UNIVERSITY COLLEGE OF ENGINEERING NAGERCOIL

(ANNA UNIVERSITY CONSTITUENT COLLEGE)

KONAM, NAGERCOIL – 629 004

RECORD NOTE BOOK

CCS370 - UI AND UX DESIGN

REGISTER NO:

UNIVERSITY COLLEGE OF ENGINEERING NAGERCOIL

(ANNA UNIVERSITY CONSTITUENT COLLEGE)

KONAM, NAGERCOIL – 629 004

Register No:

Certified that, this is the bonafide record of work done by ***Mr./Ms.*** ..... *of V Semester in Computer Science and Engineering of this college, in the* ***CCS370 UI AND UX DESIGN*** *during academic year 2024-2025 in partial fulfillment of the requirements of the B.E(honours) Degree course of the Anna University Chennai.*

Staff-in-charge **Head of the Department**

This record is submitted for the University Practical Examination held on .....

Internal Examiner **External Examiner**

LIST OF EXPERIMENTS

Ex.no :1a Date	Introduction to UI and UX

User Interface:

UI stands for User Interface or User Interface Design. It's also sometimesknown as user interface engineering. UI is the design of user interfaces for machines: how a product looks and feels, not how it functions. UI Design is the process of making the user's interaction as simple and efficient as possible, in terms of accomplishing their goals (also known as user-centered design). UI design is the merger of user needs and visual design. The result of UI design is a set of high-resolution wireframes (a visual representation of a product).

User Experience:

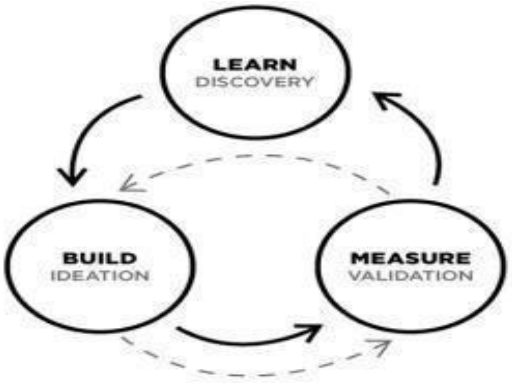
UX stands for user experience or user experience design. It's also sometimes abbreviated as UXD, UED or XD. UX is the naked experience of a product: how a product functions, not how it looks. UX Design is the process of enhancing user satisfaction of a product through increased usability, accessibility, and pleasure provided in the interaction with the product. User experience design encompasses note only traditional human–computerinteraction design, but also all aspects of a product or service as perceived by users. UX design is the merger of user needs, business vision and technological feasibility. The result ofUX design is a set of flow-resolution wireframes (a basic visual guide for how a product will function) that are deeply connected with user research.

Process of UX:

UX has 3 key phases:

discovery, ideation, and validation.

However, UX design is cyclical and you will often need to repeat certain steps and even the entire process multiple times. The final outcome will be a set of low-resolution wireframes: a draft of the function and structure of a product.



UI/UX BASICS:

1. Discover

UX always starts with discovery—interviewing potential customers to understand what the target audience needs and talking to stakeholders to understand their goals and competitive analysis. Discovery is all about WHY - xxx. During discovery you will validate your problem (your product is there to solve that problem), identify your end users, and determine project goals.

Methods:

- User Research (Interviews, Ethnography)
- Empathy Mapping
- Task Analysis
- Stakeholder Mapping
- Service Blueprints
- Analytics and Heuristics
- Competitive Analysis

Outcome:

Problem Validation, User Personas, Project Goals

2. Ideate

Next comes ideation using a variety of tools to imagine a solution that solves the user problem, while aligning with the company goals within technological possibility. Ideation is the process of finding on HOW. Designers will implement a variety of tools to figure out how to solve the user problems. This process is very much like a funnel, where the solution is very wide at the beginning, and the goal of the process is quickly, envision and test products with target customers in order to pivot and define. During ideation you will organize your discovery, explore options, and develop wireframes and prototypes.

Methods:

- Sketching Wireframes
- Information Architecture
- Journey Mapping / Page Flows
- User Journey Writing
- Paper Prototypes
- Interaction Design

Outcome:

Solution Exploration

3. Validate (Test, Prototype)

The UX process ends with validation—the testing of wireframes and prototypes to iterate on the interface until it's intuitive and delightful. Validation is when we finally know WHAT we're building. During this phase, designers will create wireframes or prototypes, and test them with users during a process called usability testing to evaluate how an actual user will react to the product. The designer observes, asks open-ended questions and iterates on the wireframes based on this feedback. Validation testing is giving those wireframes or prototypes to real users. You're tracking actual interaction with the prototype here as well as confirming previously held assumptions. The results of validation testing should be changes inflow and layout, though likely not scope anymore. During validation you will validate your ideas, learn, and plan for the next iteration.

Methods:

- Accessibility
- Usability
- Testing
- Feedback integration
- Interactive Design
- Retrospectives Release

Outcome:

Solution Scalability, Low-Res Wireframes

Result:

Thus, the introduction to UI/UX was written and explored.

Ex.No: 1b Date:	Design a Responsive Layout for the Societal Application

Aim:

To design responsive layout for a societal application using figma.

Procedure:

•Open your web browser and go to figma.com.

•Look for a button that says Sign in at the top-right corner of the page and click on it.

•You will see a box where you can type your email address or the username you used to sign up for Figma.

•Below the email or username box, there's another box for your password. Type in the password you chose when you signed up.

•Once you have entered your email/username and password, click on the "Log in "button below.

•Take a look around your Figma dashboard to see your projects, recent files, and other info.

Steps

•Click on frame icon, and select the frame size on the right corner.

•Set status bar using shape tool by using draw a rectangle.

•Insert the things like clock, signal, battery using text tool and shapes tool.

•And group it using Ctrl+G or right click and select group selection.

•Create nave bar using shapes tool and add icons with the plugins.

•Click on the resources icon and choose the plugin option, search for icon duck plugin then enter the resource name you need for nav bar icon.

•Create search bar using a rectangle and add some highlights.

•Create the product section by adding a shape from the shapes tool and add image by using the add image option in the shapes tool select the image form your local device.

•Next create the events section in the bottom that is same like the product section.

•Create a new frame and create event page.

•First add the back navigation arrow in the top of the page by creating the shapes tool and add the arrow by using the plug in, and group it.

•Add the event by using the shapes tool and add image for the event and also buttons, some decorations on it.

•Now duplicate the first created event bar using Ctrl+D shortcut and move the duplicate for the next event.

•Do this for fill the page.

Prototype:

•To create prototype, select the prototype section in the Inspector side.

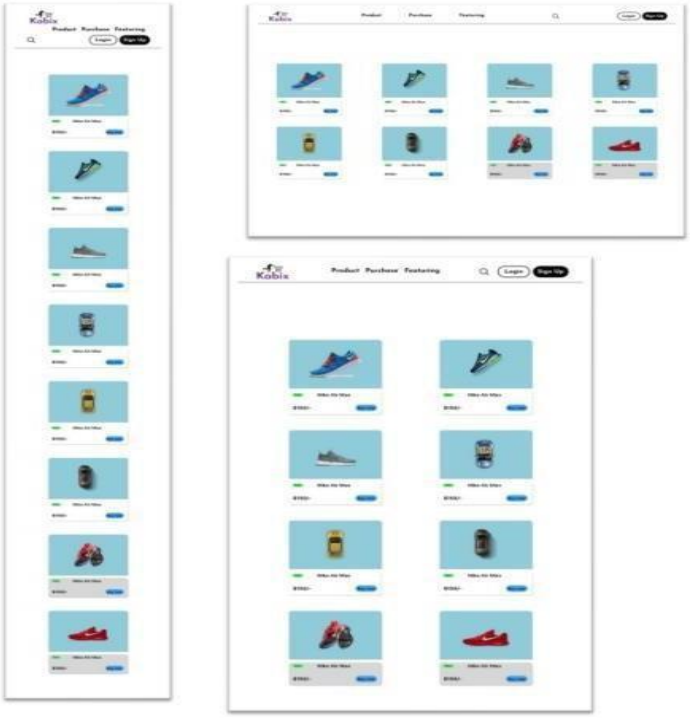
•Click the component that you want to redirect to the next page.

•And click the plus icon and drag and drop to the next page.

•Go to Event page and click the arrow and click the plus icon and drag and dop to the home page.

•Now press the play button in the inspector panel.

•The page redirect to the prototype section that page guide you to the next step for the prototype



Result:

Thus, the responsive layout was created successfully.

Ex.No: 2 Date:	Exploring various UI Interaction Patterns

Aim:

Exploring various UI Interaction Patterns.

Definition:

UI pattern design refers to the process of creating reusable design systems for common user interface (UI) problems. It helps to improve the usability and consistency of user interfaces, making it easier for users to navigate and interact with digital products.Explore the important aspects of user interface design and learn more about how it helps to create more efficient and user-friendly digital products.

Importance of UI Pattern Design:

UI pattern design is important because it simplifies the design process and makes it more efficient.

Some of the benefits of UI pattern design are mentioned further:

Consistency: UI patterns provide consistency to user interfaces. Users are accustomed to certain patterns, and they expect to see them across different interfaces.

Reduced Learning curve: UI patterns reduce the learning curve for users. Once they learn how to interact with a pattern, they can apply that knowledge to other interfaces that use the same pattern.

Better User Experience:

UI patterns are designed to be user-friendly. They make it easy for users to interact with interfaces and achieve their required goals.

Common UI Design Patterns:

Common UI (User Interface) design patterns are recurring solutions or best practices that designers and developers use to solve specific design problems. These patterns help create a consistent and user-friendly experience for users.

Some common UI design patterns are mentioned below:

- **Navigation Patterns:** Navigation patterns, such as the navbar, sidebar menu, and tabs, provide users with structured and intuitive ways to move between different sections or pages within a website or application.

- **Form Patterns:** Form patterns, including input fields, form validation, and wizards, facilitate the collection of user input, ensure data accuracy, and guide users through complex data entry processes.

- **Card Patterns:** Card patterns, featuring individual content containers, enable the structured and visually appealing display of items like articles, products, or user profiles within a user interface.

- **Carousel Patterns:** Carousel patterns, such as image carousels and testimonial carousels, create dynamic and engaging displays of content, allowing users to cycle through images or testimonials for an interactive experience.

- **Input and Feedback Patterns:** Input and feedback patterns are used to design interfaces that provide users with feedback when interacting. The UI/UX design examples of input and feedback patterns include tool tips, progress bars, and error messages. These patterns help improve the user experience by providing clear and concise feedback on their actions.

- **Content Display Patterns:** Content display patterns are used to design interfaces that present content in an organized and easy-to-read manner. Examples of content display patterns include grids, carousels, and lists These patterns help improve content's readability and make it easier for users to find the information they seek.

- **Interaction Patterns:** Interaction patterns are used to design interfaces that allow users to interact with the Application. Examples of interaction patterns include drag and drop, swipe, and pinch to Zoom. These patterns help create a more engaging user experience by providing intuitive and natural ways to interact with the interface.

- **Responsive Design Pattern:** Responsive design adapts user interfaces to various devices using fluid grids, flexible images media queries, and modern CSS. It prioritizes mobile, enhancing features for larger screens ensuring a consistent, user-friendly experience across devices.

User Design Pattern Libraries: User design pattern libraries, also known as UI component libraries or design systems, are collections reusable design elements and components that streamline the process of creating user interfaces.

Several popular design pattern libraries and frameworks are as follows:

- **Material-UI:** A popular UI framework based on Google's Material Design guidelines. It offers a wide range of pre-designed components for web applications.

- **Apple's Human Interface Guidelines (HIG):** Apple provides design guidelines, templates, and resources for creating iOS and macOS applications following Apple's design principles.

• **Atlassian Design System**: Created by Atlassian, this design system and component library offers a unified approach to building applications and products for teamwork and collaboration.

• **Bootstrap:** A widely used open-source CSS framework with a set of pre-designed components and styles to create responsive and visually appealing websites.

• **Ant Design:** A design system and UI library developed by Alibaba, providing a collection high-quality component for building web and mobile applications.

Result:

Thus, exploring various UI Interaction Patterns were executed.

Ex.no:3 Date:	UI Style Guides

Aim:

To Develop an interface with proper UI Style Guides.

UI Style Guides:

User interface style guides are design guidelines or standards and a development tool for designing UI elements and interactions for various websites or app products. These documents usually contain the essential details relating to your product's user interface to ensure consistency across different screen sizes, design teams, companies, and brands.

1. Color Palette:

Specifies the colors used in the interface, including primary and secondary colors, as well as their use in different contexts.

2. Typography:

Defines the font choices, sizes, and styles for various text elements such as headings subheadings, and body text.

3. Layout and Grid System:

Establishes a grid system for layout consistency, defining margins, padding, and spacing.

4. Icons and Imagery:

Provides guidelines for the use of icons, images, and other visual elements, ensuring a cohesive design.

5. Buttons and Forms:

Defines the styles and states of interactive elements like buttons, form fields, and checkboxes.

