailed responses of some particular job and change the status of interested employees.

12. FAQ

FAQ will display the frequently asked questions, available on the website.

13. Contact Us

The user can use Contact us to ask for help and give feedback.

For the job seeker:

The job seeker will use a toll-free number. They shall be able to call on the number and query for available jobs with their specific requirements, like location, wage and type. They will be able to do this in their vernacular language. They shall get responses back in vernacular too.

As it is a toll free number, we don't have a user interface to display.

APIs

External / Third-Party Service APIs the we will be exposed to:

1. Chennai ASR : It is a speech-to-text converter. It will be used to convert audio vernacular input to vernacular text.
2. IIIT LTRC: It is a language-to-language converter. It will be used to convert vernacular text to English text. This will be used as a query for the database. It will also be used to convert the English text response received to vernacular text response.
3. Chennai TTS: It is a text-to-speech converter. It will be used to convert the vernacular response to vernacular audio, which will be output.

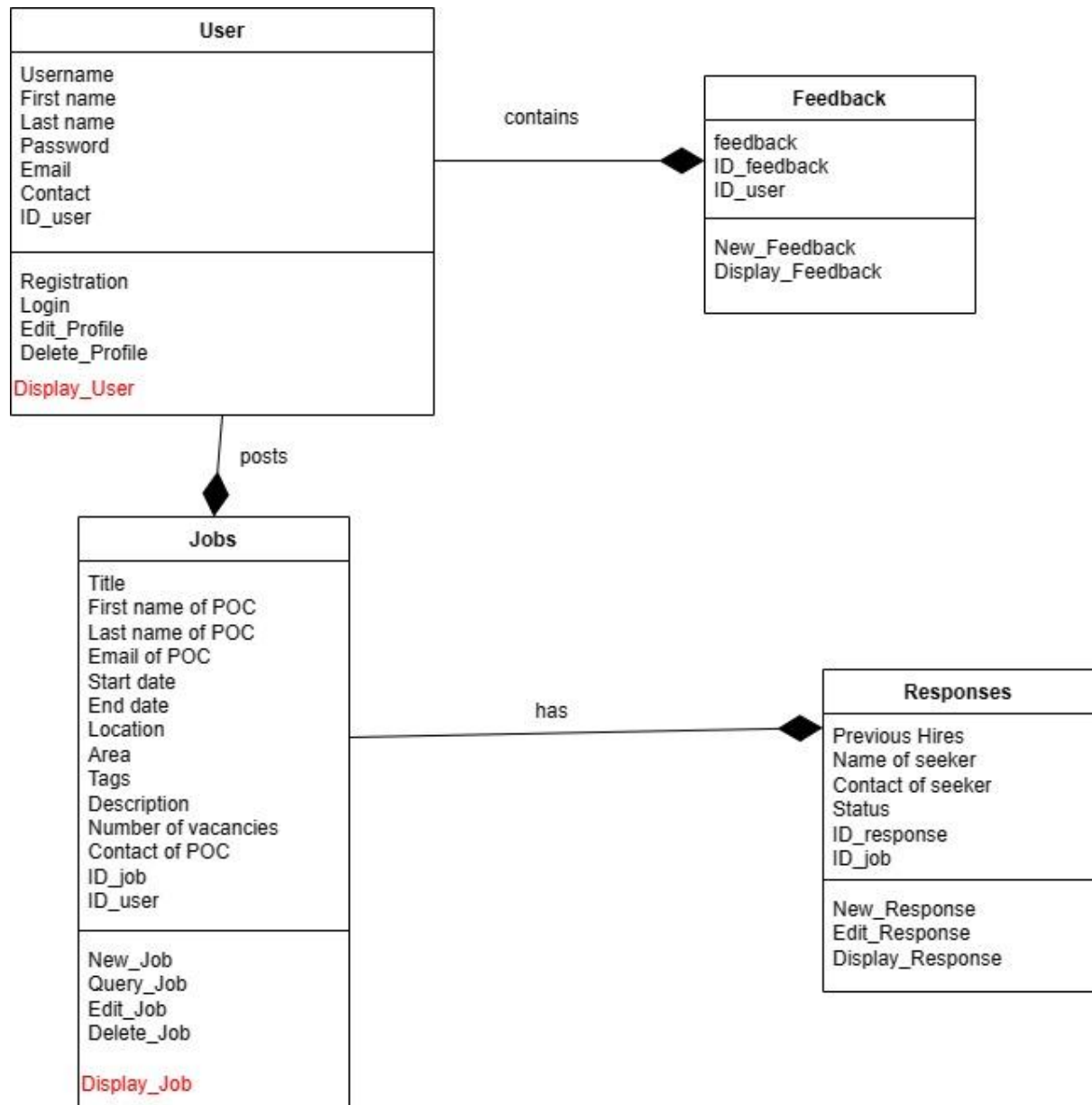
Internal APIs we will be exposed to :

1. User Authentication API : verify that a user is able to access information only relevant to him.
2. Registration API : allow a new user to register
3. Login API: allow an existing user to login
4. User Details : fetch all the profile details of the user currently logged in
5. Edit User Details: edit the user details in database
6. Delete User: delete the user details as well as the jobs posted by them.
7. Job Posting API : post a new job given all relevant details
8. Job overview API : fetch all details a particular job posted by the user
9. Job Edit API: edit job details
10. Job Delete API: delete a job and all responses related to it
11. Filter & Sort : APIs to filter & sort the jobs and / or responses according to the filters applied by the user
12. Responses API : fetch details of all responses for a particular job as well as all jobs
13. Edit Responses API: edit the status field of response

Model

Class Diagram:

Note: Red denotes public methods.



Class table:

Red denotes public methods.

