

**Deccan Education Society's
Navinchandra Mehta Institute of
Technology and Development**

C E R T I F I C A T E

This is to certify that Mr. Unhawane Yash Rajan of M.C.A. Semester II with Roll No. C22129 has completed practicals of User Interface Lab under my supervision Ganesh Bhagwat in this college during the year 2022 -2023.

CO	R1 (Attendance)	R2 (Performance during lab session)	R3 (Innovation in problem solving technique)	R4 (Mock Viva)	R5 (Variation in implementation of learnt topics on projects)
CO1					
CO2					
CO3					
CO4					

Practical-in-charge

Head of Department

MCA Department
(NMITD)

INDEX

Sr.No	Description	Date	Sign
I	Introduction to UI life cycle and UI tools.	13/04	

II	Study of Figma Tools: Frames, Images, Text tool, and Font Styles, Localization feature, Grid Layouts and Boolean operations.	24/04	
III	Project Proposal and Requirement Gathering (Choose the project). <ul style="list-style-type: none"> System Concept Statement 	20/05	
IV	Analysis- Design an <ul style="list-style-type: none"> Initial Flow Model SiteMap User Personas for <Your project Appln> 	20/05	
V	Design <ul style="list-style-type: none"> Creation of Scenario 	31/05	
VI	Prototype Creating a Paper Prototype and High Fidelity prototype (Wire Frame) using Figma tool for <Your project Appln> <ul style="list-style-type: none"> Paper Prototype Wireframe 	31/05	
VII	Implementation The code for your application should be optimal and user friendly.	05/06	
VIII	Usability Evaluation of the Design <ul style="list-style-type: none"> Usability Testing 	05/06	

**DES'S
NAVICHANDRA MEHTA INSTITUTE
OF TECHNOLOGY AND
DEVELOPMENT**

UI Project Title: - Train Travel

Group Members:

Roll Number	Name of student
<u>C22115</u>	<u>Shinde Sumit Vilasrao</u>
<u>C22129</u>	<u>Unhawane Yash Rajan</u>

Project Guide Name: Ganesh Bhagwat.

Experiment Number 1

Introduction to UI life cycle and UI tools.

- 1. Explain UI Life cycle.**



- **GUI Requirement Gathering** - The designers may like to have list of all functional and non-functional requirements of GUI. This can be taken from user and their existing software solution.
- **User Analysis** - The designer studies who is going to use the software GUI. The target audience matters as the design details change according to the knowledge and competency level of the user. If user is technical savvy, advanced and complex GUI can be incorporated. For a novice user, more information is included on how-to of software.
- **Task Analysis** - Designers have to analyze what task is to be done by the software solution. Here in GUI, it does not matter how it will be done. Tasks can be represented in hierarchical manner taking one major task and dividing it further into smaller sub-tasks. Tasks provide goals for GUI presentation. Flow of information among sub-tasks determines the flow of GUI contents in the software.
- **GUI Design & implementation** - Designers after having information about requirements, tasks and user environment, design the GUI and implements into code and embed the GUI with working or dummy software in the background. It is then self-tested by the developers.
- **Testing** - GUI testing can be done in various ways. Organization can have in-house inspection, direct involvement of users and release of beta version are few of them. Testing may include usability, compatibility, user acceptance etc.

2. Explain steps in a common UI design.

Three main stages of the user interface design :

1. User Research :-

The goal is to define who the customers of your product are and how they are going to use it. At this point, you should explore :

- I. User's needs, challenges, and problems;
- II. User types, their experience, level of knowledge and skills;
- III. What activities they can do using your system.

This stage is required in all software development projects and in all methodologies. If you have already had all this information you are ready to start the user interface design. If the information about all the points above is inconsistent or incomplete, then there are a lot of risks that your attempt to design the user interface won't be successful.

Suppose that important information about the users and the product requirements has been successfully gathered. Now we are ready to start the designing process.