6. Responsive Design:

Guides the adaptation of the interface to different screen sizes and devices.

7. Accessibility:

Includes guidelines to ensure the design is accessible to users with disabilities**.**

8. Animation and Transitions:

If applicable, provides guidelines for animations and transitions to enhance the user experience.

9. Documentation:

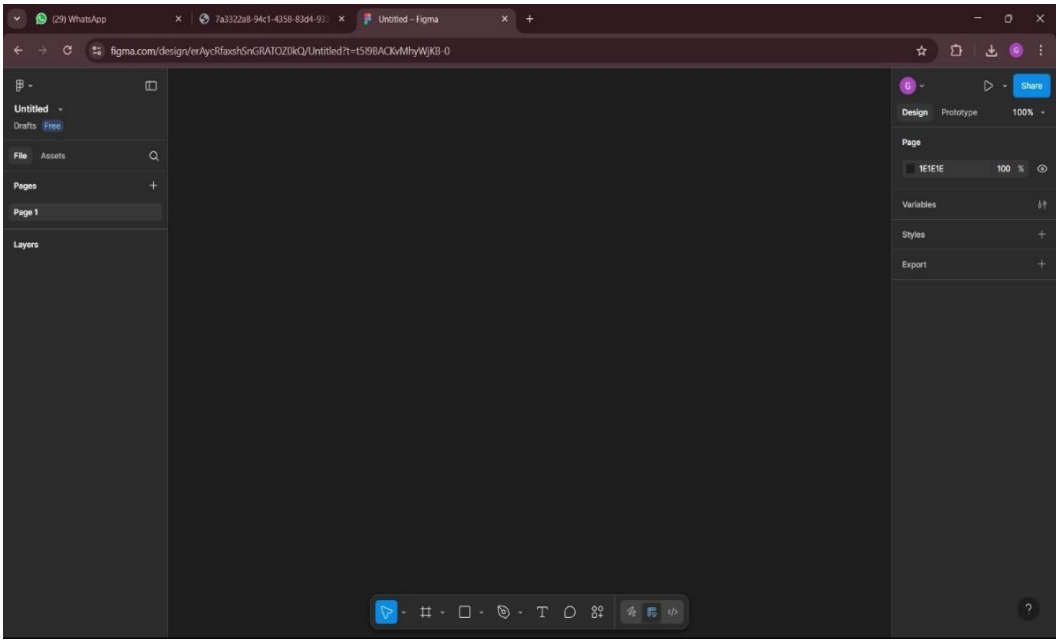
Documents the UI components with examples, code snippets, and explanations for easy implementation by developers.

10. Branding Guidelines:

Incorporates any specific branding elements or guidelines to maintain brand consistency

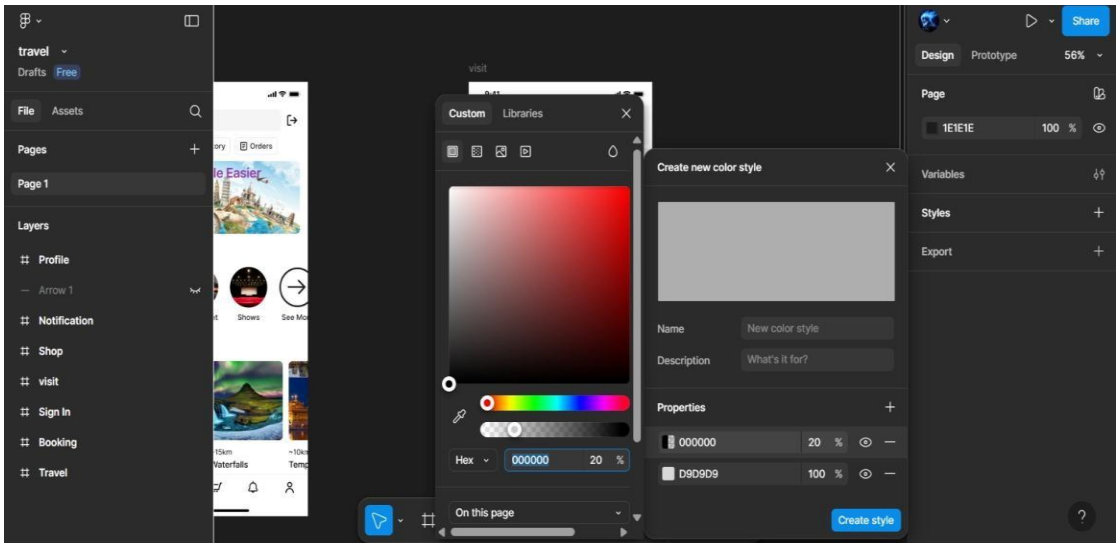
Create a Style Guide in Figma:

Open your Figma file and select a frame.



Choose a Color Palette:

Step 1: Choose your color categories Choose three categories of colours: a primary colour, a secondary colour, and greys (neutral)



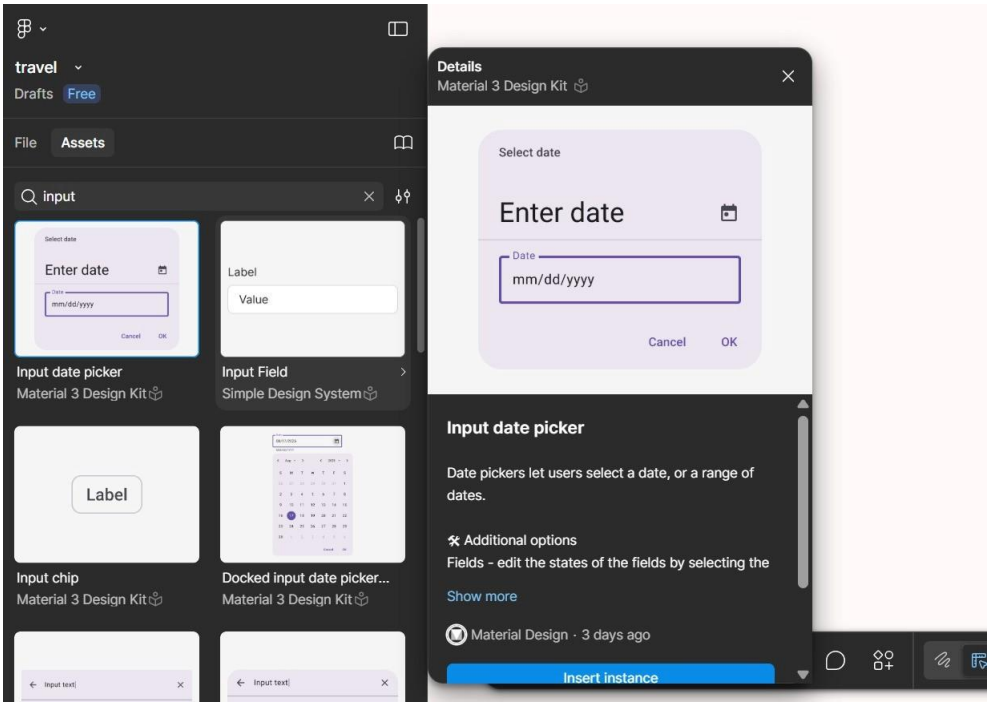
Generate Shades for the Colours Generating shades for your colour palette helps cater to varied use cases. The Figma plugin Tints and Shades helps you generate colour shades

Define Your Input fields

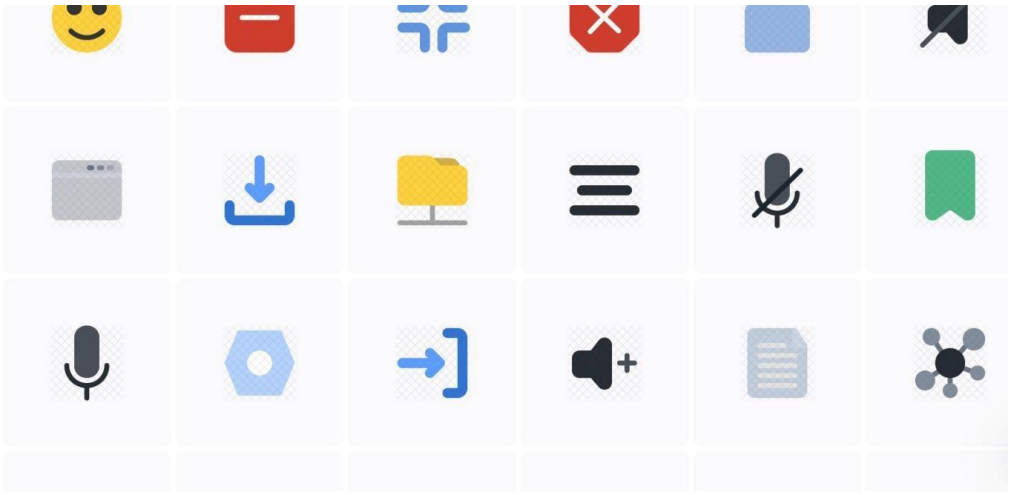
Input fields, as the name implies, allow users to input text in a UI. And they need to be styled like everything else. first, as always, select a frame.

Step 1:

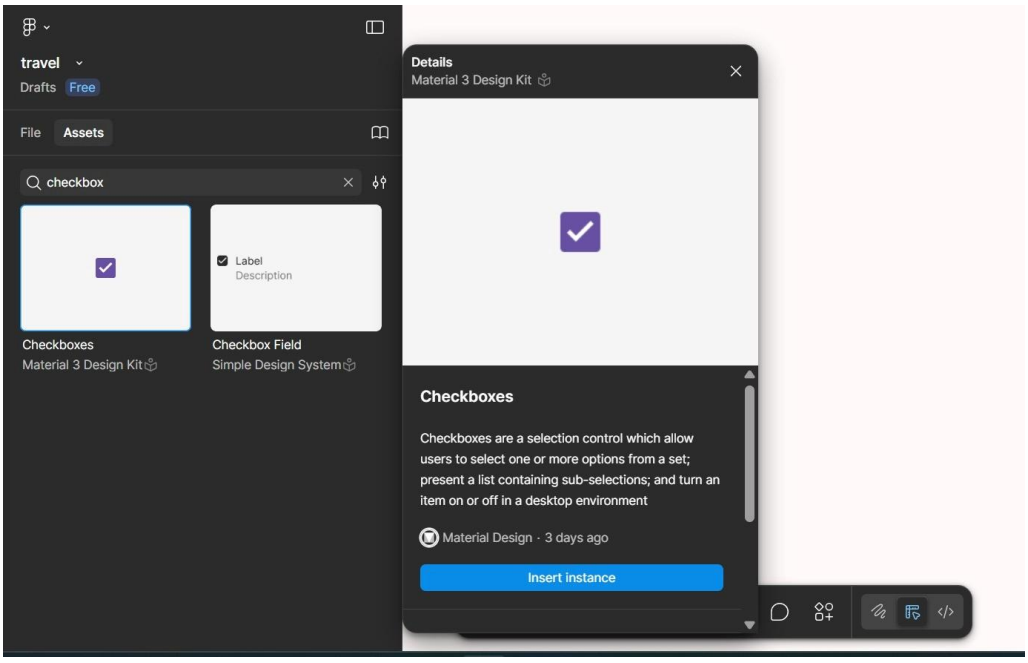
Design input fields in various states. You want to design each input field according to its state, like default, disabled, active, and error.



Step 2: Add icons to your input fields.



Design your checkboxes You'll want to include various states like enabled, disabled, hover, focused and pressed states

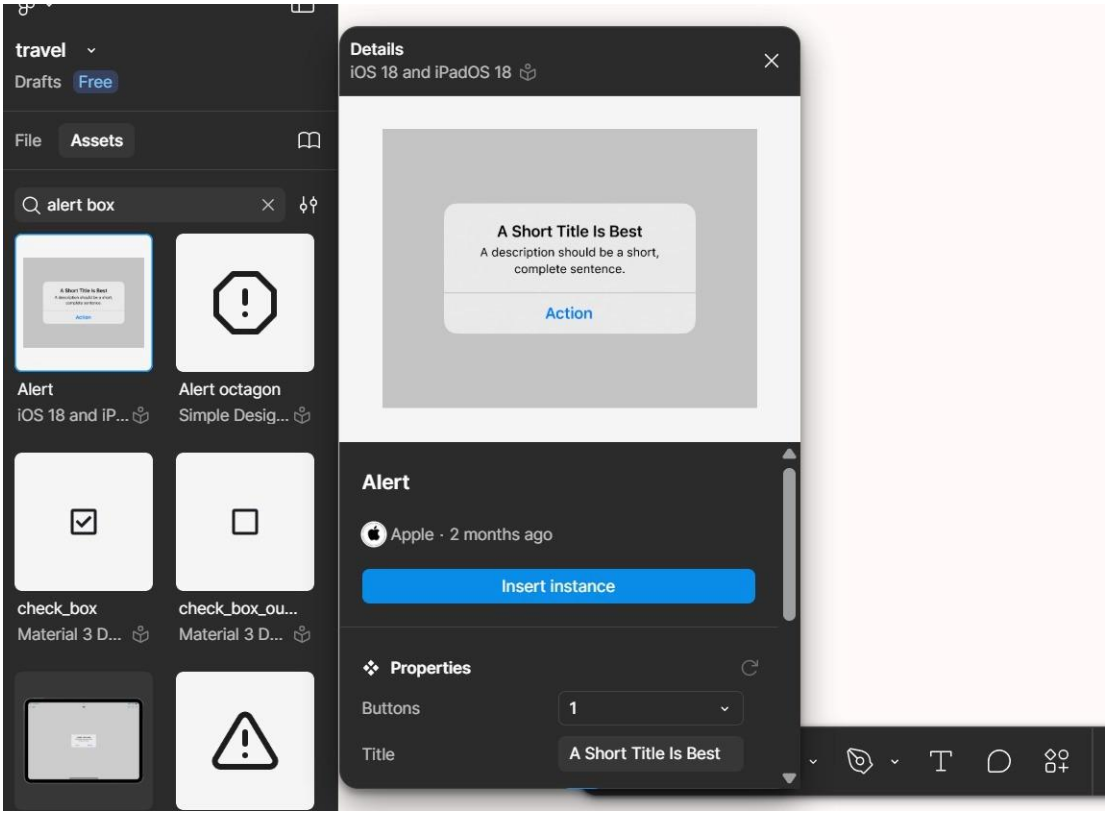


Alerts and notifications:

With real time alerts, users can get notifications of reminders, errors, successes and so on. This reduces the risk of hacking, incorrect input, and loss of important information. First, select a frame.