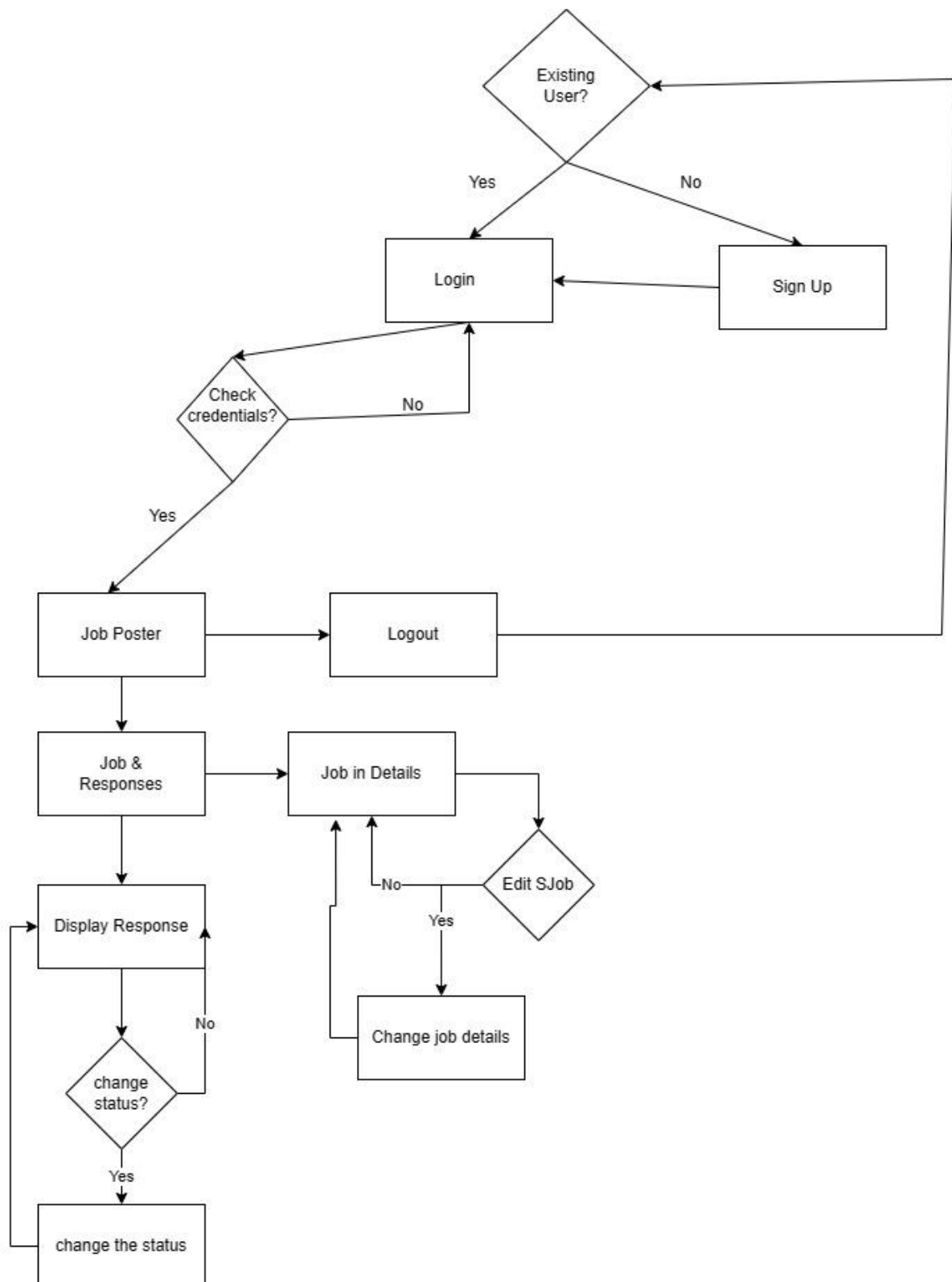
| Class Name | Class Description |
|------------|--|
| User | <p>Class state:</p> <ul style="list-style-type: none">• It stores the information of the job poster's details.• It stores the basic information of the job seeker. <p>Class Behaviour:</p> <ul style="list-style-type: none">• Registration : it is responsible for creation of a new user (job poster). It fills the form and stores it in the database.• Login: it verifies the credentials and gives access to an already registered user.• Display_User: it is responsible for displaying the profile of user by accessing the database• Edit_Profile: it is responsible for editing the information of job poster stored in database• Delete_Profile: deletes the user and all jobs posted by them, responses related to it and feedback. |
| Job | <p>Class State:</p> <ul style="list-style-type: none">• It stores the information of the jobs, posted by the job poster <p>Class Behaviour:</p> <ul style="list-style-type: none">• New_Job: it is responsible for creation of a new job. It fills the form and stores it in the database.• Query_Job: it allows the job seeker to query for "job" objects in the database, according to their needs.• Display_Job: it displays the jobs by accessing the database• Edit_Job: it allows editing of a particular job posted by the user, in database• Delete_Job: it deletes the jobs and all the responses related to it. |
| Response | <p>Class State:</p> <ul style="list-style-type: none">• It stores the responses received on jobs. <p>Class Behaviour:</p> <ul style="list-style-type: none">• New_Response: it allows for creation of a response to a particular job in the database.• Edit_Response: it allows the change of "status" attribute in response in database• Display_Response: it displays the response by accessing the database. |
| Feedback | <p>Class State</p> <ul style="list-style-type: none">• It contains feedback from job posters.• It contains feedback of job seeker <p>Class Behaviour:</p> <ul style="list-style-type: none">• New_Feedback: It stores the feedback into the database.• Display_Feedback: displays feedback |

Display_User: is public because it is accessed by the Feedback and Jobs class to find user details

Display_Jobs: is public because used by Response to find job details

Sequence Diagram(s)

