UI (User Interface)

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Subject Name: User Interface Lab

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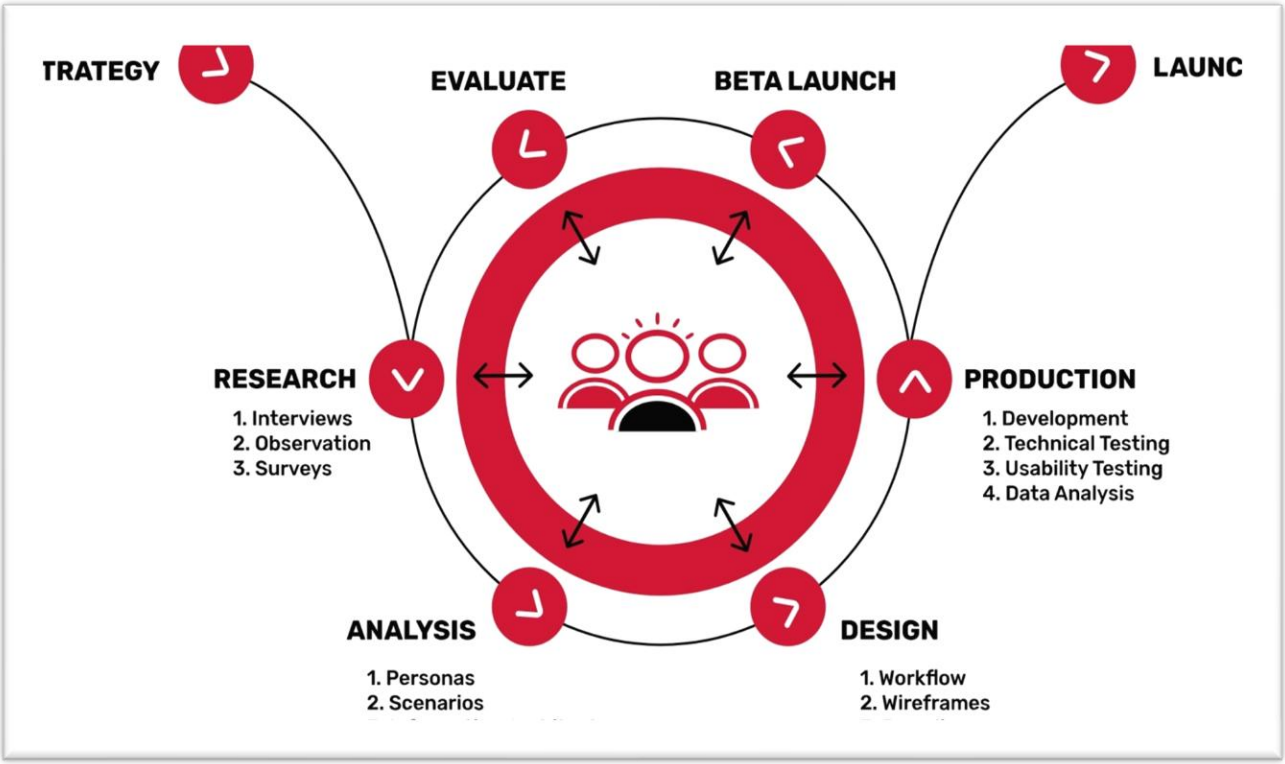
EXPERIMENT NO. 1

Q. Introduction to UI Life Cycle and UI Tools.

UI Life Cycle:



UI Tools:

1. InVision

- **Overview**: InVision is a popular cloud-based prototyping and collaboration platform. It allows you to upload static design files (e.g., from Sketch or Photoshop) and turn them into interactive, high-fidelity prototypes.
- **Key Features**:
    - Interactive prototypes

  - Design collaboration and feedback tools
  - Version control and design handoff
  - User testing integration
- **Best For**: Designers looking to collaborate with teams and gather feedback quickly, without needing to write any code.

2. Sketch

- **Overview**: Sketch is a vector-based design tool widely used for UI/UX design. It's particularly favored for its intuitive interface and specialized tools for designing user interfaces.
- **Key Features**:
  - Artboards and symbols for reusable elements
  - A huge library of plugins for extended functionality
  - Export options for creating pixel-perfect designs
  - Easy integration with other tools like Zeplin for design handoff
- **Best For**: Designers who need powerful vector-based design tools for high-fidelity UI designs and have access to a Mac (Sketch is macOS-exclusive).

3. Figma

- **Overview**: Figma is a web-based design tool that has revolutionized collaborative UI/UX design by enabling multiple users to work on the same project in real time.
- **Key Features**:
  - Cloud-based collaboration for team-based design
  - Constraints for responsive design (adapts designs to different screen sizes)
  - Components for reusable elements across designs
  - Real-time collaboration, commenting, and feedback
- **Best For**: Teams who need a seamless collaboration experience and cloud-based access for designing and prototyping interfaces.

4. Flinto

- **Overview**: Flinto is a macOS app specifically designed for creating interactive, high-fidelity prototypes. It excels at making micro-interactions and realistic animations.
- **Key Features**:
  - Smooth screen transitions and animations
  - Import video or GIFs for immersive prototypes
  - Multi-touch and gesture interactions
  - Sound effects for UI feedback
- **Best For**: Designers who want to create engaging, animated, and highly interactive prototypes with detailed micro-interactions.

5. Adobe XD

- **Overview**: Adobe XD is a vector-based design and prototyping tool that supports wireframing, UI design, and interaction design. It integrates well with the Adobe Creative Cloud suite, which makes it a solid choice for users familiar with Adobe products.
- **Key Features**:
  - Responsive resize for flexible layouts
  - Voice prototyping for voice UI design
  - Repeat grid for rapid content layout
  - Real-time collaboration and commenting tools
- **Best For**: Designers who already use Adobe products and need a versatile tool for UI/UX design, prototyping, and testing.

6. Marvel

- **Overview**: Marvel is a simple yet powerful design tool used for creating interactive prototypes quickly. It's browser-based, so it’s accessible on both Mac and PC.
- **Key Features**:
  - Easy drag-and-drop interface
  - Real-time collaboration for teams
  - User testing integrations

    - Syncs with tools like Sketch and Photoshop
- **Best For**: Quick, easy-to-create prototypes for designers who need a lightweight tool for rapid iteration and testing.