Step 1: Design notification and alerts

When you design your alerts, make sure to use the correct icons for warning, error, success and success states



Result:

Thus, the various style guides were explored.

Ex.no:4 Date:	**Developing Wireflow diagram for application using Opensource software**

Aim:

To develop a wire flow diagram for application using figma.

Wire flow diagram:

In UI/UX design, a wireflow diagram is a visual representation that combines elements of both wireframes and flowcharts. It provides a comprehensive view of the user interface (UI) design by illustrating the flow of screens and user interactions within a digital product. Wireflows are particularly useful for conveying not only the layout and structure of individual screens (like wireframes) but also the connections and transitions between those screens.

Key components and characteristics of a wireflow diagram:

Wireframes:

Wireframes are basic, low-fidelity representations of individual screens or pages in a digital interface. In a wire flow, each screen is depicted as a wireframe, showing the essential elements such as buttons, text, images, and other UI components.

Flowchart Elements:

The wireflow incorporates flowchart-like elements, such as arrows or lines, to illustrate the sequence of screens and the user's navigation path. These connections represent the transitions between different states or screens.

User Interactions:

Wireflows include annotations or symbols to indicate user interactions, actions, or behaviors on each screen. This helps in conveying how users move through the interface and what actions they can take.

Task Flows:

The wireflow diagram often includes task flows, outlining the step-by-step processes or user journeys within the application. This is particularly useful for understanding complex interactions or scenarios.

Annotations:

Detailed annotations are added to each screen, providing information about specific UI elements, functionality, or any additional notes relevant to the design. Annotations enhance communication between designers and other stakeholders.

Visualization of User Flow:

The primary purpose of a wireflow is to visualize the user flow within the digital product. It helps designers and stakeholders understand how users will progress through the application and experience different screens.

Collaborative Tool Integration:

Wireflows are often created using specialized design tools such as Figma, Adobe XD, Sketch, or similar applications. These tools provide features specifically designed for creating and sharing wireflow diagrams, fostering collaboration within design teams.

Iterative Design:

Like wireframes, wireflows are subject to iteration and refinement. As the design process progresses, updates can be made to the diagram to reflect changes, improvements, or new insights.

Creating a wireflow diagram in Figma tool:

1. Define User Flows:

Clearly understand and define the user flows you want to illustrate in your wireflow diagram. Identify the key screens and interactions that users will go through.

2. Create Wireframes:

Develop wireframes for each screen in your user flows. Use Figma's design tools to create simplified representations of the interface, focusing on layout, structure, and content placement.

3. Use Frames for Screens:

In Figma, each screen or wireframe can be placed within a frame. Create a frame for each screen to organize and structure your design.

4. Connect Frames:

Use Figma's line tool or arrows to connect frames, indicating the flow from one screen to another. This helps visualize how users will navigate through the application.

5. Add Annotations:

Include text annotations or notes for each frame to explain the functionality, interactions, and any dynamic elements. This adds clarity for both designers and developers.

6. Utilize Figma Prototyping:

Leverage Figma's prototyping features to create interactive links between frames. Define interactions like button clicks, transitions, and animations to simulate the user experience.

7. Review and Iterate:

Share the wireflow with stakeholders, such as team members or clients, and gather feedback. Use this feedback to iterate and refine the wireflow diagram.

8. Collaborate with Team:

Collaborate with your design team, developers, and other stakeholders. Figma allows real-time collaboration, making it easy for multiple team members to work on the wireflow simultaneously.

9. Maintain Consistency:

Ensure consistency in design elements, terminology, and interactions across the Wireflow. Figma's design system features can help maintain a cohesive user experience.

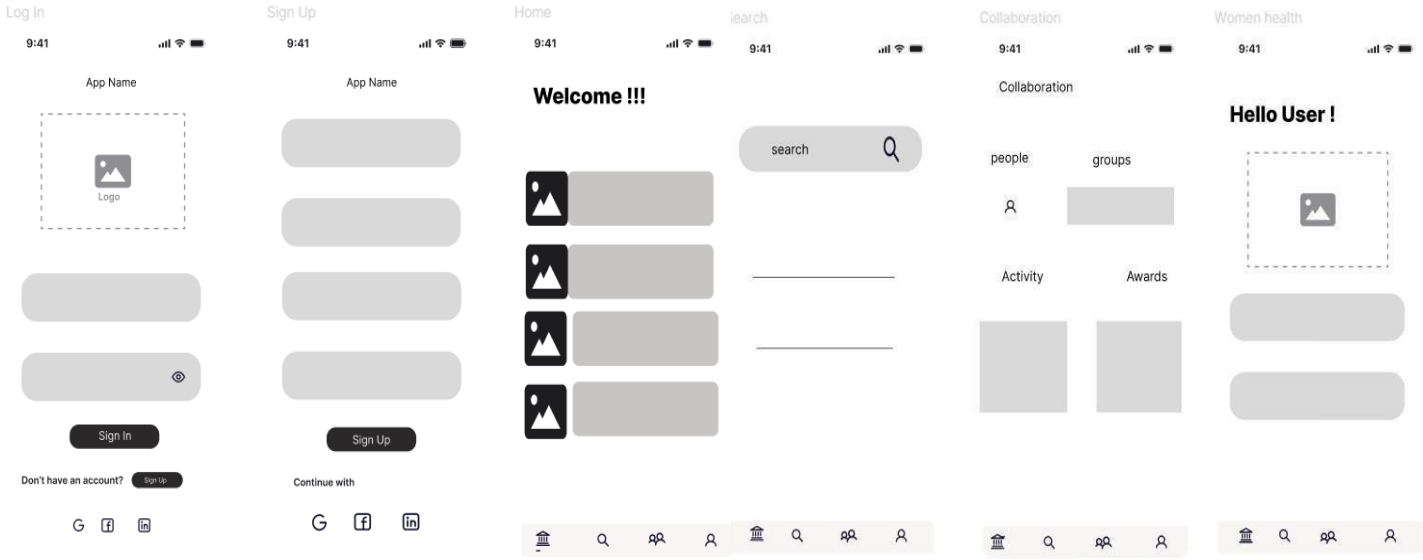
10. Use Figma Components:

If your wireflow involves recurring elements, consider using Figma components. Components allow you to create reusable design elements, ensuring consistency and making updates easier.

11. Organize Layers and Frames:

Keep your Figma project organized by naming layers and frames appropriately. This helps maintain clarity, especially as your wireflow diagram becomes more complex

Output:



Result:

Thus, the wire flow diagram for Fitness Tracking Application was developed using Figma.

Ex.no:5 Date:	**Explore various open-source collaborative interface platform**

Aim:

To explore and understand various open-source collaborative interface platform.

Open-source collaborative interface platform:

An opensource collaborative interface platform is a software platform that allows users to collaborate on projects in a decentralized and open manner. This type of platform is typically based on opensource software, which means that the code is freely available and can be modified and distributed by anyone. This makes opensource collaborative interface platforms very flexible and adaptable, as users can customize them to meet their specific needs.

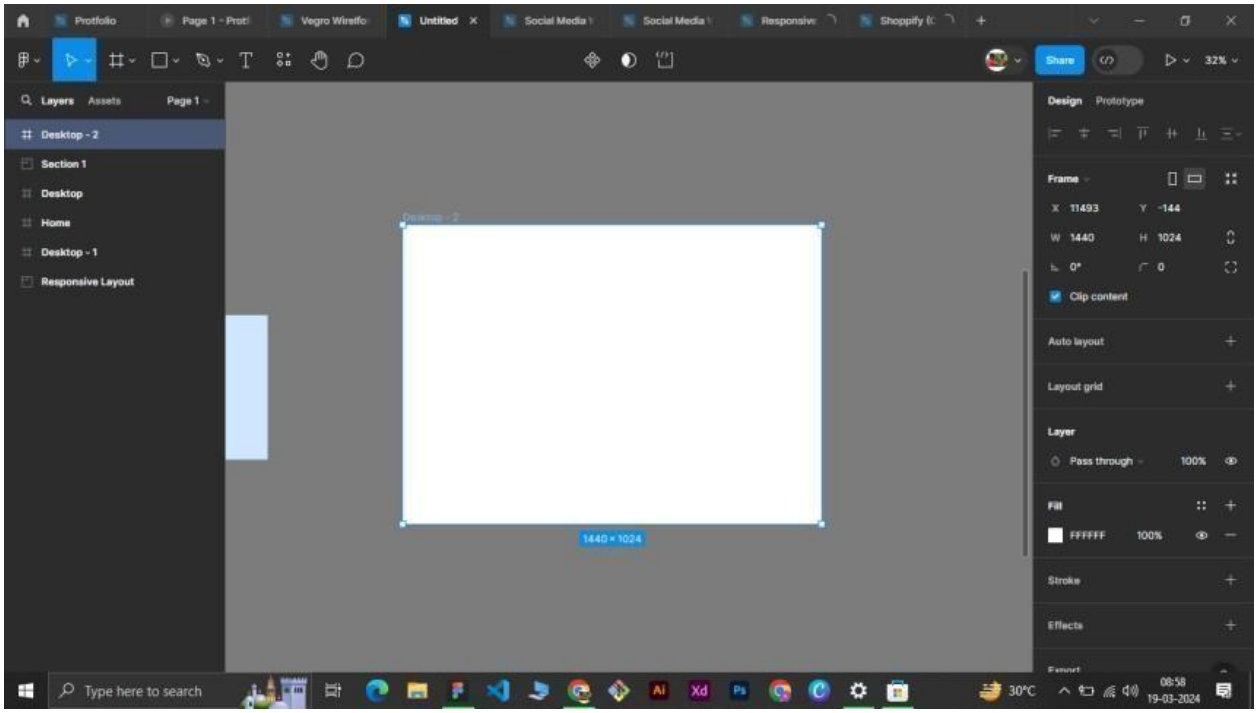
One of the key benefits of using an opensource collaborative interface platform is that it can help to reduce costs. Because the software is free to use, there are no licensing fees to pay. Additionally, opensource platforms are often very scalable, meaning that they can be used to support a large number of users and projects without incurring significant additional costs. Another benefit of using an opensource collaborative interface platform is that it can help to improve security. Because the code is open source, anyone can review it for potential security vulnerabilities. This means that any security vulnerabilities that are found can be fixed quickly and efficiently. Additionally, opensource platforms are often very well-supported by the community, which means that users can get help with any problems they encounter quickly and easily.

Finally, opensource collaborative interface platforms can help to improve transparency and accountability. Because the code is open source, anyone can see how the platform works and how their data is being used. This can help to build trust between users and the platform operators. Additionally, opensource platforms are often governed by a transparent and democratic process, which means that users have a say in how the platform is run

1.Figma:

Figma is a cloud-based design tool that allows real-time collaboration. Multiple team members can work on a project simultaneously, making it great for UI and UX design collaboration.

Features: Prototyping, design versioning, real-time collaboration, and commenting.