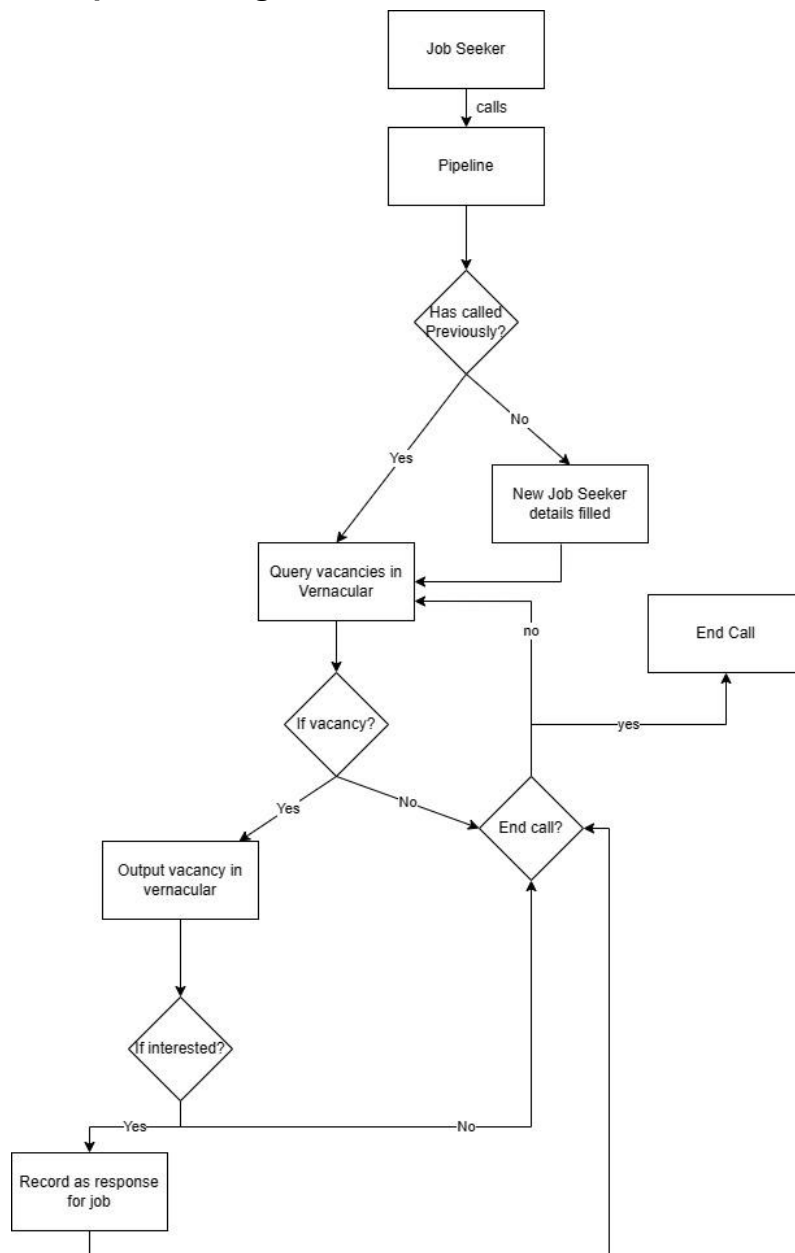
I. Sequence Diagram for Use Cases of Job Poster



For a better flow of document, I have combined 3 use cases for Job Poster into 1 Sequence Diagram

1. **Sequence 1:** It contains the login and registration part. If a user is not registered, they will be redirected to "Sign Up". Once they register, they can login. If their credentials are correct, they will be given access to their account otherwise not. Once logged in, if a user logs out, they will be resent to start and access is revoked.
2. **Sequence 2:** If a user has access, (continued from sequence 1), they can access Job & Responses and access job details. They can then edit the job details if they want to
3. **Sequence 3:** If user has access, they can directly ask for displaying responses of a job. They can change the status of a response if they want.