2. Design and Prototyping :-

A good way is to start from the simple sketches and low-fidelity wireframes and to continue with high-fidelity wireframes, mockups, and prototypes.

Wireframes

A wireframe is a sketch of the system to be built. Wireframes should clarify exactly what elements realize the different features on all pages or screens of a future product but without full details. The actual screen design will be produced at a later stage by referencing the wireframe.

The wireframing stage doesn't require a lot of time and efforts, but it can come in handy when designer communicates with customers, users, project team, as it allows them to visualize first ideas more easily when he or she just describes them verbally. Wireframes can easily be revised or changed. It helps to do all the process more cost-effective.

Therefore, wireframes should come first. What's next? It depends on the type of software product that is going to be produced. If your product is a business app with many business processes, users' types, and features, then it probably would be very important to build the prototype at the next stage after wireframes.

Prototypes

A prototype, in this case, is a semi-functional layout that can give a high-fidelity preview of the actual app or website user interface (front-end) functionality. While the prototype might not have full functionality, it generally gives customers and/or end-users an ability to click around the elements of the interface and simulate the way the app will actually work. Prototypes may or may not include completed design elements. At this stage, we can demonstrate and discuss how the elements and features would work. It helps to test the ideas and make some changes at the early stages of the project.

After wireframing and prototyping we can focus on the visual design of all elements.

Mockups

To produce the mockups after reviewing the wireframes (but not instead of the wireframes) is the right decision. The mockup model demonstrates all the graphics, typography, colors and other page elements. Mockups are generally just images.

3. Evaluation :-

The evaluation should be included in all stages of the design process. Its major purpose is to assess the quality of design, analyze how it fits users, meets their --- needs.

After several series of iterations, sketches, wireframes, mockups, prototypes, discussions, brainstorming sessions with the stakeholders, end-users, and project team,

the probability of creating a compelling user interface significantly increases. The success is knocking on the door.

3. Explain the Principles of Consistency and Standards in User Interface Design.

As you design the user interface, it is important to keep in mind the interactions that take place between the human cognition and the screen you're designing for. Making things easier for your users means not forcing them to learn new representations or toolsets for each task.

Reducing the length of the thinking process by eliminating confusion is also a sure bet when it comes to improving user experience. Consistency limits the number of ways actions and operations are represented, ensuring that users do not have to learn new representations for each task.

Further, establishing design norms like following platform conventions allow users to complete new tasks without having to learn a whole new toolset. This may sound like a simple concept, but there are many examples out there that exhibit a lack of consistency in their designs. One such example that portrays this issue is the website for Xfinity by Comcast Corporation, an American mass media company.

In their website, not only is the secondary menu inconsistent almost every time the user clicks into another page, but it is also inconsistent for the primary menu as well. Let's take a look and compare the three different pages of the website: Homepage, My Xfinity, and TV.

4. List various UI tools.

Pencilproject :

What is Pencil?

Pencil Project is a useful GUI prototyping tool that equips creative individuals to lay out, sketch, analyze and finalize their ideas using a wide range of elements, including common shapes, basic web elements, Sketchy GUI, stencils and more.

These can then be exported in PNG, SVG, HTML, PDF and ODT file formats for applications in various development domains with an artistic yet technically sound plan, ready for finishing.

Features of Pencil

Easy GUI Prototyping: Pencil provides various built-in shapes collection for drawing different types of user interface ranging from desktop to mobile platforms. Starting from 2.0.2, Pencil is shipped with Android and iOS UI stencils pre-installed. This makes it even easier to start prototyping apps with a simple installation. Popular drawing features are also implemented in Pencil to simplify the drawing operations.

Built-in Shape Collections: Starting from 2.0.2 Pencil has even more shape collections included by default. The list of built-in collections now includes general-purpose shapes, flowchart elements, desktop/web UI shapes, Android and iOS GUI shapes.