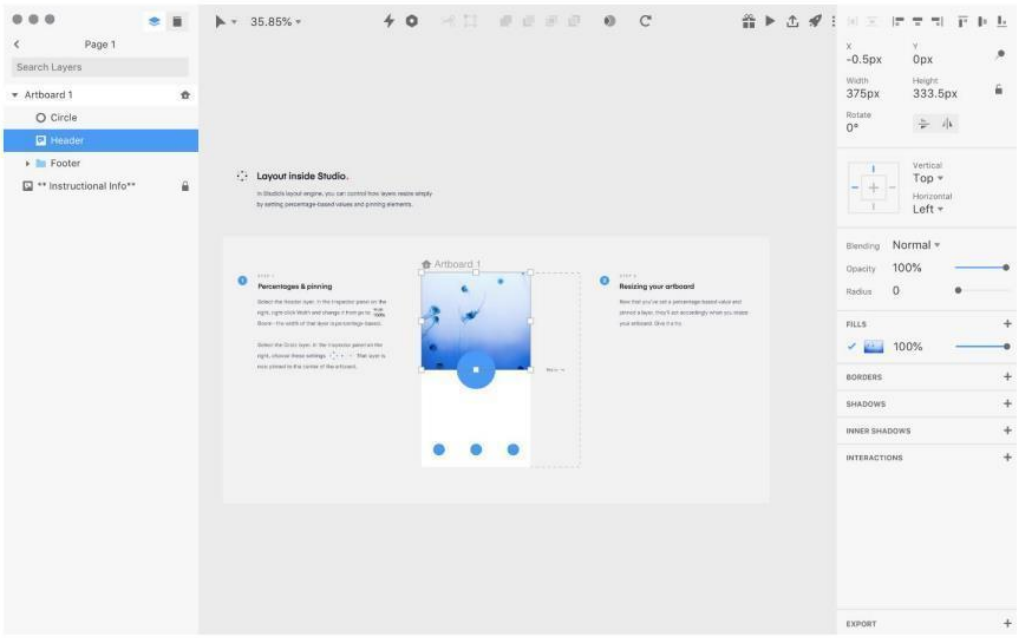


1. InVision:

InVision is collaboration-centric. The platform excels at providing a real-time workspace for seamless team alignment. It supports wireframing and prototyping and offers a plethora of resources. InVision will permit users to connect with peers and ambassadors, further enhancing the user experience.

Key Highlights:

- Seamless integrations with tools like Zoom, Slack, and Trello.
- Powerful support for wireframing and prototyping.
- Community engagement and resources for users

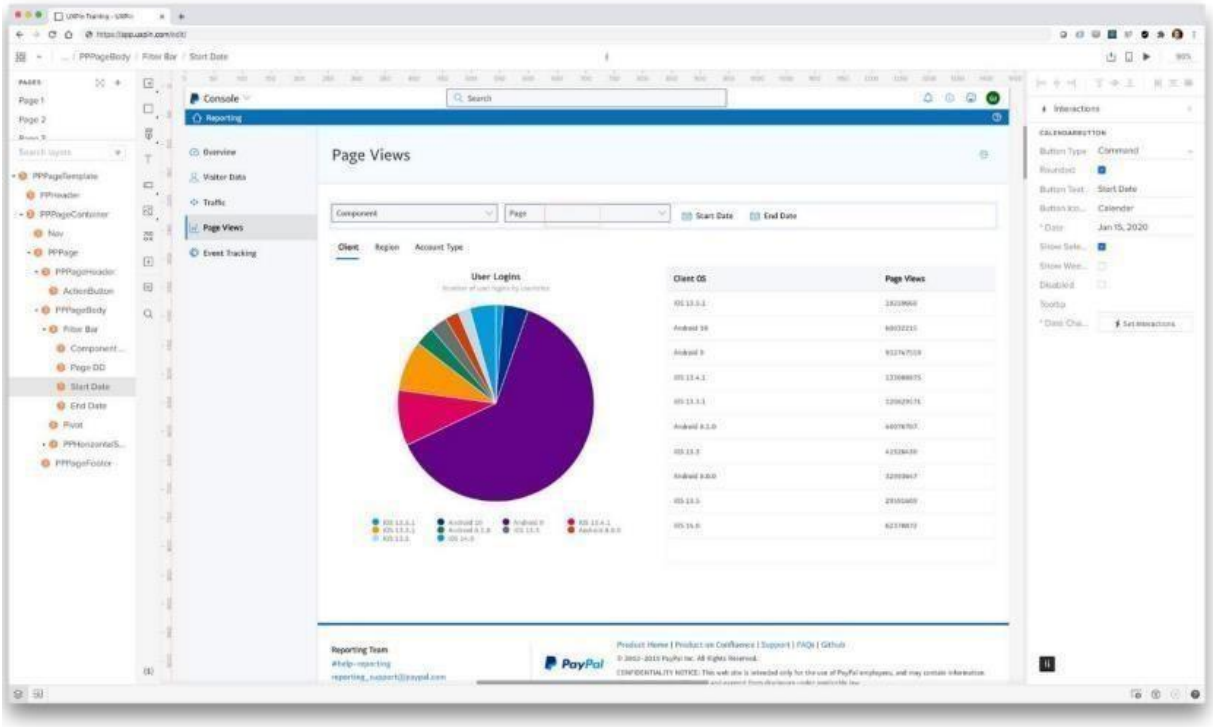


2. UXPin:

UXPin focuses on improving team efficiency by minimizing communication barriers. It empowers UX designers and developers to create consistent interfaces with ease. The platform promotes prototypes that closely resemble the final product, fostering smoother handoffs between design and development.

Key Highlights:

- Integration with NPM packages, Git repos, and Storybook
- User-friendly, codeless UI code component usage
- Built-in features for accessibility

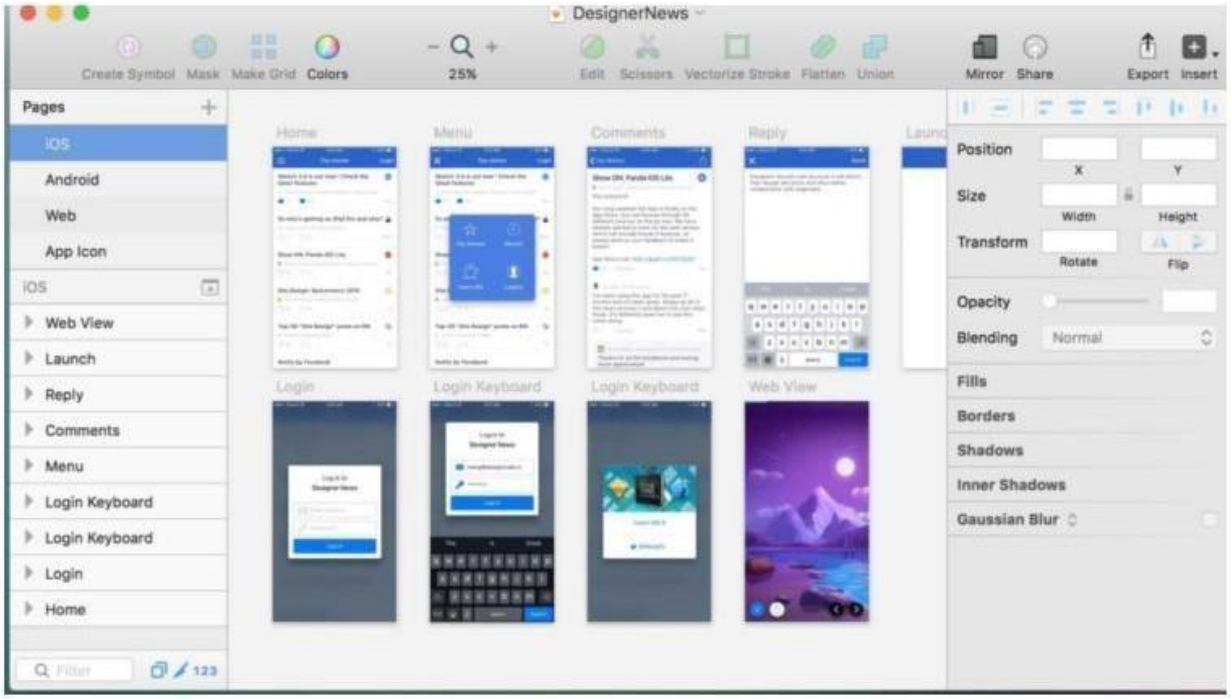


2. Sketch:

Sketch, like Figma, supports collaborative design, offering tools to simplify the process. It's known for creating playable prototypes that facilitate developer handoff. Sketch's user interface design tools, real-time collaboration, and vibrant community make it a robust alternative.

Key Highlights:

- Over 700 extensions enhance functionality.
- Superior control over sharing work and an open file format.
- Robust community and ample learning resources.



3.Mockplus:

Mockplus provides a comprehensive product design platform ideal for collaboration, design systems, and prototyping. Dynamic and reusable design systems ensure consistency across your team. This platform is straightforward, boasts a vast user base, and offers ample learning resources.

Key Highlights:

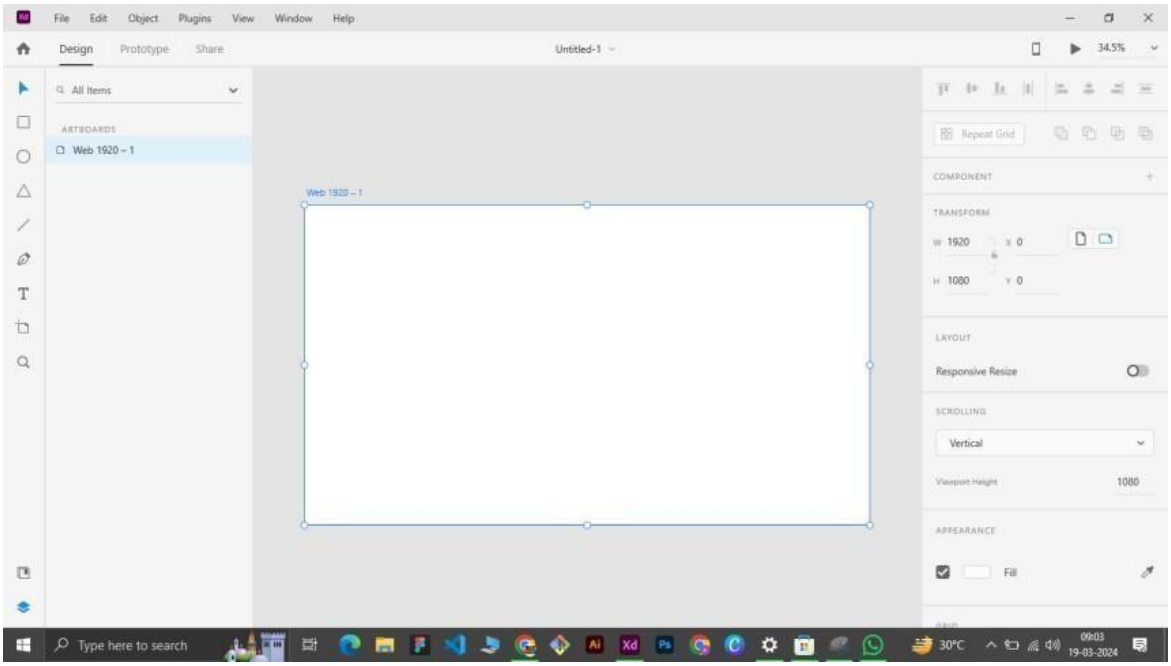
- Interactive prototyping for user testing
- A glossary and resource set for UI/UX principles
- thriving community for knowledge sharing

3. Adobe XD:

Figma's Rival Adobe XD, compared to Figma, is an established rival. It supports web, app, brand, and game design. It's backed by a robust, active community and offers plenty of resources. Adobe XD is relatively easy to learn and supports coediting, allowing collaborative work with team members.

Key Highlights:

- Feature-rich, supporting various design needs.
- Integration with Creative Cloud apps
- Coediting for seamless collaboration



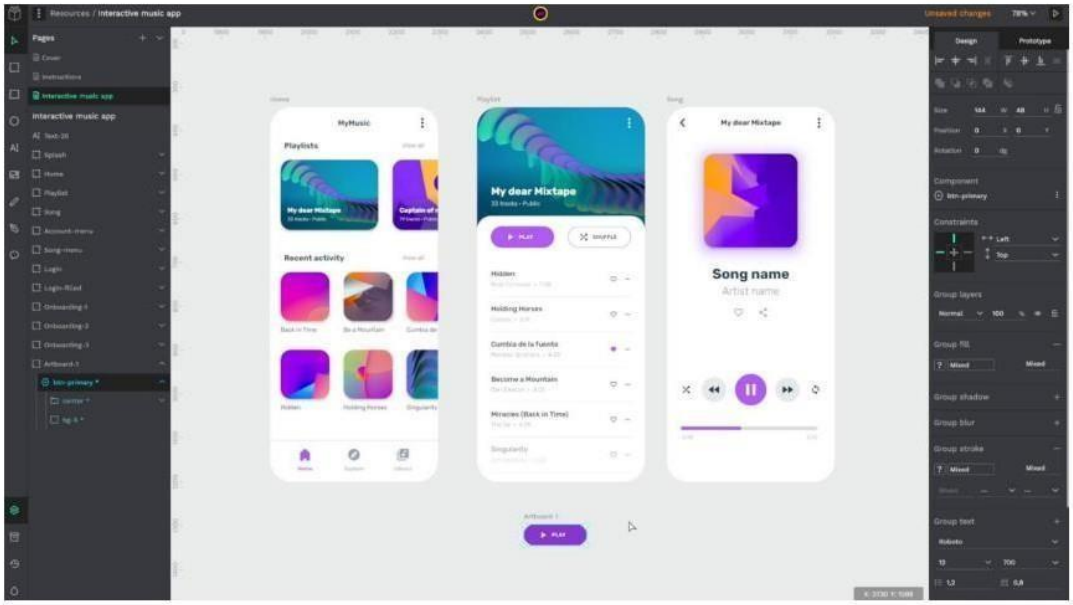
4. Penpot:

Penpot stands out as a free, open-source platform ideal for cross-domain teams. It allows for seamless collaboration and is compatible with most vectorial tools due to its use of SVG. Resources, including templates, glossaries, and a growing community, ensure you get the most from this platform.