II. Sequence Diagram for Use Case of Job Seeker

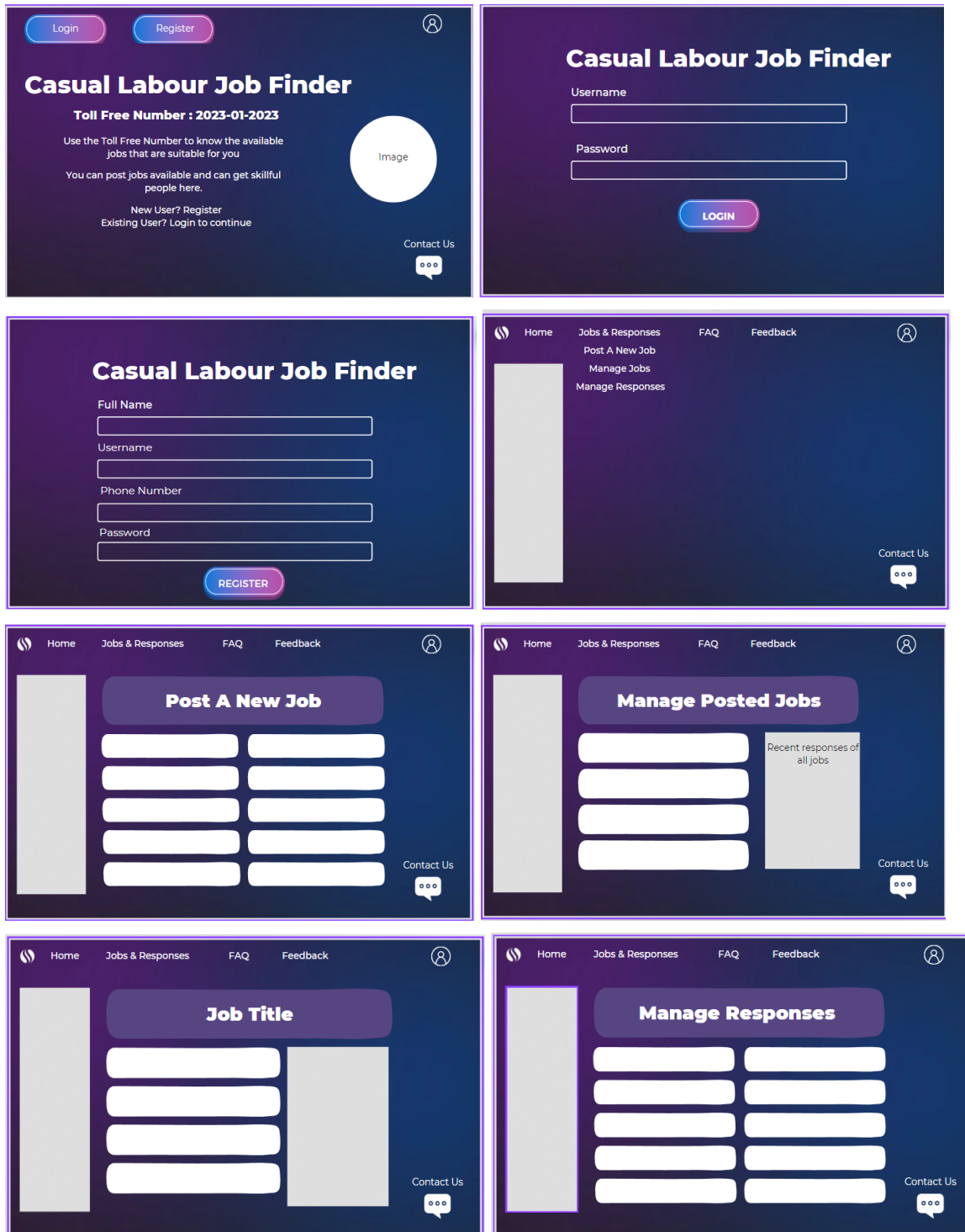


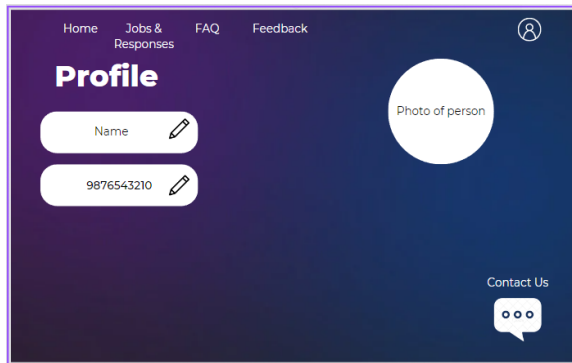
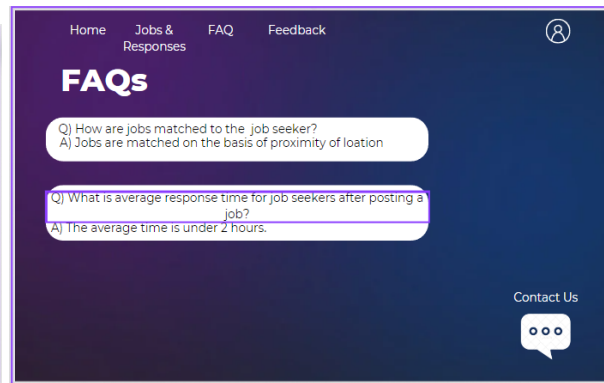
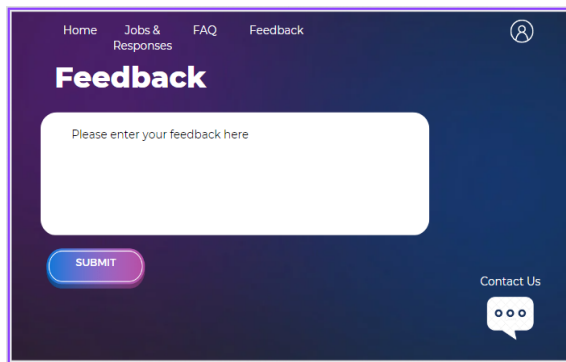
Sequence 4: For job seekers, the job seeker will call the number. If they have already called before, they will go to directly query for jobs, otherwise will have to fill in their basic details. Once on

queries, they can query jobs in vernacular according to their need. If such jobs exist, they will be outputted. If a job seeker is interested in any job, they can show interest by clicking on the keypad. It will be recorded as a response for that job. If at any point after querying, there is a negative response, the job seeker might be asked to change their query or call is ended.

Design Rationale

Stage 1 : Canva

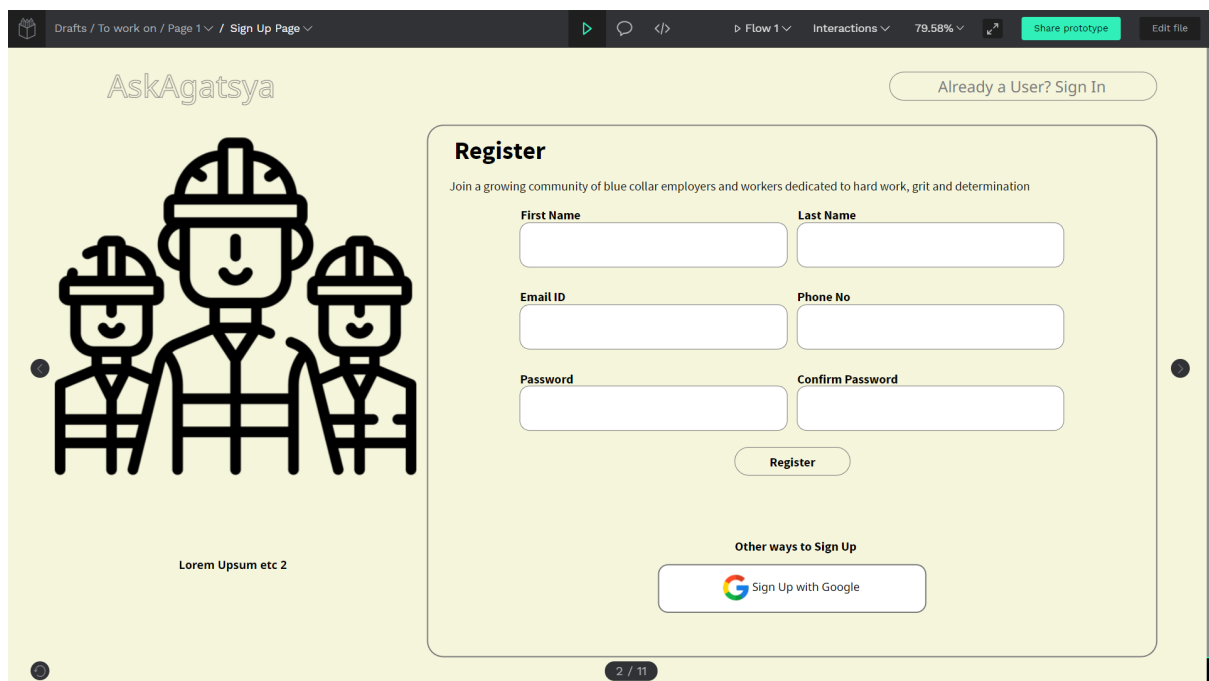
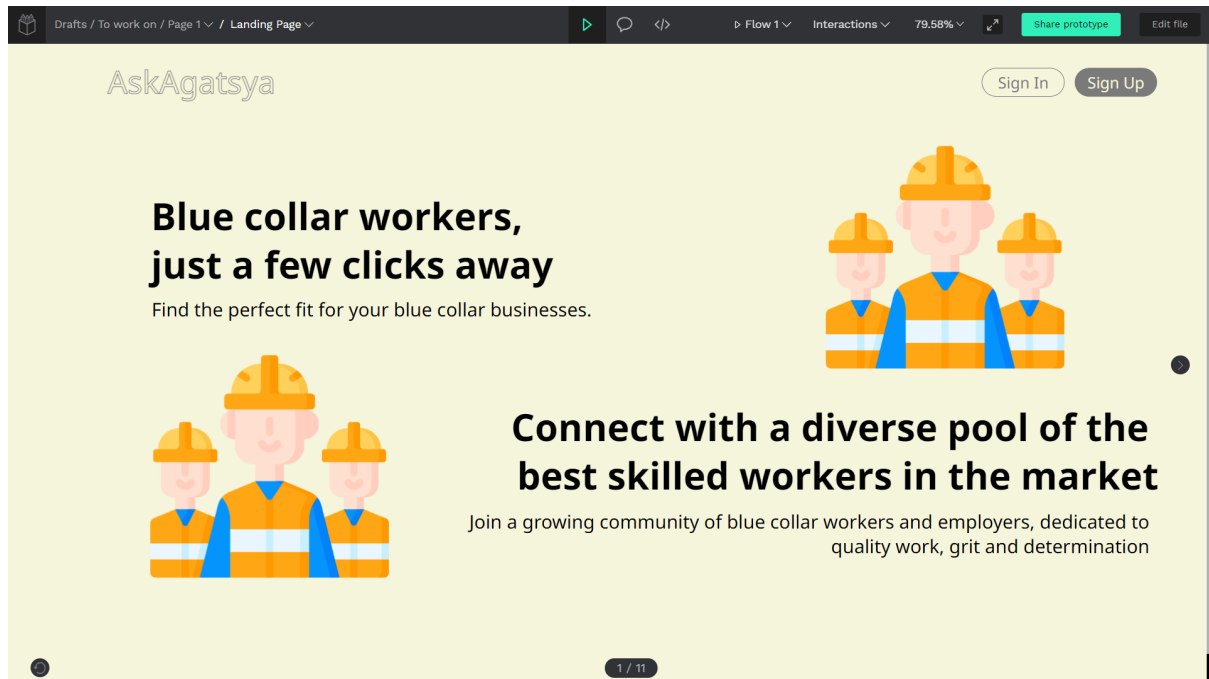