Diagram Drawing Support: Pencil now supports connectors which can be used to "wire" shapes together in a diagram. A collection of flowchart shapes are also available for drawing diagrams.

Exporting to Different Output Formats: Pencil supports outputting the drawing document into different types of formats. You can have your drawing exported as a set of rasterized PNG files or as a web page that can be delivered to the viewers. Pencil also supports exporting documents into popular formats including OpenOffice/LibreOffice text documents, Inkscape SVG and Adobe PDF.

Cost

- Pencil Project is free and open-source for all.

Wireframe.cc :

Wireframe.cc is a minimalist web app for instantly creating wireframes. It provides two types of templates for creating wireframes in a browser or mobile interface. This can help users to create page schematics for websites or mobile apps.

This web app does not require any complex configurations and all you have to do is to sketch out your ideas on a virtual drawing board. While this web app is not as elaborate as Wireframe Stencils for PowerPoint or even the options within Microsoft PowerPoint which allow making wireframes, however, it is a good web app for instantly sketching out your ideas online.

Who is Wireframe for?

- Wireframes are for whoever needs them. This might include:
- Stakeholders who want to see the latest designs going in to productions
- Users, for user testing and usability testing
- Developers, who are working on the engine of what you're designing

Cost

- Basic Version free. Premium Version (Solo) - \$16/month (\$144/year)

Features of Wireframe

- **Super Minimal Interface :** Wireframe.cc offers a clutter-free environment instead of countless toolbars and icons that we all know from other tools and apps.
- **Click and Drag to Draw :** Creating elements of your wireframe couldn't be easier. All you have to do is draw a rectangle on the canvas and select the stencil type that will be inserted there. You can do that by dragging your mouse across the canvas and selecting the option from a pop-up menu.

- **Limited palette** : Wireframe.cc can help you keep your wireframes simple by offering a very limited palette of options. That applies to color palette and number of stencils that you can choose from.
- **Context sensitive UI** : Most parts of the UI are presented to you only when you need them. It is possible due to the unique drawing mechanism. The list of stencil elements is only available just before inserting an element.
- Annotate with ease: If you want to be sure that your message gets through you can always annotate your wireframe.

Invision :

What is Invision?

- InVision is a prototyping, collaboration and workflow tool.
- InVision gives you clarity, collaboration, and control of everything you need to power your design process.
- It allows you to efficiently and simply create interactive mockups for your wireframes and designs.
- When you have completed adding all the pages and elements to your prototype you can then share it with your team or clients for feedback.

• Features of Invision

- Create rich interactive prototypes: A big part of our design process is validation and nailing the details. InVision lets us iterate quickly, elevate quality, and ship fast.
- Seamlessly communicate, gather feedback, and move projects forward: InVision allows you to collaborate, experiment, and test much more effectively and efficiently.
- Explore your team's best ideas on a digital whiteboard: Freehand makes it a breeze to sketch, draw, wireframe, and get instant feedback on work-in-progress designs.
- Design: Quickly turn ideas into powerful screen designs with intuitive vector-based drawing and flexible layers.
- Prototype and animate: Effortlessly animate transitions and add micro-interactions to transform your static screens into working prototypes.

• Cost

- Basic – free forever. Starter - \$15/month.

Weld :