Key Highlights:

- SVG-based, compatible with vectorial tools
- Resource-rich, with comprehensive glossaries and templates.
- Seamless sharing of design files for valuable feedback.

- y and compliance with WCAG standards



Result:

Thus, the various open-source collaborative interface platforms were explored.

Ex.no : 6 Date:	Hands-on Design Thinking Process for Tour Guide and Travel Assistance App

Aim:

To do a hands-on design thinking process for the tourist spot tracking app.

Tourist Spot Tracking Features:

- Find nearby tourist spots automatically based on location.
- Save favorite spots for offline access.
- Get live updates (timing, crowd status, special events).
- Personalized recommendations based on interests.

Design Thinking Stages:

Stage 1: Empathize (Uncover Hidden Connections)

•Talk to travelers, tourists, and locals to understand their problems.

•Discover that tourists often miss hidden gems, face navigation issues, and need real-time updates.

•Find that tourists prefer quick info (photos, reviews, maps) without reading lengthy guides.

Stage 2: Define (Problem Reframing):

•**Problem Statement:**

Tourists struggle to efficiently discover, track, and enjoy tourist spots due to outdated information, lack of personalization, and navigation challenges.

•**Reframed Focus:**

"How might we make exploring new places effortless, exciting, and personalized for travelers?"

Stage 3: Ideate (Innovative Solutions):

•Smart map that suggests spots based on user's mood (adventure, relaxing, cultural).

•Real-time AR (Augmented Reality) guide to show information on-site.

•AI-driven itineraries that adjust automatically if plans change.

•Gamify exploration with badges for visiting new places.

Stage 4: Prototype (Low-fidelity Exploration):

- **Sketch ideas:** simple app screens with:
  - Map with pins
  - Favorites list
  - Event pop-ups
  - Itinerary planner
- **Create wireframes:**
  - Home page with search bar and "Explore Near You" section.
  - Spot detail page with photos, hours, reviews, and "Save" button.

Stage 5: Test (Iterate for Holistic Impact):

- Share the prototype with frequent travelers and ask for feedback.
- Watch how users interact: are they finding spots easily? Are suggestions helpful?
- Improve based on feedback: simplify search filters, highlight hidden spots more, make offline mode smoother.

Core Features:

1. Location-based Spot Suggestions:

- Use GPS to detect user's current location.
- Automatically suggest popular tourist attractions, hidden gems, parks, museums, and events nearby.
- Filter spots based on distance, type (historic, natural, entertainment), and popularity.

2. Real-time Updates on Crowd Status, Timings, and Weather:

- Show live information about how crowded a place is (using crowd-sensing or user check-ins).
- Update opening and closing times dynamically (consider holidays or special closures).
- Provide live weather reports for each spot so tourists can plan better.

3. Save and Share Favorite Spots:

•Let users bookmark spots they are interested in.

•Create a personal "Favorites List" that they can access offline.

•Share favorite spots or travel plans with friends and family through social media or messaging apps.

4. Smart Personalized Itineraries:

•Based on user interests (adventure, shopping, nature), suggest a custom day-by-day plan.

•Adjust itineraries automatically if a user skips a spot or weather changes.

•Offer multiple itinerary styles: "Relaxed", "Adventurous", "Family-Friendly".

Additional Features:

1. Augmented Reality (AR) Spot View:

•When users point their phone camera at a location, show information overlay: name, history, ratings.

•AR-guided walking tours available for certain cities.

•Virtual arrows on the camera screen guide tourists to hidden or interesting nearby spots.

2. Gamification (Earn Badges for Visiting Spots):

•Create fun challenges: "Visit 5 Museums", "Capture 3 Sunsets", "Explore 10 Hidden Cafes".

•Award virtual badges and points for completing challenges.

•Leaderboards to see who has explored the most spots in a city.

3. Multilingual Support:

•App available in major languages (English, Spanish, Chinese, French, etc.).

•Automatic translation of spot descriptions, menus, signs (via camera/text).

•Personalized language settings based on user preference.

4. Emergency Help Feature:

- Emergency button linking to nearby hospitals, police stations, embassies.
- Option to send live location to trusted contacts in one click.
- Offline emergency guide (basic phrases, help instructions).

Result:

Thus, the design thinking process was done for the Tourist Spot tracking app.

Ex.No: 7 Date:	**Brainstorming feature for a Tour Guide and Travel Assistance App**

Aim:

To implement brainstorming feature of Travel Assistance App.

Procedure:

1.Define the problem

Problem Statement:

Travelers visiting new districts often face difficulty in finding reliable information about local tourist attractions, hotels, and essential amenities. They waste valuable time searching through multiple sources, leading to confusion, missed experiences, or poor accommodation choices. There is a lack of a centralized, easy-to-use platform that provides district-specific travel guidance tailored to a visitor's location.

2. Assemble a Cross-Functional Team

Team Composition:

1. **Project Manager**: Coordinates tasks, timelines, and team communication.
2. **UI/UX Designer**: Designs app layout, screens, and user experience flows (e.g., in Figma).
3. **Front-End Developer**: Implements the user interface using mobile frameworks (React Native / Flutter).
4. **Back-End Developer:** Develops APIs, manages the database, and handles server-side logic.
5. **Mobile App Developer:** Builds and integrates the app for Android and iOS platforms.
6. **Data Analyst:** Analyzes travel trends, user behavior, and location data to improve recommendations.
7. **Content Writer / Creator:** Curates descriptions, images, and local travel guides for destinations and hotels.
8. **QA Tester:** Ensures app quality through testing, bug tracking, and performance checks.

3. Introduce the 5 whys framework :

Overview of the methodology:

The **5 Whys** is a problem-solving methodology that involves asking "Why?" repeatedly (usually five times) to drill down into the root cause of a problem. This technique helps identify the underlying issue rather than just addressing its symptoms. It is often used in quality improvement processes and root cause analysis, particularly in manufacturing, but can be applied to a wide range of industries and situations, including business, software development, and service optimization.

Ask the first "Why" – Start by asking why the problem occurred.
Ask "Why" again for the answer – For each answer you get, ask "Why?" again to explore further.
Repeat the process up to five times – Continue asking "Why?" until you reach the root cause of the problem.
Address the root cause – Once the root cause is identified, implement a solution that eliminates the issue at its source.

4. Ask the first "Why" with connection question:

1. Why do users want to discover tourist spots when visiting a new district?

Connection Question: Will showing popular and nearby tourist places help users enjoy their trip more?
Answer: Yes, it helps them explore easily and enjoy their visit without missing important spots.

5. Repeat the process for the next "Why":

2. Why do users want to explore attractions during travel?

Connection Question: Can showing interesting places help users feel more excited about the trip?
Answer: Yes, it makes the trip more fun and helps them feel connected to the place.

3. Why is feeling connected to a place important to travelers?

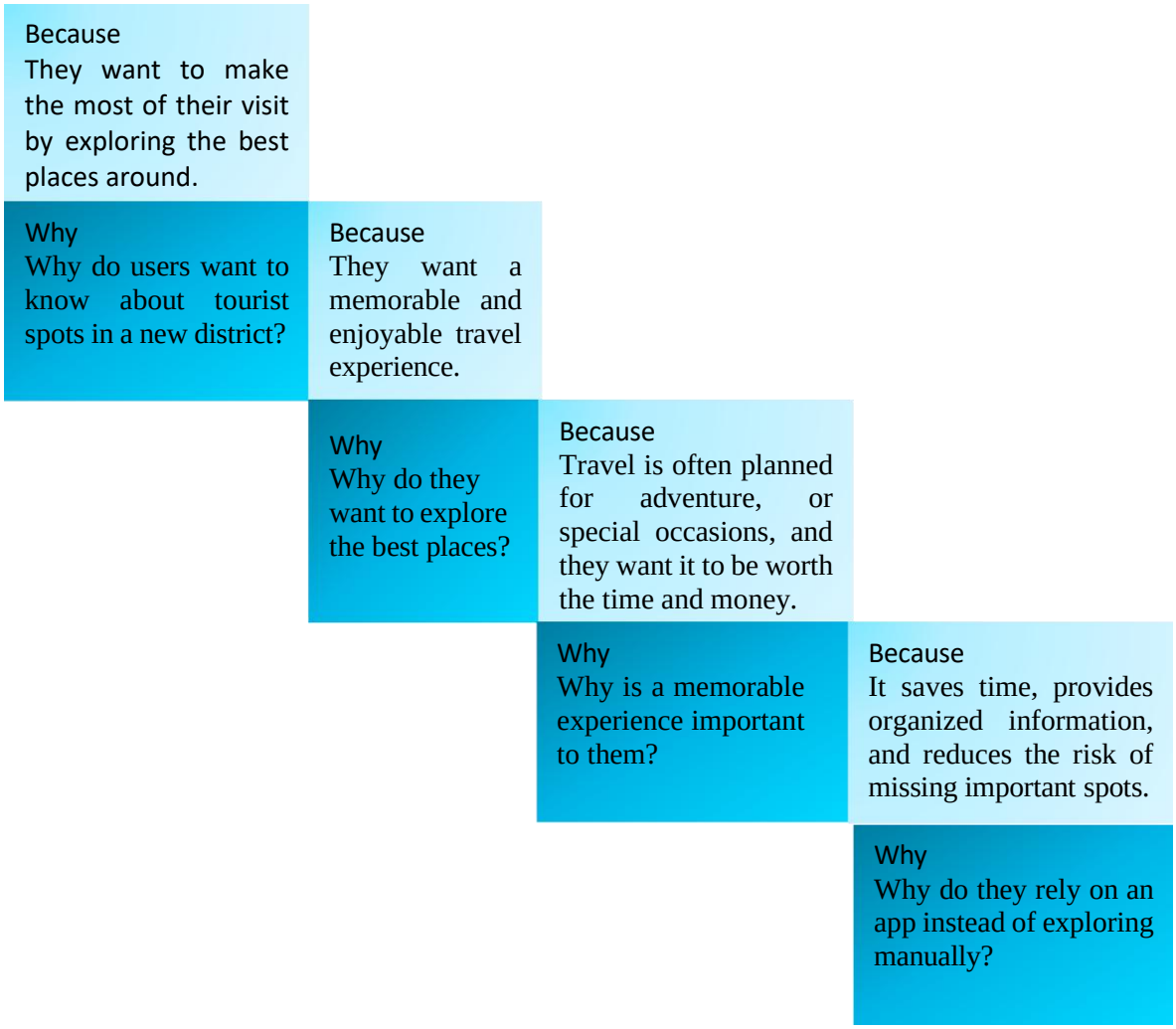
Connection Question: Will a better experience make users remember and love the trip?
Answer: Yes, good memories make the trip more special and worth sharing.

4. Why do users use an app for this experience?

Connection Question: Can the app help users by showing clear, easy information about places?
Answer: Yes, the app saves time and helps users plan better by giving everything in one place.

5. Why is it hard to find tourist info without the app?

Connection Question: Can the app fix the problem of scattered or old information?
Answer: Yes, the app gives up-to-date, personalized info, making travel easy and stress-free.



6. Encourage open discussion:

To encourage open discussion within the team, it's essential to create an environment where everyone feels comfortable sharing their thoughts and ideas. Start by asking for input from all members, inviting them to suggest improvements and brainstorm solutions. Emphasize the value of diverse perspectives and encourage constructive feedback. Focus on collaboration by exploring how each team member's input can help refine the app and make it more user-friendly. This approach not only fosters innovation and creativity but also ensures that everyone feels involved in the decision-making process, leading to better, more effective solutions for the project.

7. Analyze root causes:

1. **Incomplete Information on Tourist Spots**
   Users don't have enough details (descriptions, images, hours) to make informed decisions.
2. **Lack of Personalized Recommendations**
   The app doesn't suggest tourist spots based on user preferences or location.
3. **Limited Filtering Options**
   Users can't filter or sort tourist spots effectively by type, ratings, or location.

4. **No Integration with Other Travel Services**
   The app doesn't connect with transportation, ticketing, or maps, disrupting the user journey.
5. **Poor User Interface (UI)**
   The app's interface is difficult to navigate, causing frustration during the search process.

9. Prioritization of Solution:

To prioritize the solutions for the travel app, the most critical focus should be on improving the information provided for tourist spots, ensuring users have detailed descriptions, images, and relevant data to make informed decisions. Next, adding personalized recommendations based on user preferences and location will significantly enhance engagement. Enhancing the filtering options will help users narrow down their search effectively, improving usability. Integrating the app with travel services like transportation and ticketing comes next, offering a seamless experience. Finally, improving the user interface (UI) will help with navigation and accessibility, but it should follow after the core features are implemented. This approach ensures the app addresses user needs first, followed by optimizations for a better overall experience.