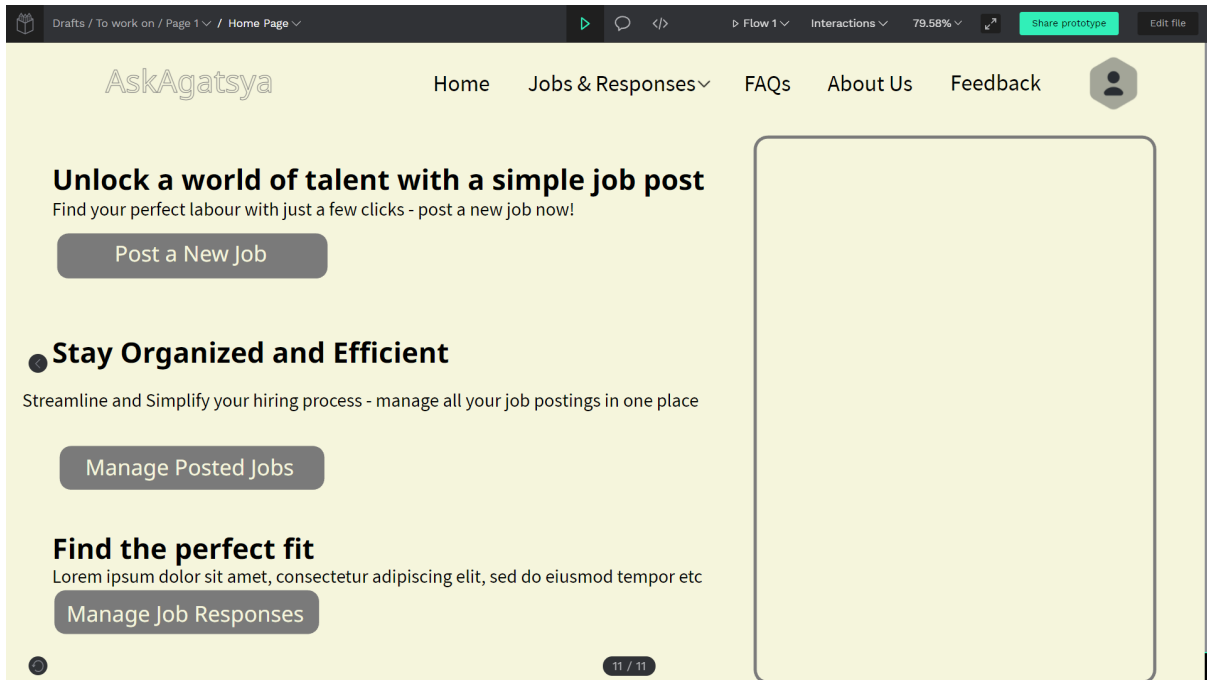
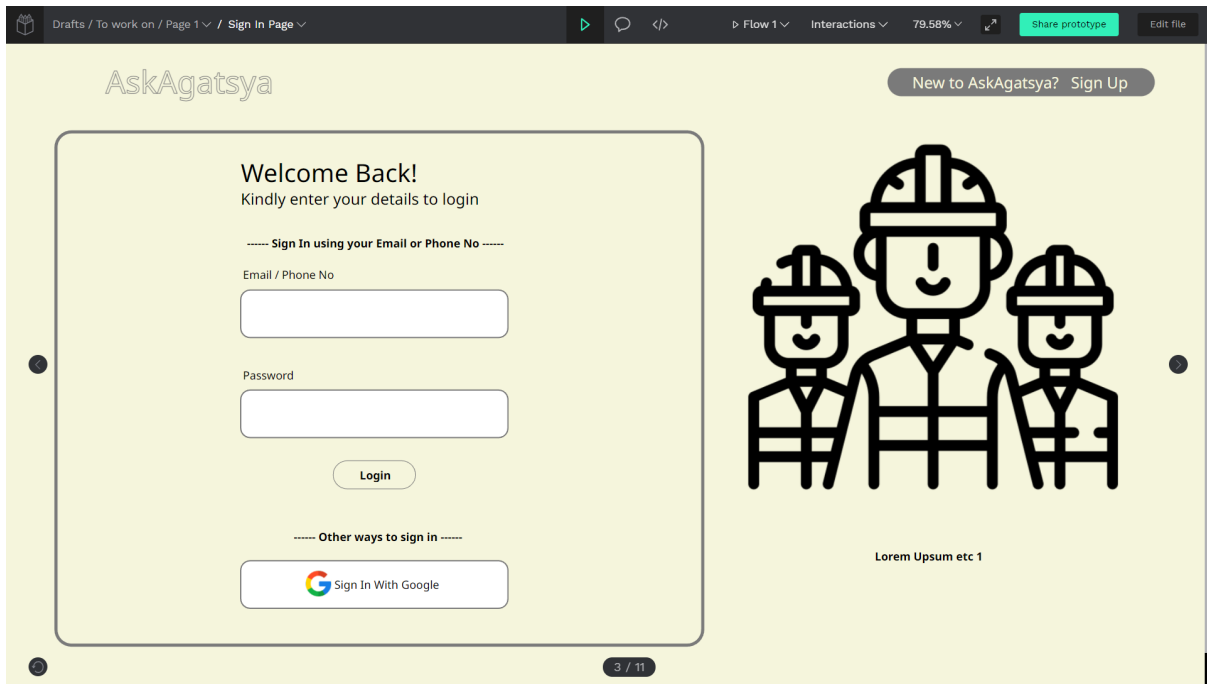