7. Canva

- **Overview**: Canva is a simple graphic design tool that's known for its user-friendly interface. It's primarily used for creating marketing materials, but it can also be used to quickly create UI mockups and design assets.
- **Key Features**:
    - A huge library of templates, photos, and design elements
    - Drag-and-drop interface
    - Team collaboration and sharing features
    - Export options for social media and web graphics
- **Best For**: Beginners or designers who need a simple, accessible tool for quick mockups or non-technical designs.

EXPERIMENT NO. 2

Q. Project Proposal and Requirement Gathering (Introduction of Project).

Project Name: Go Clean (Clean City Mumbai App)

Introduction:

Mumbai, being one of the most populated cities, faces major challenges like improper waste disposal, public littering, and lack of awareness about cleanliness. These issues contribute to unhygienic surroundings, pollution, and even health risks. To address this problem, we came up with the idea of the Clean City App – a digital platform that allows citizens to report cleanliness issues and promote awareness in their localities. The app enables users to raise complaints with images, learn through educational videos, and spread awareness by creating and sharing content. It also connects complaints to the user's locality, so authorities can take faster action. With features like saved posts, likes, and a help center, the app encourages civic participation and builds a community working together for a cleaner Mumbai.

Objectives:

1. **Promote Cleanliness Awareness**: Educate citizens about the importance of a clean environment and waste management practices.
2. **Community Engagement**: Enable users to actively participate in identifying and reporting unclean areas and waste dumps.
3. **Efficient Waste Management**: Allow city administrators to respond quickly by assigning cleaning teams to reported areas.
4. **Boost Civic Responsibility**: Foster a sense of responsibility and initiative among Mumbai residents for the betterment of their surroundings.
5. **Provide Learning Resources**: Offer educational content on waste disposal, recycling, and environmental preservation.

MOTTO:

“Together for a Clean Mumbai.”

Advantages of the App:

- **Easy Complaint Submission:** Users can quickly report problems by uploading photos and descriptions.
- **Locality-Based Tracking:** Helps authorities take action based on the user's registered location.
- **Awareness Creation:** The 'Learn and Create Videos' feature encourages user-generated content promoting cleanliness.
- **Community Motivation:** Like and Save features increase community interaction and recognition for good deeds.
- **Support Access:** A centralized Help Center ensures users can reach out when needed.
- **Real-time Updates**: Provides real-time information on the cleaning status of reported areas, making it transparent and encouraging.

Disadvantages of the App:

- **Privacy Concerns**: Some users may feel uncomfortable sharing locations of unclean areas or their personal information while reporting.
- **Data Accuracy**: The quality of reported data depends on the accuracy and honesty of the users, which may sometimes lead to false reporting.
- **Time and Resource Constraints**: The app’s effectiveness depends on the timely response and action by local authorities, which may not always be immediate.
- **Limited Coverage**: The app may only be useful in areas with good internet access, potentially leaving out citizens in underdeveloped areas with low connectivity.

EXPERIMENT NO. 3

Q. Logo Designing.

LIJK: https://www.figma.com/design/fZRDQ3qRNEFZvAy0O2foZG/Foodee-Mobile-App-Interface--Community-?node-id=307-661&t=PTmNDY3r9PzwbDF4-0

EXPERIMENT NO. 4

Q. Problem Statement: System Concept Statement.

Clean City Application Concept Statement

The Clean City application is designed to promote cleanliness and community involvement in urban areas, starting with Mumbai. The concept focuses on enabling citizens to report unhygienic conditions, littering, and unsanitary practices in public spaces directly through a mobile app. It also aims to spread awareness by encouraging users to learn about cleanliness and share educational content through videos and posts.

The idea is important because cities like Mumbai face growing challenges with waste management, public hygiene, and lack of civic responsibility. By giving people, a voice and a platform to act, the app promotes a cleaner environment and more responsible behaviour from both citizens and authorities. It supports government efforts by connecting complaints to user locations, making it easier to identify problem areas and take timely action.

The primary users include residents of Mumbai who care about their environment, students, activists, local authorities, and anyone who wants to contribute to a cleaner and healthier city. It also helps authorities keep track of local issues and respond efficiently.

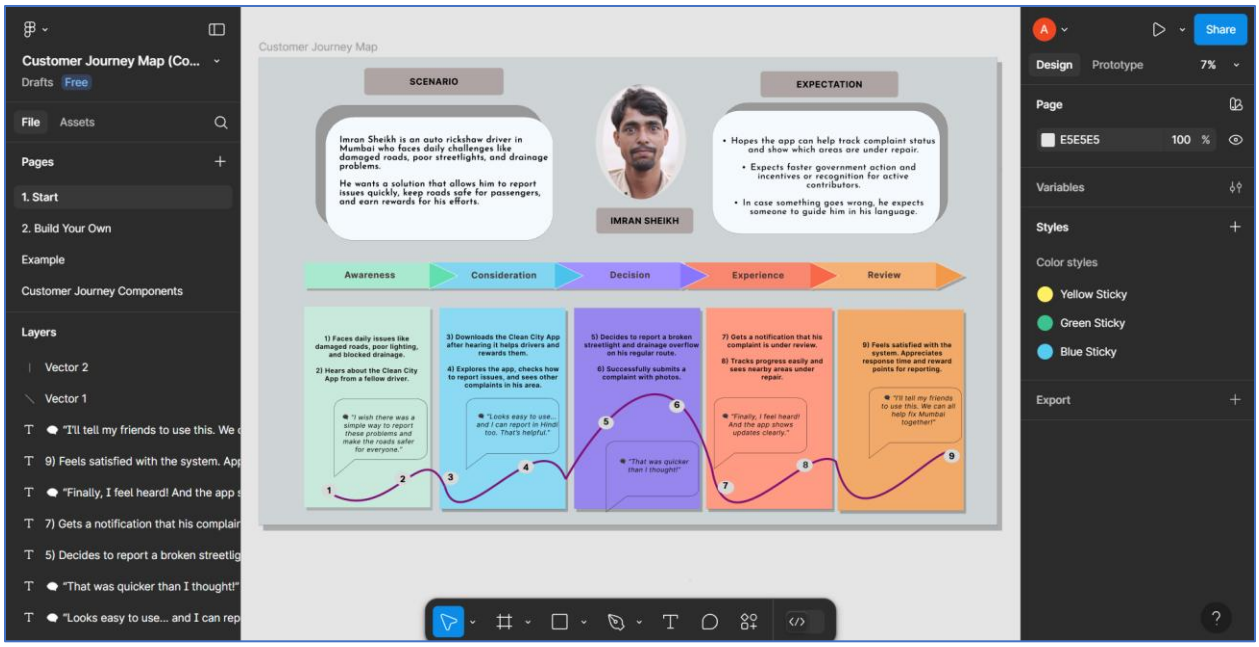
Benefits for Citizens:

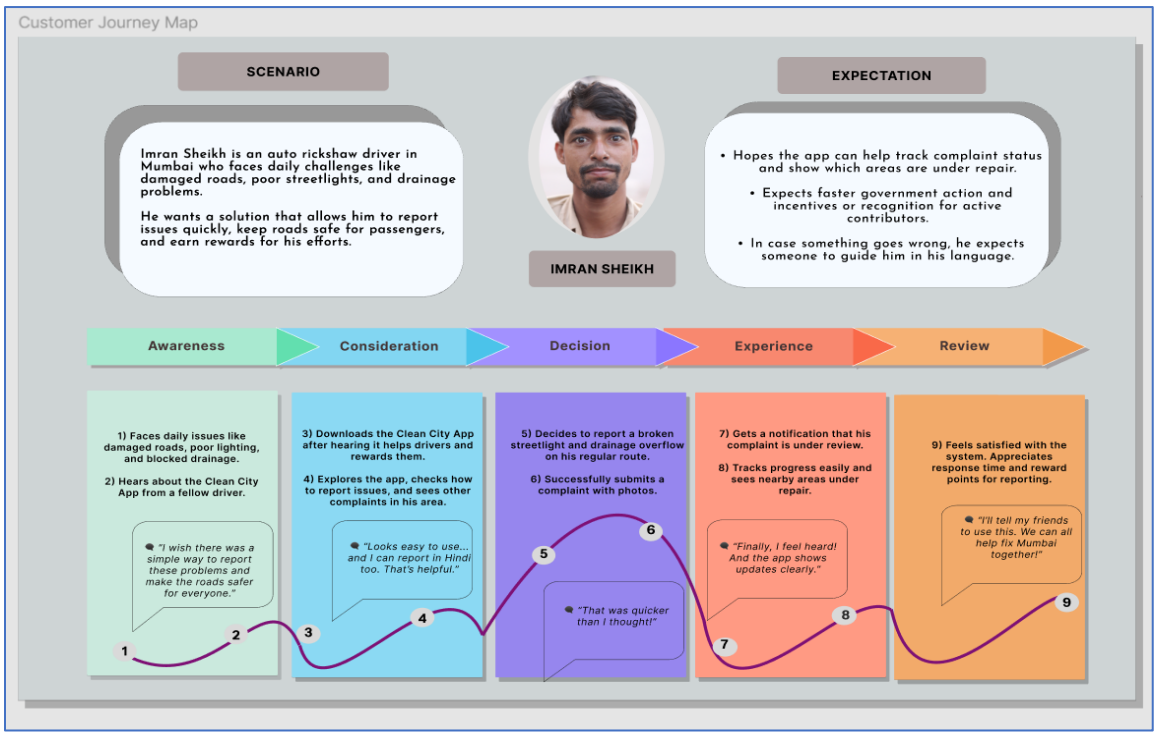
- **Raise Your Voice:** Users can report cleanliness-related issues quickly by uploading photos and writing a brief description.
- **Learn and Educate:** The app provides learning content and allows users to create and share educational videos to promote hygiene awareness.
- **Save and Share Posts:** Users can like, save, and spread awareness by sharing content with others, encouraging community involvement.
- **Local Focus:** Complaints are tagged with the user's locality, helping the system prioritize local issues effectively.
- **Get Support:** A dedicated Help Center allows users to contact support for help or guidance.

EXPERIMENT NO. 5

Q. Design a user persona.

LINK: https://www.figma.com/design/Rihzz0vhu3BioSZcSLS8uB/persona?node-id=0-1&p=f&t=PTmNDY3r9PzwbDF4-0