10. Follow-up and iteration:

After implementing the initial solutions, follow-up and iteration are crucial to ensure continuous improvement. This involves gathering user feedback through surveys and in-app reviews, monitoring key performance indicators like retention and session duration, and making data-driven adjustments based on user behavior. Regular A/B testing can help refine features like personalized recommendations and filtering, while regular updates will keep the app relevant by adding new tourist spot information and refining the user interface. This iterative process ensures that the app remains user-focused and continues to evolve according to user needs and feedback.

11. communication strategy :

The communication strategy for the travel app should focus on maintaining clear, transparent, and consistent engagement with users throughout their journey. This includes proactive communication about new features, updates, and improvements through in-app notifications, email newsletters, and social media channels. Regularly solicit user feedback through surveys or prompts within the app, ensuring that their input is valued and used to inform future iterations. Additionally, providing responsive customer support and clear messaging about app benefits and features will foster trust and improve user satisfaction. This strategy will help keep users informed, engaged, and confident in the app's ongoing development.

Result:

Thus the brainstorming feature for a Travel Assistance App was implemented successfully.

Ex.No:8 Date:	Define The Look And Feel Of The Tour Guide and Travel Assistance App

Aim:

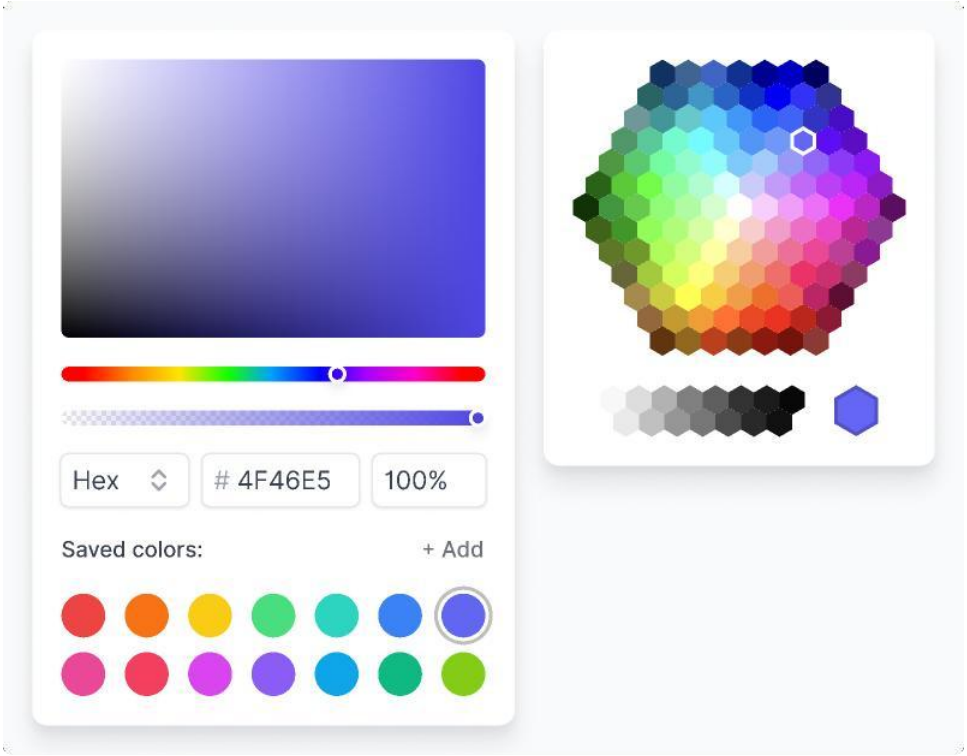
To define the look and feel of the Tour Guide and Travel Assistance App that helps users explore tourist attractions, hotels, and services when visiting a new district.

Procedure:

Designing the look and feel of the Travel Guide App involves ensuring an appealing visual design and a seamless user experience. Here's a comprehensive guide:

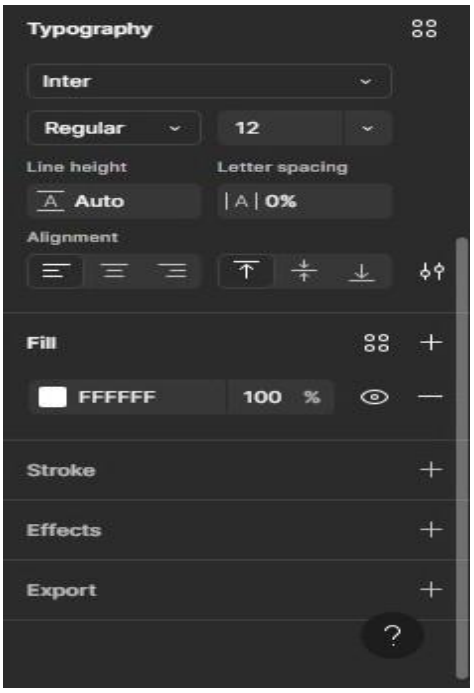
1.Theme and Color Palette:

Use a color palette inspired by travel, nature, and cultural landmarks—such as greens, blues, and warm tones. Choose colors that convey trust, excitement, and relaxation. Maintain consistency across all screens to provide a cohesive and engaging experience. Consider light backgrounds with contrasting highlights for easy readability.



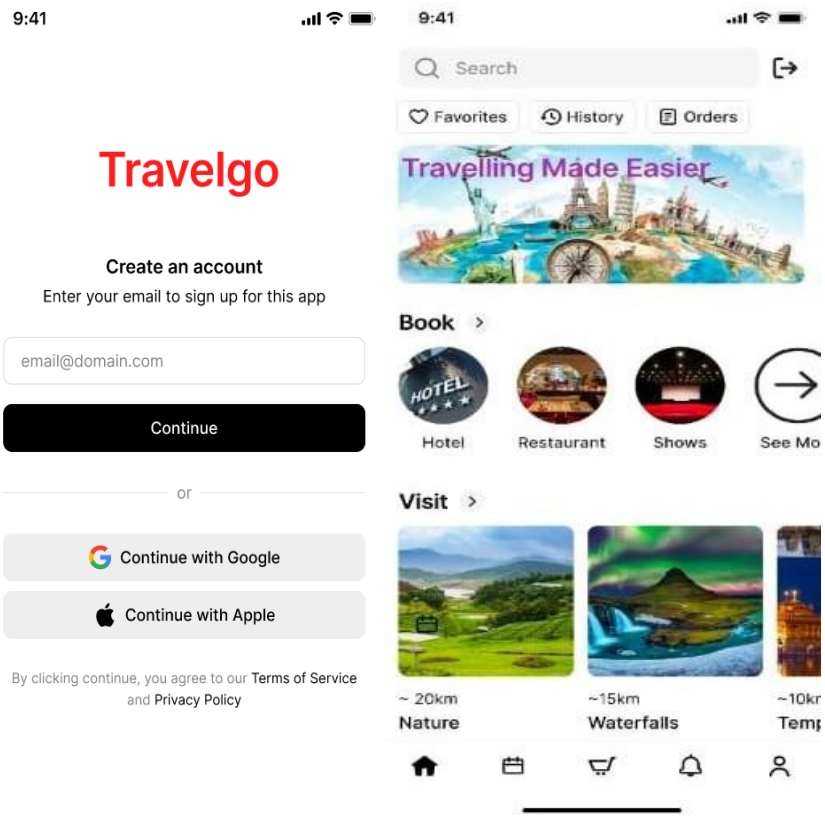
2.Typography:

Select clean, modern fonts that are easy to read on various devices. Use bolder or larger fonts for place names and section titles, and lighter fonts for descriptions. Ensure that the text is legible in different lighting conditions, especially for users on the go.



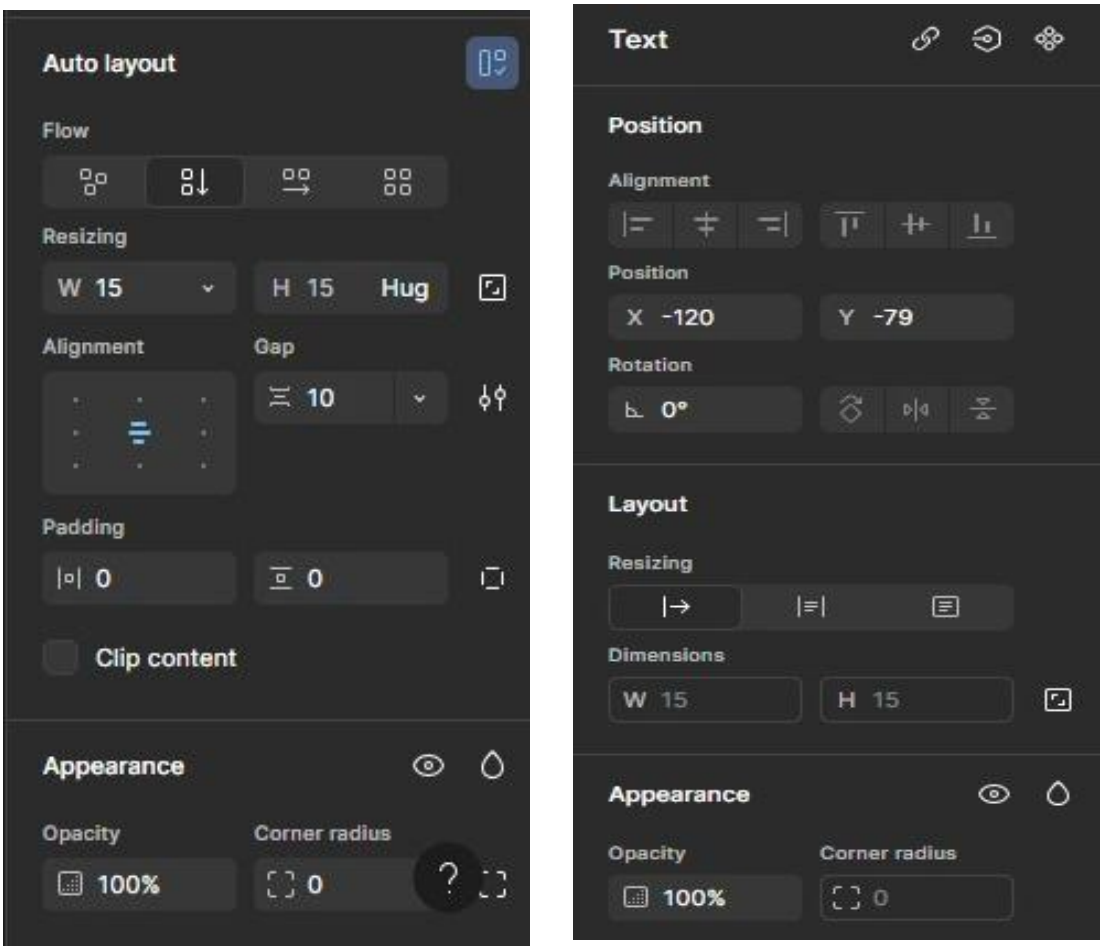
3.Images and Graphics:

Integrate high-resolution images of tourist spots, monuments, hotels, and landscapes to captivate users. Use icons that represent categories like “Nature,” “Historic,” “Stay,” or “Food.” Custom illustrations that reflect local culture can further enhance the visual identity of the app.