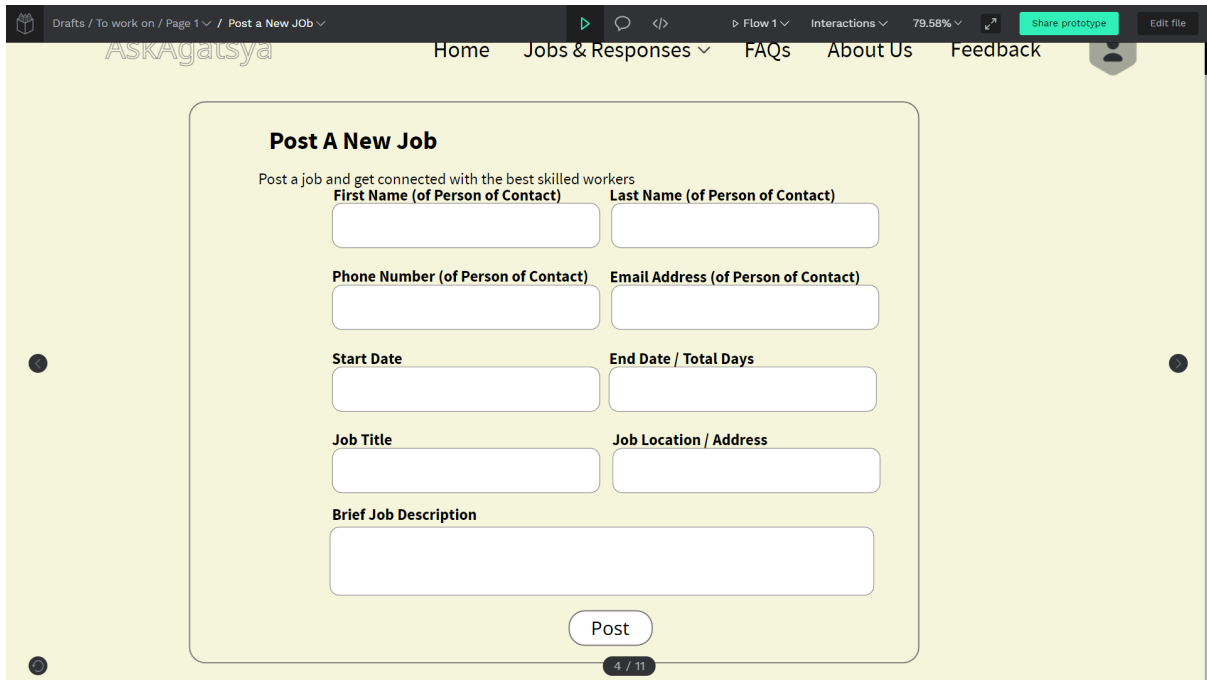
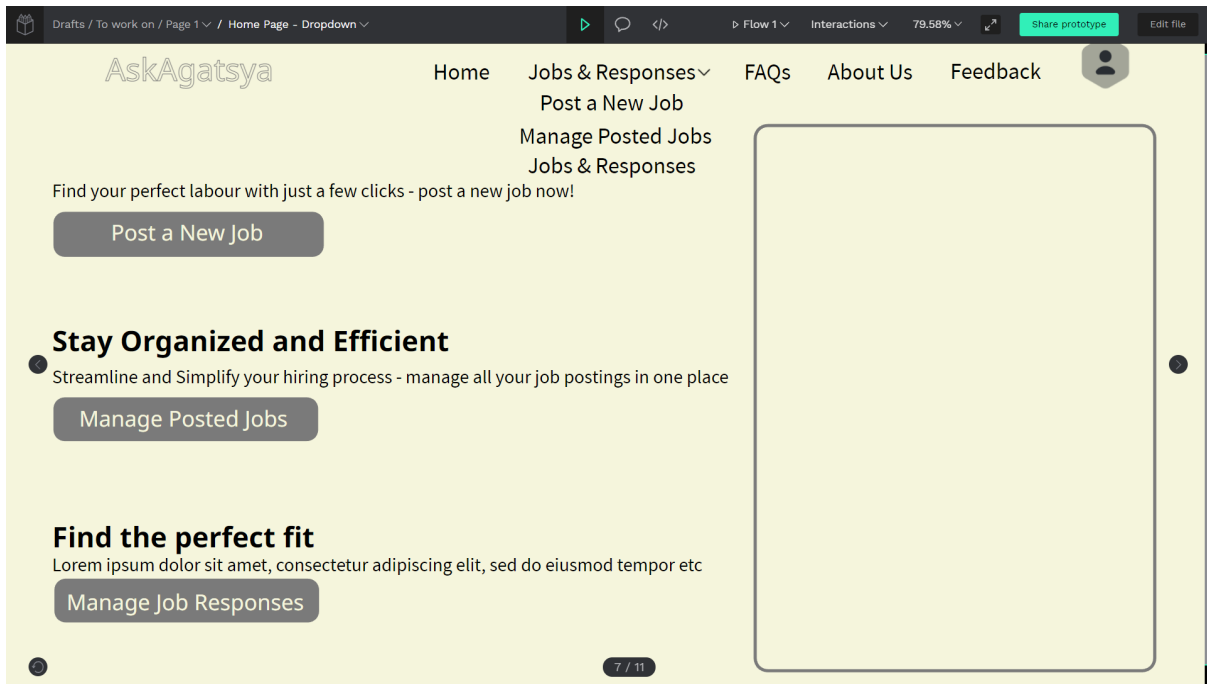
Reason for Rejection :