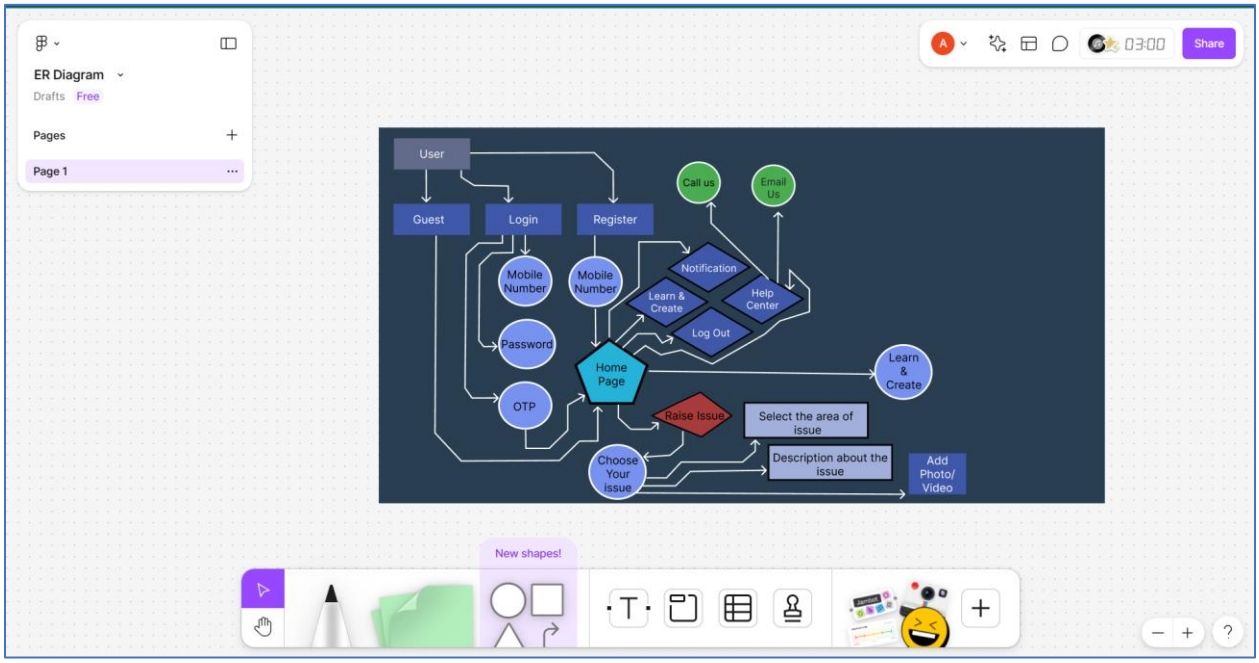


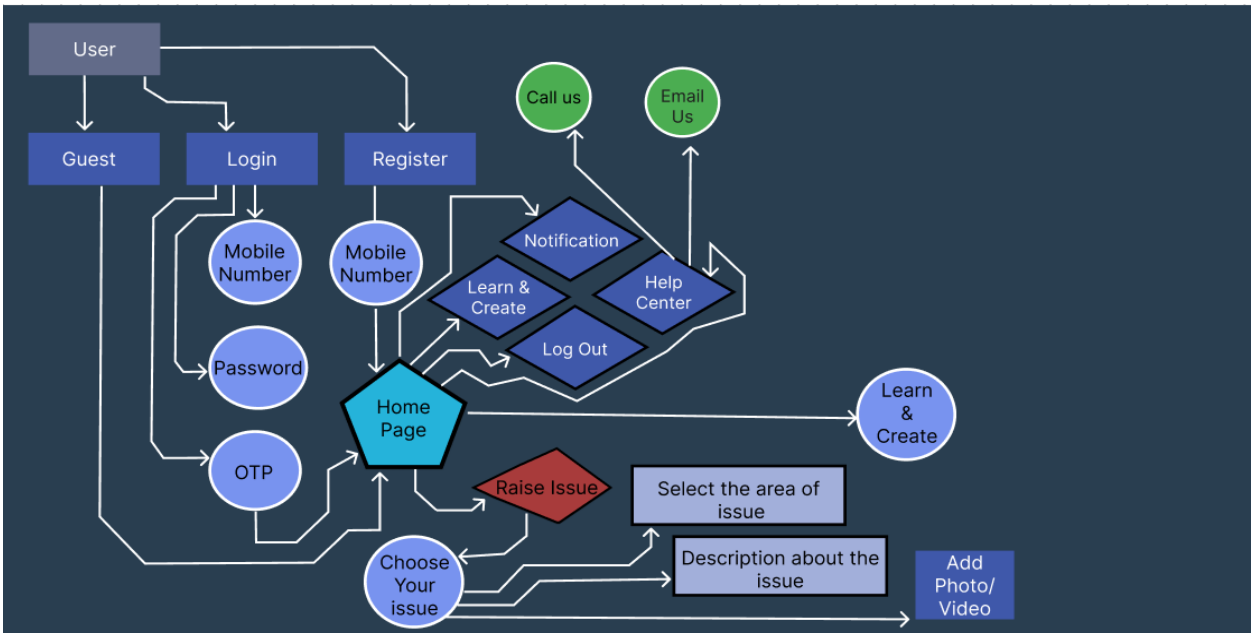
EXPERIMENT NO. 7

Q. ER (Entity Relationship) Diagram.

Go Green (Clean City App)

LINK: https://www.figma.com/board/WGC87jVVTpH1SzFEyuE0jV/ER-Diagram?node-id=0-1&p=f&t=u3Vz3e8vDO7m4gGL-0