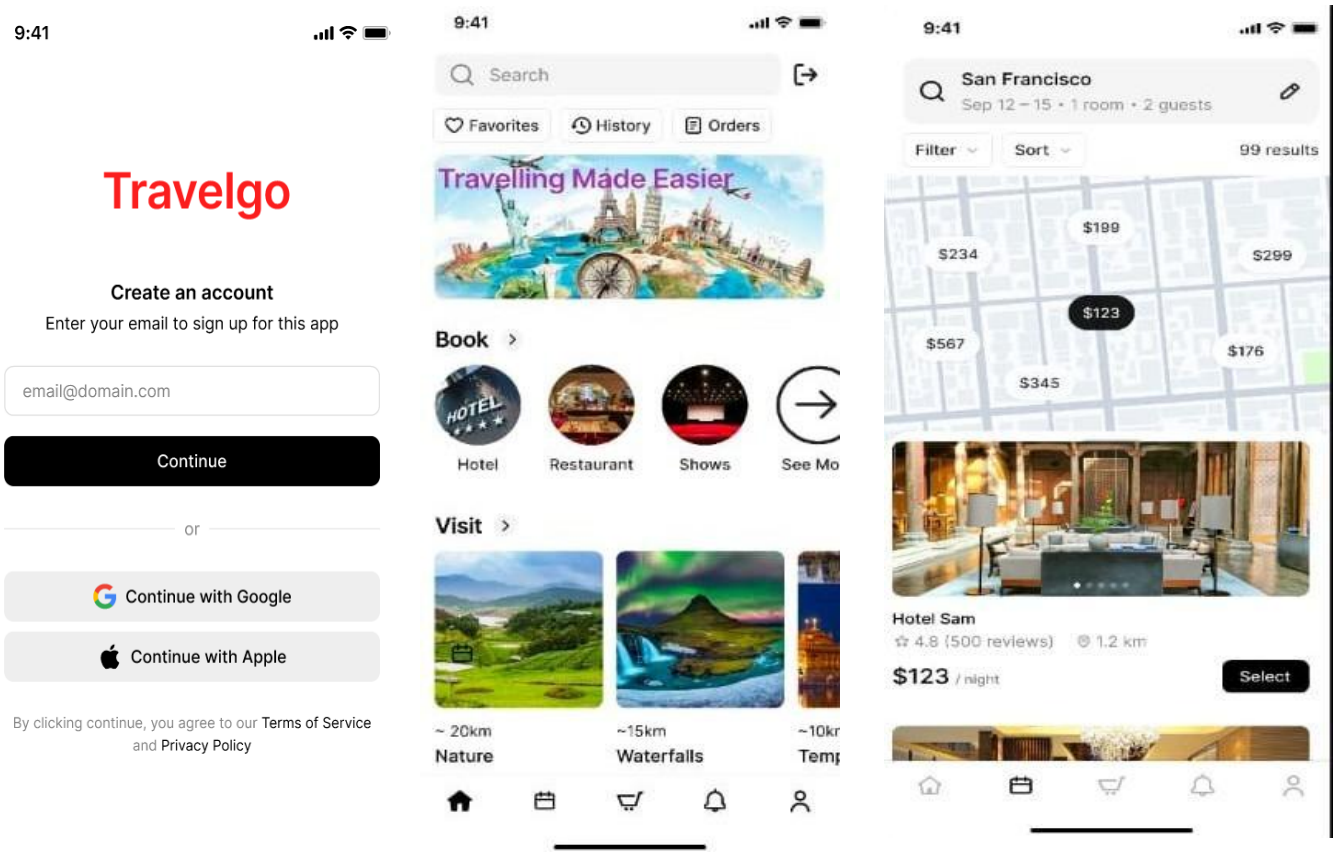
4.Layout and Navigation:

Create a simple, intuitive layout with a focus on user-friendly navigation. Use a clean home screen that highlights key features like "Nearby Attractions" or "Plan Your Day." Include a bottom navigation bar for quick access to Home, Explore, Bookings, and Profile. Ensure that buttons and menus are easily accessible and touch-friendly.



5.User Experience (UX) Enhancements:

Prioritize features like location-based recommendations, maps, and user ratings. Add filters and search functionality for efficient exploration. Use interactive elements like swipe cards or itinerary planners to make the experience more dynamic and personalized.



Result:

Thus to define the look and feel of the Tour Guide and Travel Assistance App that helps users explore tourist attractions, hotels, and services when visiting a new district was created successfully.

Ex No: 9 **Date:**	**Create a Sample Pattern Library for Travelgo App**

Aim:

To create a sample pattern library for Travelgo Application.

Sample Pattern Library for Travelgo App:

1. Theme:

- Modern Travel & Exploration
- User-Centric and Informative
- Clean, Bright, and Friendly

2. Color:

- Primary Color: Deep Sky Blue (#00BFFF)

  Usage: Used for the logo, headers, and highlighted UI elements like the search bar and navigation items.

- Secondary Color: Light Teal / Aqua (#40E0D0)

  Usage: Used for icons, sub-sections, and map markers.

- Background Color: Pure White (#FFFFFF)

  Usage: The main page background to ensure cleanliness and content clarity.

- Primary Text Color: Black (#000000)

  Usage: Used for titles, main content text.

- Secondary Text Color: Dark Gray (#4F4F4F)

  Usage: Used for subheadings and less emphasized text.

- Accent Colors: Orange (#FFA500) & Yellow (#FFD700)

  Usage: Buttons like “Book Now” or “Explore”, Ratings (stars) and attention elements.

3. Font:

- **Primary Font**
  - **Font Name:** Poppins
  - **Type:** Sans-serif
  - **Usage:** Used for headings, navigation bar items, and major UI text (e.g., section titles like "Popular Destinations").

- **Secondary Font**

  Font Name: Roboto

  Type: Sans-serif

  Usage: Used for body text, descriptions, and longer content sections.

4. Icon:

- **Home Icon:** Navigates the user back to the homepage.
- **Search Icon:** Allows users to search for hotels, restaurants, or destinations.
- **Heart Icon:** Lets users add items to their favorites or wishlist.
- **Location Pin Icon:** Represents physical locations like cities, attractions, or hotels.
- **Suitcase Icon:** Symbolizes travel-related services or trips.
- **Globe Icon:** Indicates global destinations or an explore section.
- **Notification Bell Icon:** Alerts users to messages, updates, or offers.

5. UI/UX Elements:

- Rounded buttons and containers
- Clean white spacing
- Easy navigation layout with intuitive icons
- Visual emphasis on action (e.g., "Book", "Explore")

Result:

Thus, the sample pattern library was created for Travelgo application successfully.

Ex No: 10 **Date:**	**Identify A Customer Problem To Solve**

Aim:

To identify a customer problem to solve.

Detailed Customer Problem:

Problem statement:

The Travelog website is hard to use due to poor text visibility, confusing icons, and an inconsistent layout, making travel planning difficult for users.

Specific Pain Points:

1. Unclear Navigation Flow: The user might not immediately know what to do or where to go — e.g., where to find bookings, explore more destinations, or go back home.

2. Limited Information Displayed Initially: Only general categories (Hotel, Restaurant, Shows) are visible. Users may need more filters (price, location, ratings).

3. Generic Visuals Without Personalization: The images and options shown seem generic and may not be tailored to user interests or current location.

4. No Clear Call-to-Action (CTA): The user is not prompted to take any specific action, such as "Book Now", "Explore Deals", or "Plan Trip".

5. Search Bar Not Prominent: The search bar is present but visually subdued. Users may overlook it.

6.No Help or Chat Support: No visible way for the user to get help if they're confused or need assistance.

7. Battery & Data Use Concerns: As seen in the screenshot, the mobile device is low on battery and has limited data speed.

Solution:

1.Clear Navigation Flow:

•Add a bottom navigation bar with clearly labeled icons like Home, Explore, Bookings, Profile.

•Highlight the selected section (e.g., underline or color change) to show the current page.

2. Information Display:

- Add filters/sorting options (by distance, rating, price) under each category.
- Allow quick previews or ratings on thumbnails.

3. Generic Visuals with Personalization:

- Integrate location-based suggestions ("Near You", "Popular in Your Area").
- Include personalized recommendations based on past activity or preferences.

4. Clear Call-to-Action (CTA):

- Add prominent CTAs with action verbs (e.g., “Start Booking”, “View Hotels Near You”).
- Use color contrast to draw attention to buttons.

5. Prominent Search Bar:

- Enhance search bar visibility with a larger field and placeholder text like “Search for hotels, places, activities...”.
- Add voice search or autocomplete suggestions for better UX.

6. Chatbot & Help Centre:

- Include a chatbot or help icon for FAQs and real-time support.
- Add a Help Centre in the menu.

7. Battery & Data Use:

- Offer a “Lite Mode” for slower connections or power-saving users.
- Compress images without reducing clarity for faster loading.

Result:

Thus the problem of customer was identified successfully.

EX : 11 Date:	**Conduct end-to-end user research - User research, Creating personas, Ideation process (User stories, Scenarios), Flow diagrams, Flow Mapping**

Aim :

To conduct comprehensive user research for a travel and tourism website, including the creation of user personas, ideation (user stories and scenarios), flow diagrams, and flow mapping, with the goal of enhancing user experience and designing user-centric features.

Procedure :

1. User Research

User research is the process of understanding the behaviours, needs, motivations, and pain points of users through various methods like surveys, interviews, observations, and analytics.

1.1 Methods Used:

- Online Survey: Distributed to 50 respondents aged between 18–45
- Interviews: Conducted with 5 frequent travellers and 2 travel agents
- Secondary Research: Analysis of top travel websites like MakeMyTrip, Booking.com, and Airbnb

1.2 Key Findings:

- Users prefer personalized recommendations (e.g., destinations based on interests)
- Real-time availability, price comparison, and review integration are critical
- Pain points: Hidden charges, complicated booking flow, and lack of local info
- Interest in eco-tourism, offbeat locations, and travel packages

2. User Personas

A user persona is a fictional, detailed character that represents a typical user of your product or website. It's created based on real user data (like surveys, interviews, and observations) to help designers and developers understand the users' goals, needs, behaviour, and pain points.

For example:

Persona 1: "Ananya"

- **Age:** 25
- **Occupation:** Software Engineer
- **Goals:** Explore offbeat locations, backpacking trips

- **Pain Points:** Expensive solo travel options, lack of safety information
- **Needs:** Budget trips, safe stays, itinerary builder

Persona 2: "Farhan"

- **Age:** 40
- **Occupation:** School Teacher
- **Goals:** Plan family vacations
- **Pain Points:** Confusing booking process, need for child-friendly packages
- **Needs:** Clear package breakdowns, filter for family-friendly activities

Persona 3: "Sita"

- **Age:** 60
- **Occupation:** Retired Bank Officer
- **Goals:** Peaceful travel with health and comfort in mind
- **Pain Points:** Accessibility issues, too much tech jargon
- **Needs:** Simplified UI, health-based travel tips, accessible hotels

3. Ideation

Ideation is the process of generating and developing new ideas to solve specific problems identified during user research.

3.1 User Stories

- As a user, I want to **filter destinations by budget and interest**, so I can find relevant travel packages.
- As a traveller, I want to **view real-time hotel availability**, so I can book without delays.
- As a solo traveller, I want to **access safety ratings and tips**, so I feel secure.
- As a user, I want to **compare travel plans side-by-side**, so I can make informed decisions.

3.2 Scenarios

Scenario 1: Budget Backpacking

Ananya wants to go on a solo trip to the Northeast. She filters options under ₹15,000, selects a safe, women-friendly hostel, and books a guided trek.

Scenario 2: Family Getaway

Farhan logs in during summer break, finds a 5-day package to Ooty with a kids' amusement park, filters for hotels with family rooms, and books the whole trip with EMI options.

Scenario 3: Senior Travel

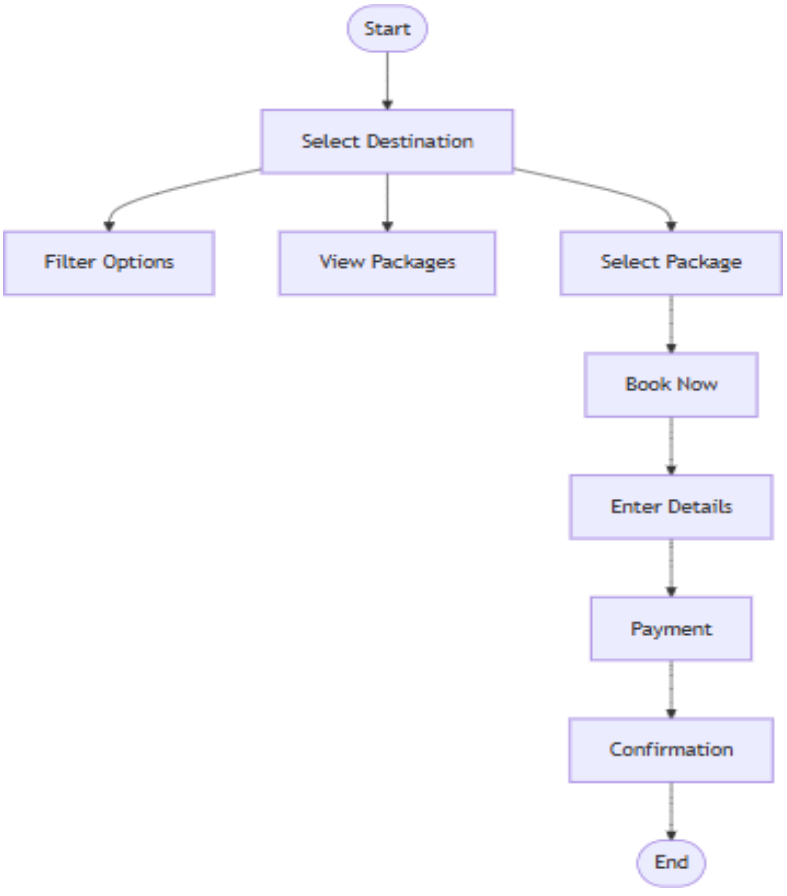
Sita visits the website on her tablet. She selects "senior-friendly trips," chooses a Kerala backwater cruise with wheelchair access, and receives a call for personalized planning.

4. Flow diagram

A flow diagram is a visual map that shows the steps a user takes to complete a task on a website or app. It helps designers and developers understand the user journey, making it easier to design smooth, intuitive experiences.