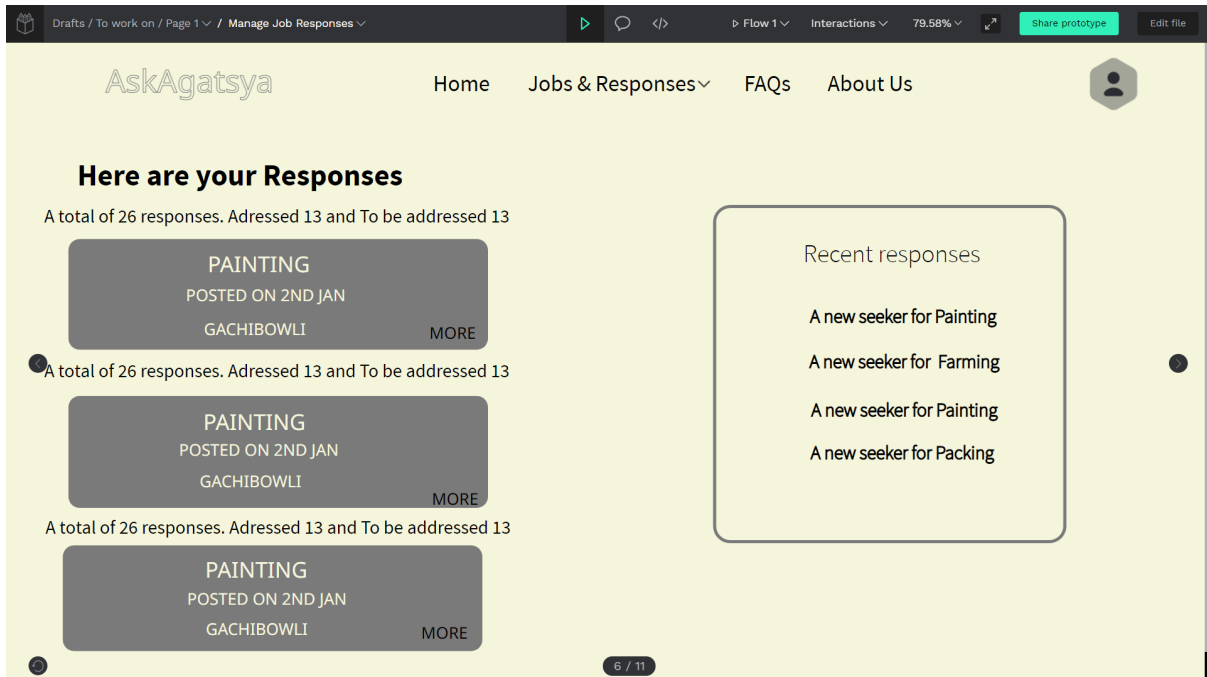
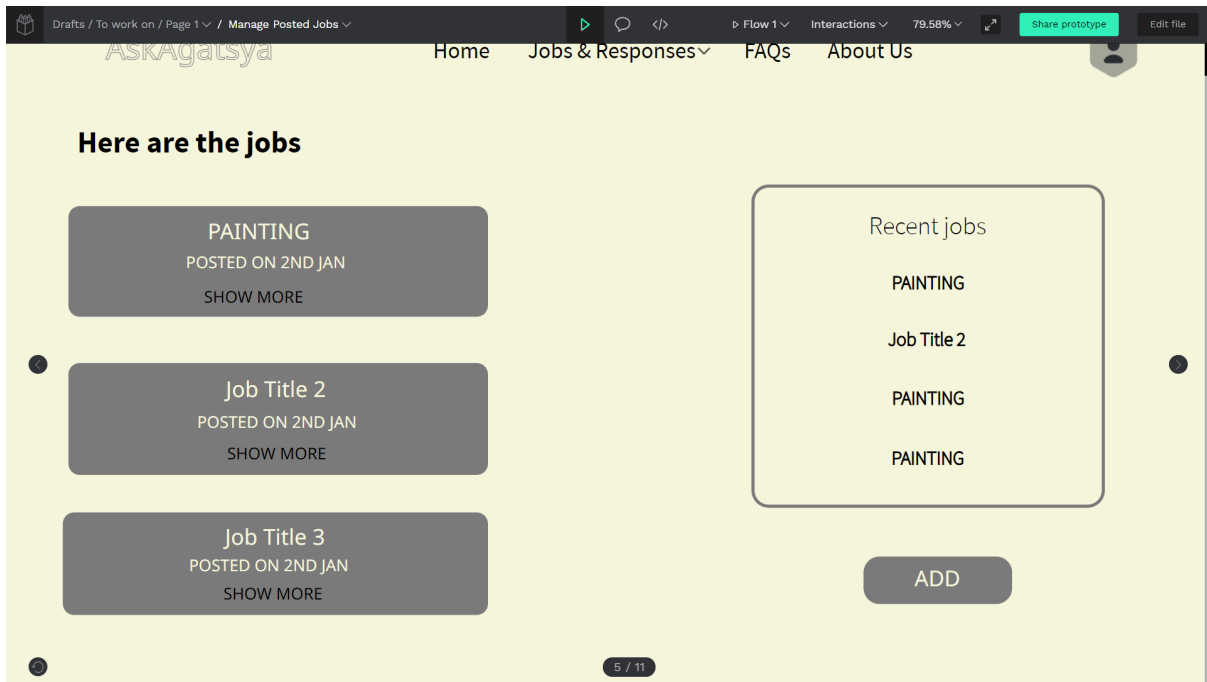
1. The design was extremely soft and child-like born out of a misunderstanding between the client and the developers
2. Design catered more to a presentation of the product as opposed the UI screens.
3. Design was not aesthetically coherent with the product.