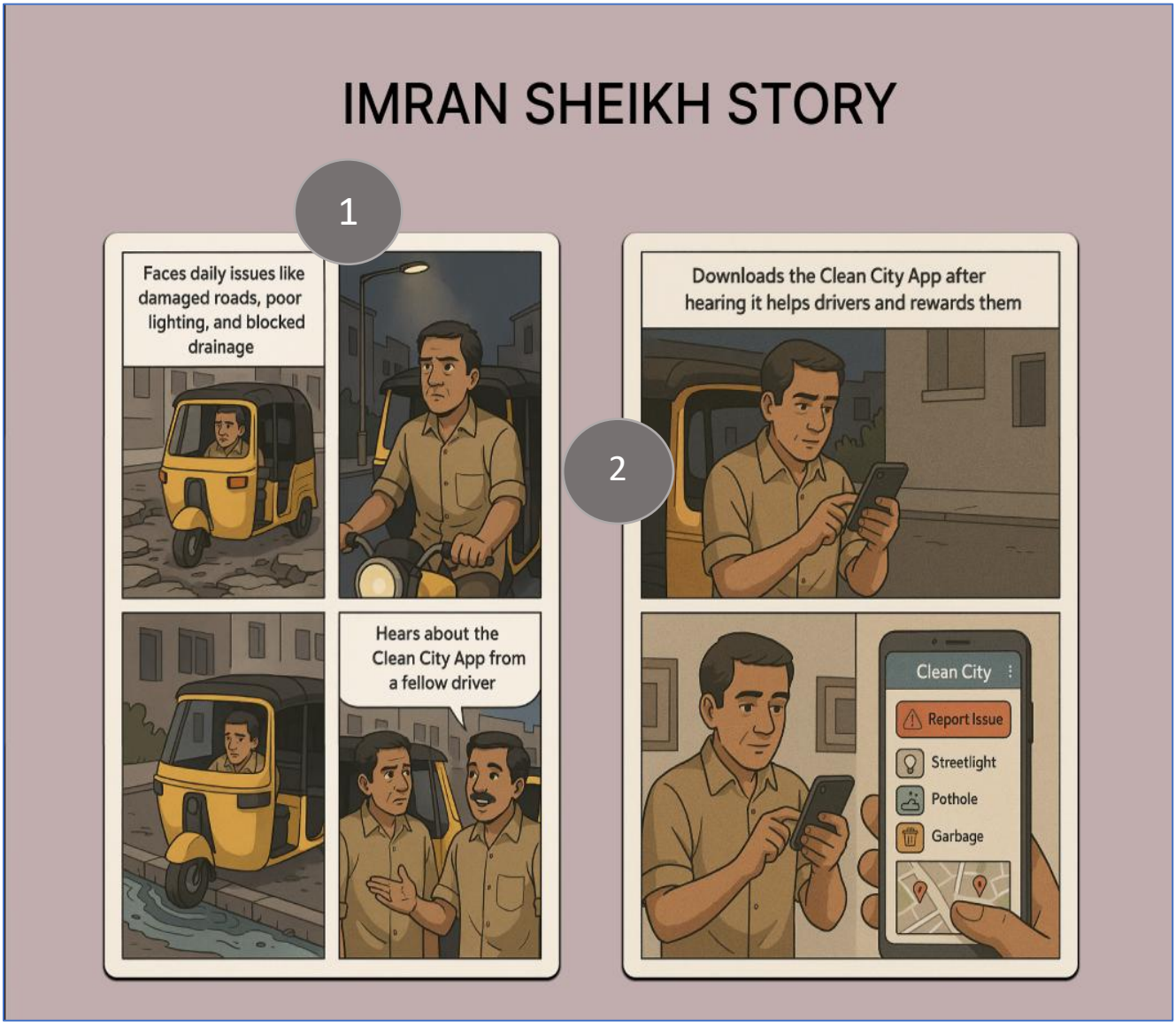




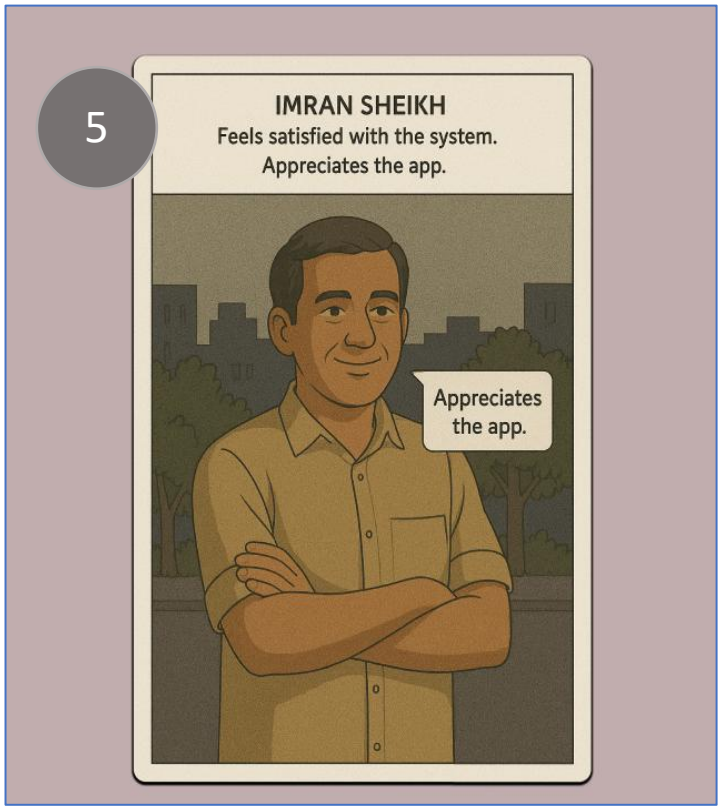
EXPERIMENT NO. 8

Q. Creation of scenario – Story Board.

LINK: https://www.figma.com/design/AfuE86iRngM86SNmIdR2q3/Story-Board?node-id=0-1&p=f&t=PTmNDY3r9PzwbDF4-0