In Travel and Tourism website for booking a package :

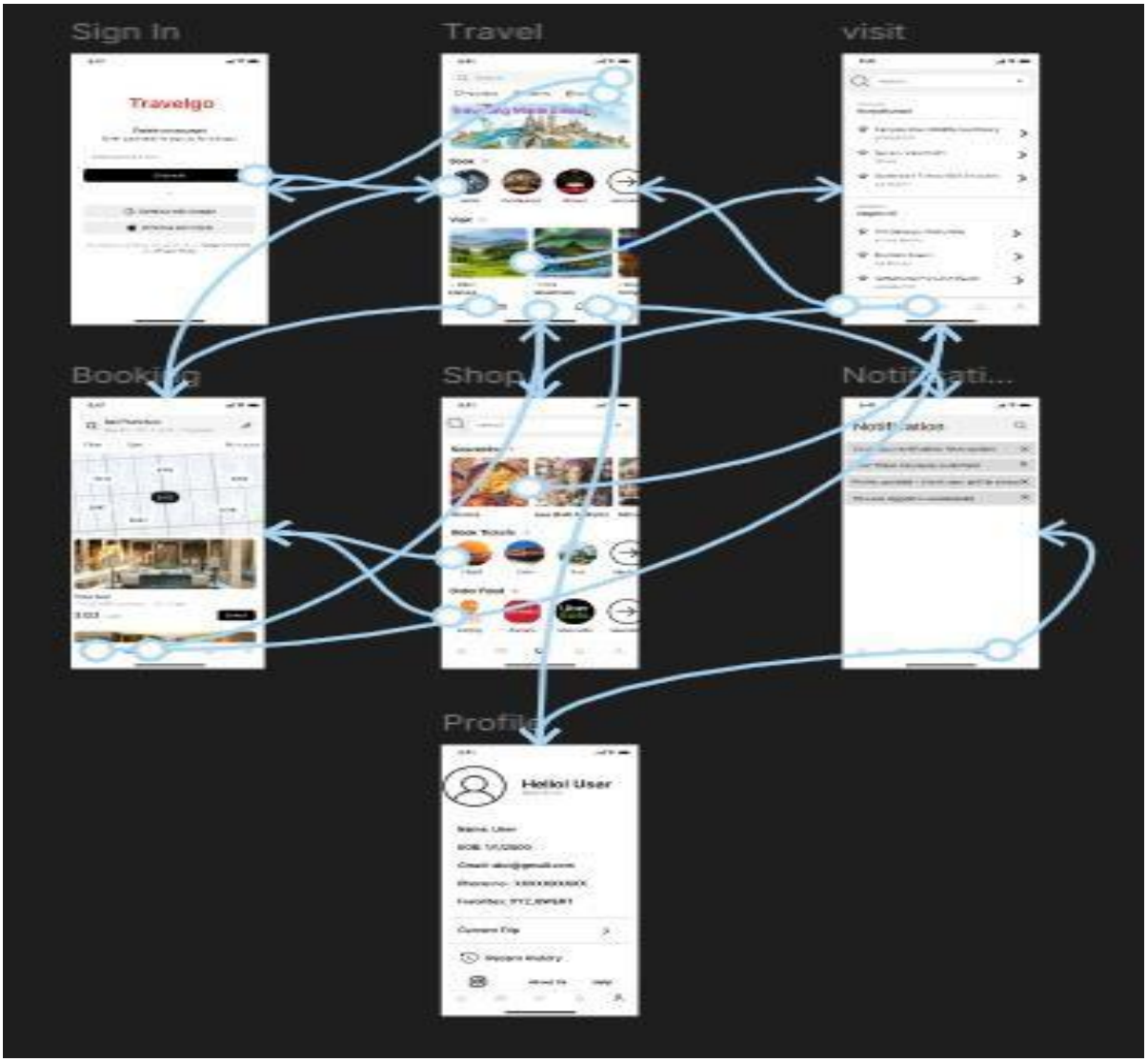
The user journey starts when a visitor lands on the travel website and selects a destination. They can then filter options based on budget, dates, or interests and view available travel packages. After exploring, the user selects a package and clicks "Book Now". They proceed by entering their personal details, moving on to the payment stage. Once the payment is complete, a confirmation message is displayed, marking the end of the booking process.



5. Flow Mapping

Flow mapping is the process of visually outlining and analysing the entire user journey, including each step, decision point, and possible path a user might take while interacting with a product or website.

Flow map for travel and tourism website:



Result :

Thus, the comprehensive user research for the travel and tourism website, including the creation of user personas, ideation (user stories and scenarios), flow diagram, and flow mapping, has been successfully completed.

EX NO: 12 Date:	Sketch , design with popular tool and build a prototype And perform usability testing and identify improvements

Aim:

To sketch, design with popular tool and build a prototype and perform usability testing and identify improvements.

Procedure: Sketch

Creating a sketch for a Story app involves considering user experience (UX) and user interface (UI) design principles. Here's a simple sketch for the app.

Prototype

Creating a full prototype involves using specialized tools like Figma, Sketch, Adobe XD, or InVision. Here we have used Figma to build prototype.

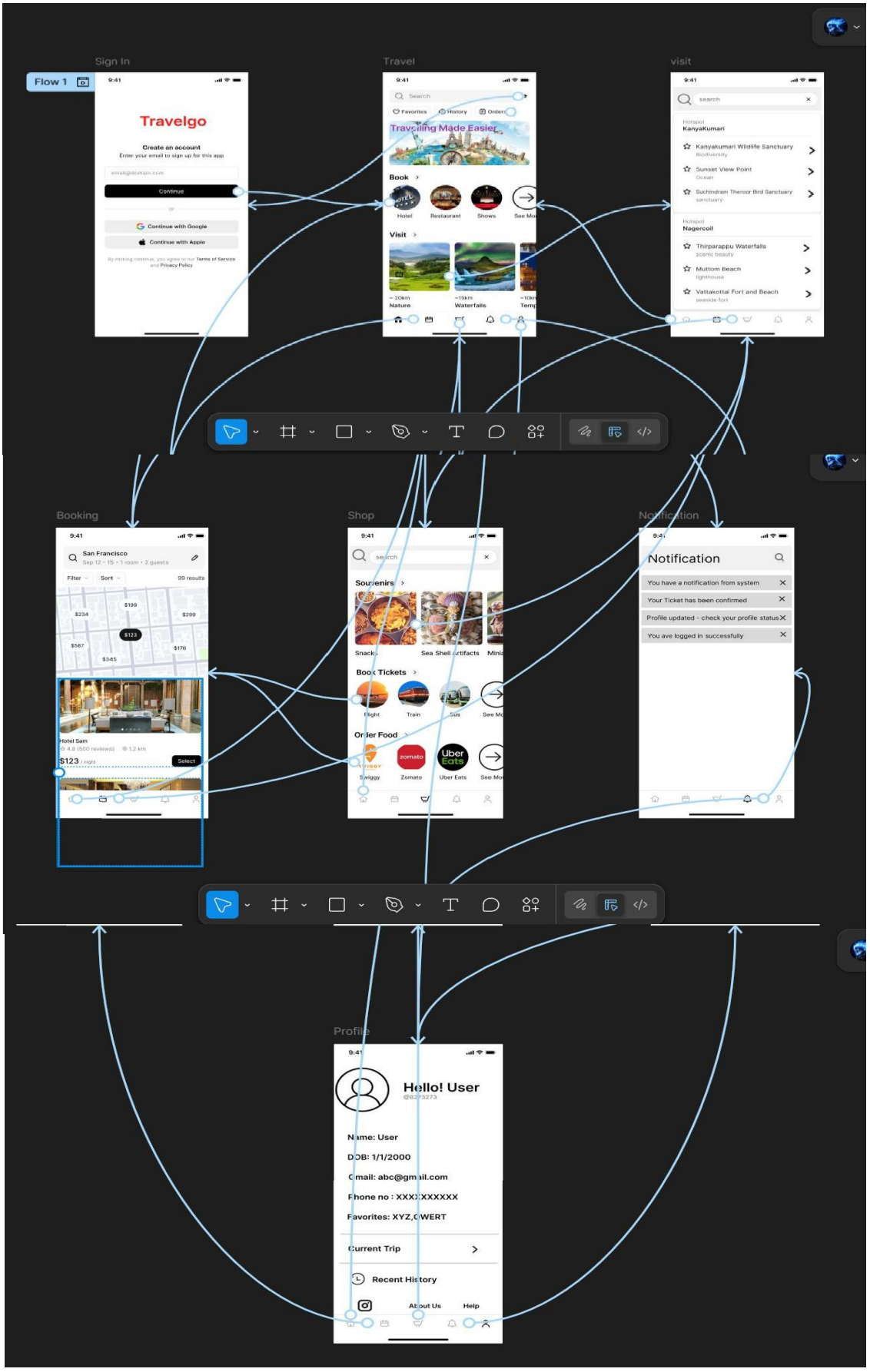
Design Guidelines:

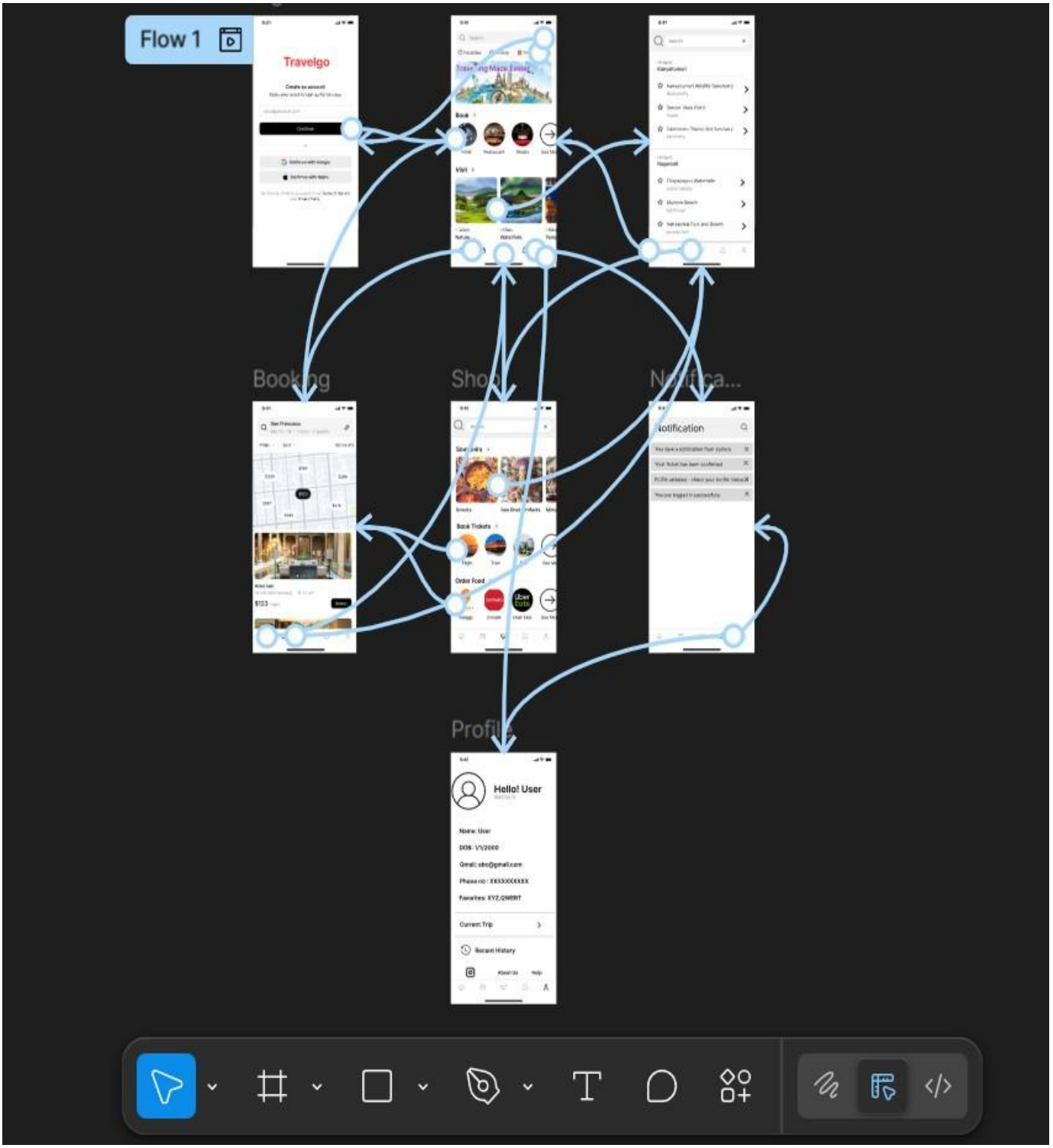
- Use a consistent color scheme and font throughout the app
- Ensure a simple and intuitive navigation flow.
- Prioritize high-quality images.
- Implement smooth transitions between screens.

Screens:

- Login Page
- Travel Page
- Visit Page
- Booking Page
- Shop Page
- Notification Page
- Profile Page

Output:


Sign In
Travel
visit
Flow 1
Travelgo
Create an account
Continue
Continue with Google
Continue with Apple
Book
Visit
Booking
Shop
Notification
Souvenirs
Book Tickets
Order Food
You have a notification from system
Your Ticket has been confirmed
Profile updated - check your profile status
You ave logged in successfully
Profile
Hello! User
Current Trip
Recent History
About Us
Help



Result:

Thus to sketch, design with popular tool and build a prototype was created successfully.