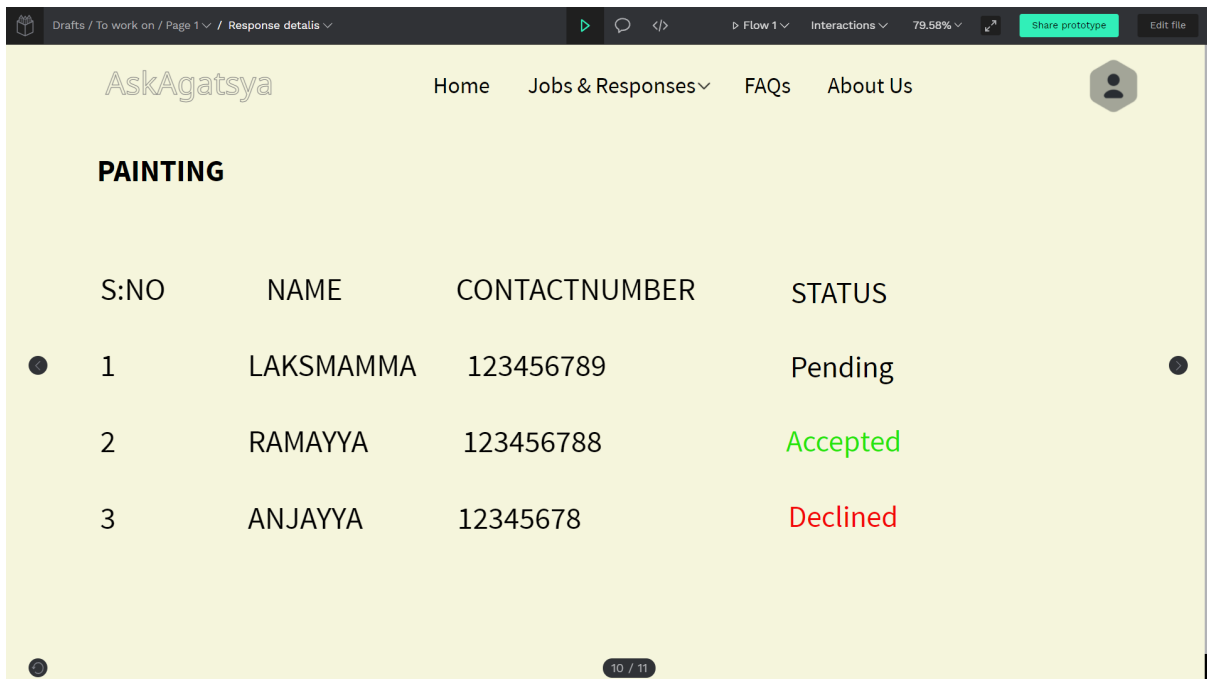
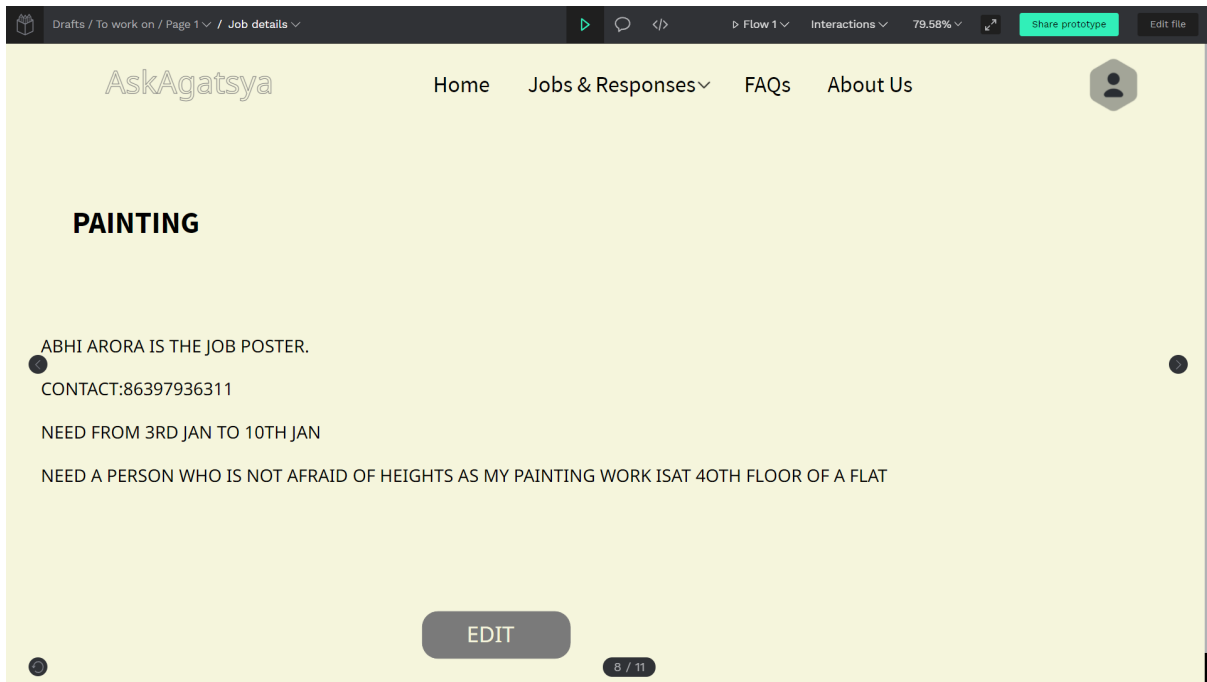
Stage 2 : Penpot











Reason for Rejection :

1. Not looking professional
2. Non-standard UI objects made it difficult to convert UI to code.
3. Too many empty spaces
4. Overall a very dull design

Stage 3 : Figma

The designs have been already shown in the User Interface part of the document. Accepted.

Strength of the finalised design :

1. An elegant, clean, aesthetic & professional looking design
2. Better usage of colour schemes & UI elements
3. Easily convertible to code

Drawbacks :

1. Received criticism over color choices. Have rectified them.
2. Options didn't seem to pop out. Have rectified them.