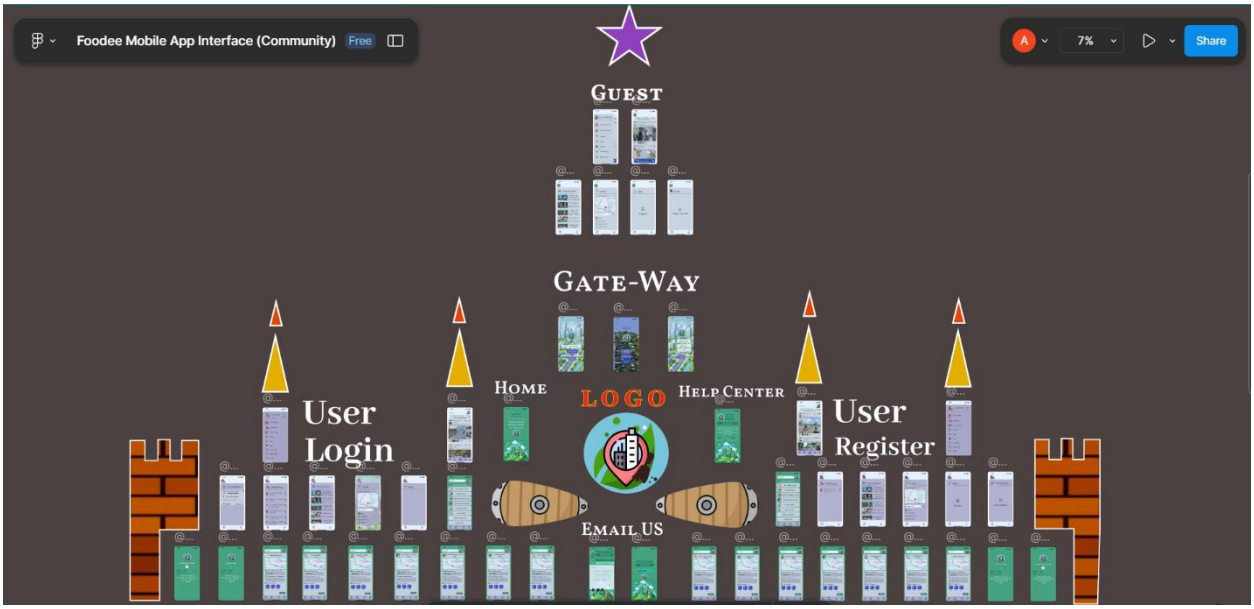


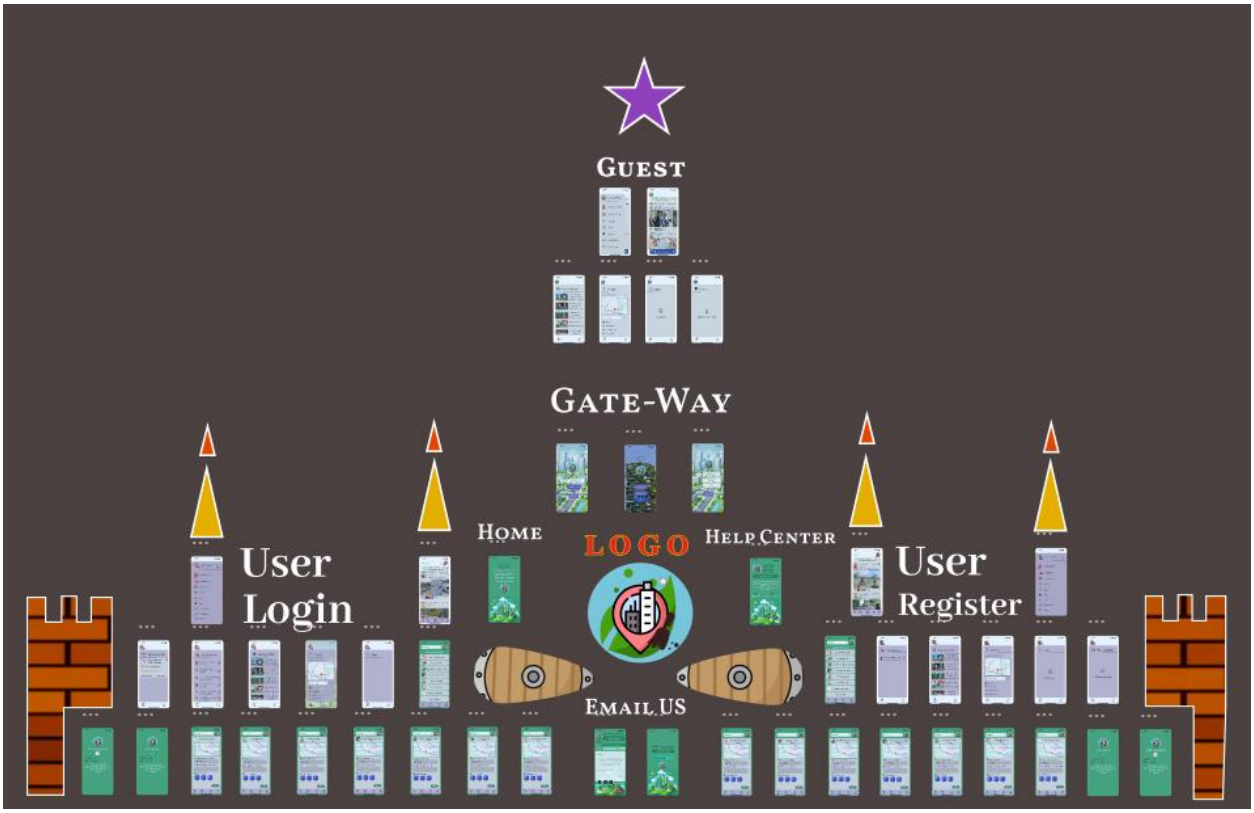

3
Decides to report a broken streetlight and drainage overflow on his regular route
Clean City
Report Issue
Broken Streetlight
Drainage Overflow
Complaint submitted successfully
4
Gets a notification that his complaint is under review.
Complaitt Review
Clean City
Tracking
Under Review
NEARBY WORK


5
IMRAN SHEIKH
Feels satisfied with the system.
Appreciates the app.
Appreciates the app.

EXPERIMENT NO. 9

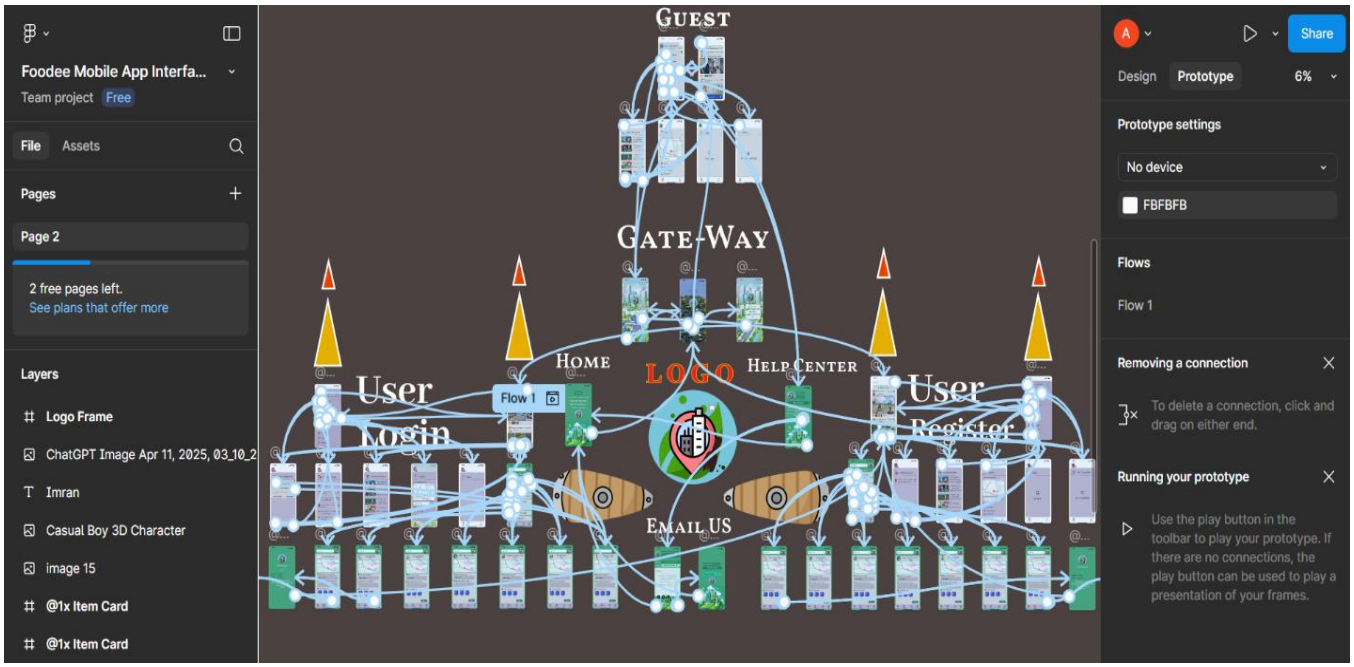
Q. Create Wireframing.

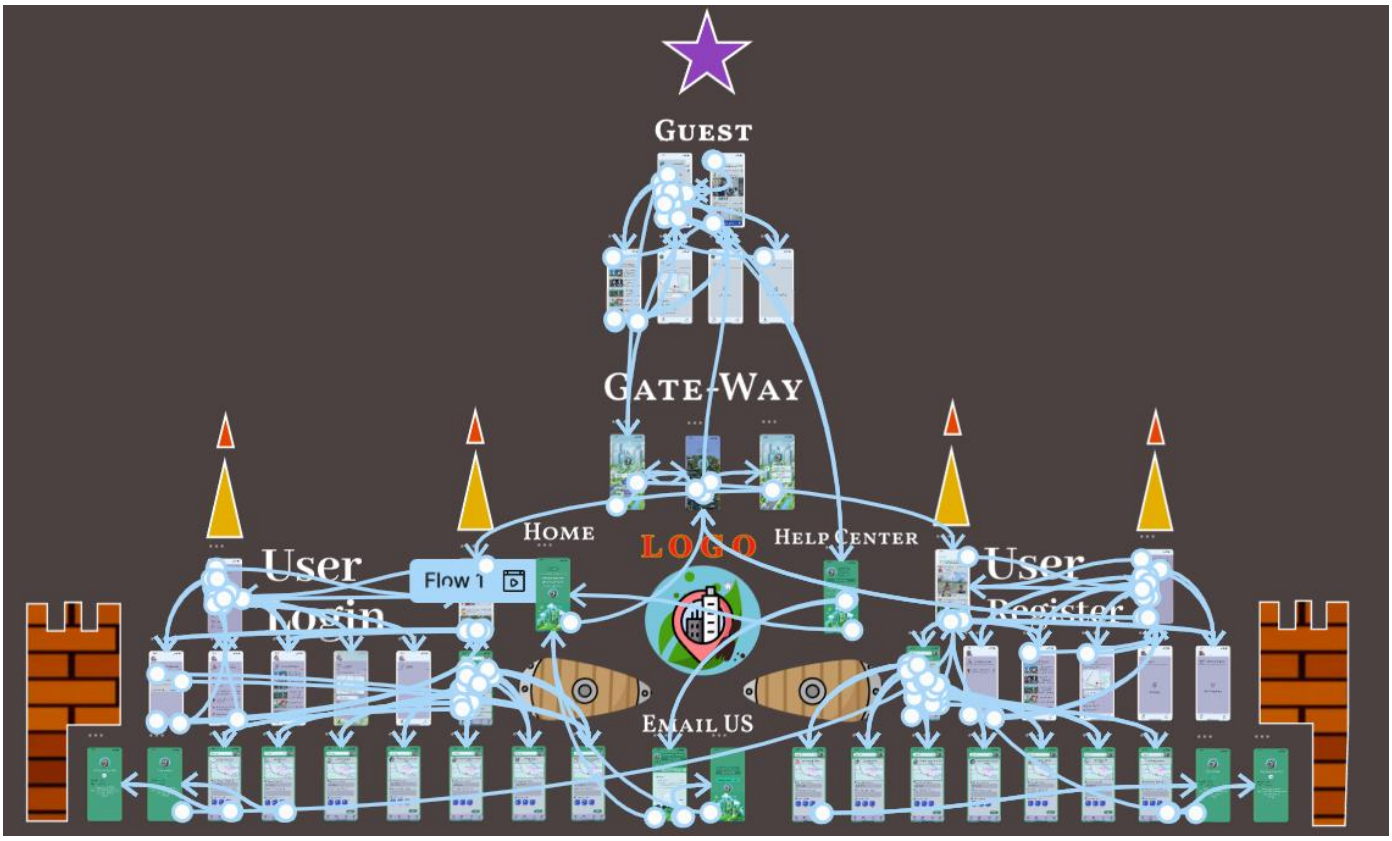




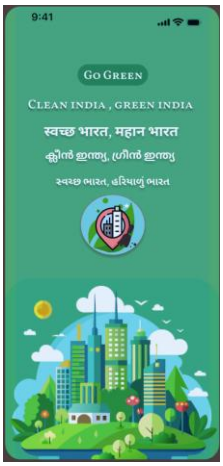
EXPERIMENT NO. 10

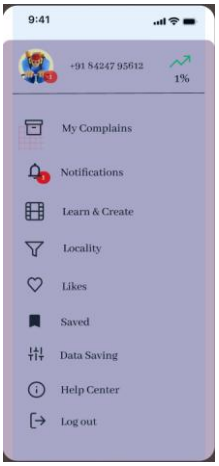
Q. Create Prototyping.

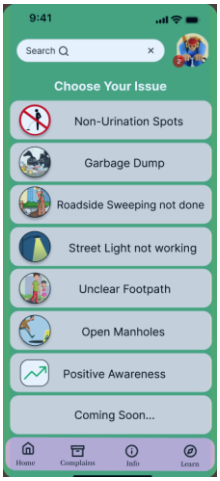


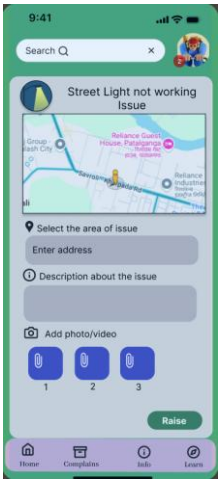


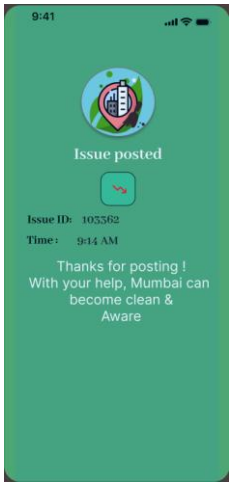
Prototyping Execution:

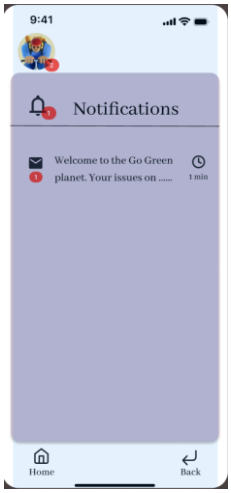












EXPERIMENT NO. 11

Q.Usability Evaluation of the Design. Testing of User Interface from third party (Test scripts).

Testing in software development is the process of evaluating a system or its components to identify any defects or ensure it meets the required specifications. The main goal is to find bugs and improve the quality, performance, and reliability of the software.

Types of Testing:

- **1. Functional Testing**

Functional testing ensures that the software works as expected according to the functional requirements. It checks *what* the system does (like login, signup, payment features) rather than *how* it does it.

✔ Example: Checking if a user can successfully log in with the right credentials.

- **2. Non-Functional Testing**

Non-functional testing focuses on the *performance, usability, scalability, and reliability* of the system. It tests system behaviour under various conditions instead of specific functions.

✔ Example: Checking how fast a website loads under heavy traffic.

- **3. Unit Testing**

Unit testing checks individual components or functions of a program to ensure they work independently. Usually done by developers using testing frameworks (like JUnit or PyTest).

✔ *Gorilla Testing* (a part of unit testing) involves testing one module repeatedly to find any hidden bugs by applying random or repetitive inputs.

🔹 4. Integration Testing

This verifies that multiple modules work together properly. It ensures that data is passed correctly and interactions are smooth.

✔ Types include:

- **Component Integration Testing**: Testing related components together.
- **System Integration Testing**: Testing full systems/modules in combination.

🔹 5. System Testing

This is a full end-to-end test of the entire software system to ensure all features and functions work correctly in the complete integrated environment.

✔ Includes:

- **End-to-End Testing**: Simulates real user scenarios.
- **Smoke Testing**: Quick check to see if basic features work after a build.

🔹 6. Acceptance Testing

Ensures the software is ready to be accepted by the user/client.

✔ Includes:

- **Alpha Testing**: Done by internal staff before release.
- **Beta Testing**: Done by actual users before final release.

🔹 7. Security Testing

This type ensures that the application is secure from external threats, hackers, and unauthorized access.

✔ Includes:

- **Penetration Testing**: Simulating an attack to find vulnerabilities.

🔹 8. Performance Testing

Checks how well the application performs under expected and unexpected workloads.

✔ Includes:

- **Load Testing**: Tests under expected user load.

🔹 9. Usability Testing

Focuses on how user-friendly the application is. It checks the ease of use, navigation, layout, and whether the design is intuitive.

✔ Includes:

- **Exploratory Testing**: Testers explore the app freely to find issues.

🔹 10. Compatibility Testing

Verifies that the software runs smoothly across different devices, browsers, operating systems, and networks.

✔ Includes: **Cross-Browser Testing**: Chrome, Firefox, Safari, etc.

Clean City App Testing:

Sr. No	Action	Input	Expected Output	Actual Output	Test Result	Test Comment
1	Register (Valid Mobile No)	Enter mobile number	OTP sent to entered number	OTP received	Pass	Registration flow working
2	Register (Existing Mobile No)	Enter already registered mobile no	Error: "Mobile number already registered"	Error message shown	Pass	Prevents duplicate registration
3	Register (Invalid Mobile No)	Enter less than 10 digits	Error: "Enter a valid mobile number"	Error shown	Pass	Validates phone format
4	Login (Valid - Mobile, Password, OTP)	Enter correct mobile no, password, and OTP	User logged in successfully	Login successful	Pass	Login flow works
5	Login (Invalid OTP)	Enter valid mobile no and password, wrong OTP	Error: "Invalid OTP"	Error shown	Pass	OTP validation working
6	Login (Incorrect Password)	Enter correct mobile no, wrong	Error: "Invalid password"	Error message displayed	Pass	Password validation corrects

		password and correct OTP				
7	Login (Unregistered Mobile No)	Mobile no not registered	Error: "Mobile number not found"	Error shown	Pass	Checks registration before login
8	Login (Missing Fields)	Submit empty form	Error: "All fields required"	Error shown	Pass	Mandatory field validation
9	Guest Mode Access	Tap “Continue as Guest”	App opens with limited access	App entered as guest	Pass	Guest access works
10	Raise Complaint	Image, description, location	"Complaint submitted successfully"	Complaint posted	Pass	Complaint system works
11	Complaint Without Image	Submit without image	Error: "Please upload an image"	Error message shown	Pass	Validation corrects
12	Learn – Play Video	Tap on video	Video plays	Video streamed	Pass	Learning content working
13	Create Video Awareness Post	Upload video, add title	Post uploaded and displayed	Post shown	Pass	Awareness post functional

14	Like Post	Tap like	Like count increases	Count incremented	Pass	Working fine
15	Save Post	Tap save	Post added to saved list	Saved successfully	Pass	Save option works
16	View Locality-based Posts	Open home with locality filter	Shows posts from same locality	Locality-wise posts displayed	Pass	Filter works
17	Missing Location in Complaint	Submit without location	Error: "Location required"	Error displayed	Pass	Required field validation
18	Help Center Access	Tap Help Center	Chat/email/contact options visible	Help screen opened	Pass	Support available
19	Logout	Tap logout	Session ends and user returns to login/register screen	Logged out	Pass	Logout flow corrects
20	Guest Tries Restricted Action	Guest tries to raise complaint	Error: "Login to access this feature"	Message shown	Pass	Access restrictions enforced