- Weld is an online tool for creating functional web services and mobile apps, without coding.
- Draw, drag and drop until it looks the way you want.
- Add interactivity and animations.
- Publish on your existing website, as a new website, or as a mobile app – all with a single click.
- **Who is Weld for?**
 - “Who is Weld for?” is a question as wide as “Who is programming for?”. We begin with marketers, but also publicists, entrepreneurs, designers, and schools will be using Weld. Weld should be where every digital idea begins.
 - We believe that in 10 years, a lot more people will be creating software. But few of them will be *coding*.
- **Here’s the current development process for an app or service:**
 - Define how it should *work* (interaction design).
 - Define how it should *look* (visual design).
 - Implement it in code.
 - Publish it to a platform.
 - Test it and analyze the results.
 - Repeat the process.
- **How we build Weld?**
 - The Weld product: Simple, Playful, Beautiful
 - Our core mantra when building the Weld product is:
 - Simple, not complicated.
 - Playful, not strict. Leave room for experimentation and playfulness.
 - Beautiful, not plain. Dare to stand out, break the status quo.
 - Weld’s growth: Create, Share, Inspire
 - We believe the foundation of our growth is:
 - Create: make sure great projects are built.
 - Share: ensure these great projects gets visibility.
 - Inspire: this in turn will inspire new creators.
- **Cost**
 - Basic- free forever, Pro- \$16.5/month (yearly billing based)
- **Coding**
 - Not Available

Figma :

- **What is Figma?**

Figma is the first interface design tool based in the browser, making it easier for teams to create software. Never upload, download, or worry about versions again, Present and prototype in the same tool where you design. One single source of truth for design files.

- **Who is Figma for?**
 - Figma is an easy-to-use platform which can be used by all people.
- **Features**
 - **Prototyping:** Stay in one tool for your design, prototyping and communication.
 - **Powerful editing tools:** Fast and powerful, Figma has the tools you need to get your work done.
 - **Built for UI:** A better way to create digital products.
 - **Team libraries:** Create design systems with linked UI components the whole team can use.
 - **Getting work into production:** Reduce the friction of turning visual concepts into code.
 - **Built for teams:** The flexibility and controls you need to scale Figma for your team.
- **Cost**
 - Basic – Free forever. Professional - \$12/month (yearly) and \$15/month (monthly).
- **Coding**
 - Available

Experiment Number 2

Study of Figma Tools: Frames, Images, Text tool, and Font Styles, Localization feature, Grid Layouts and Boolean operations.

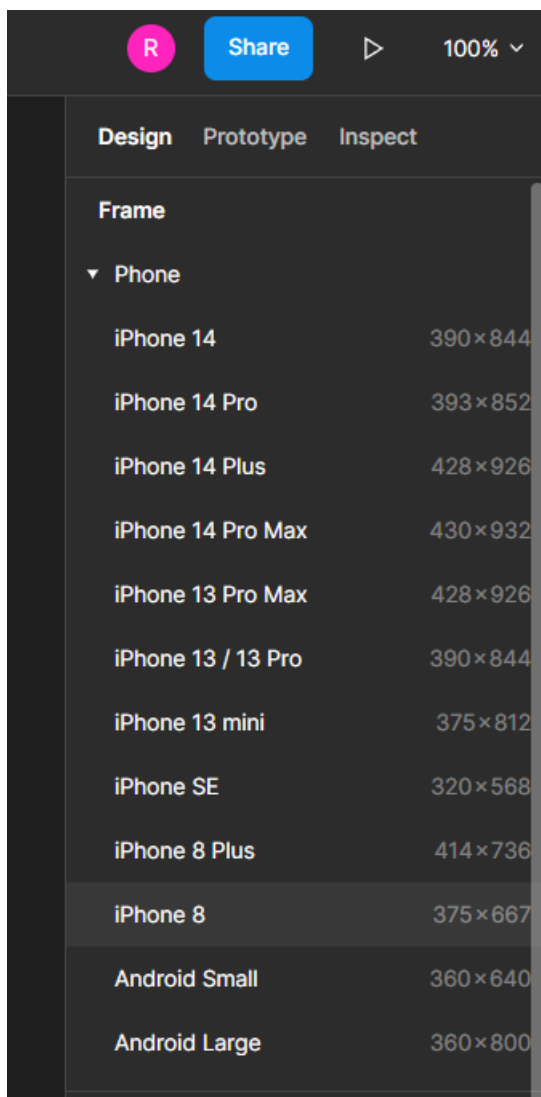
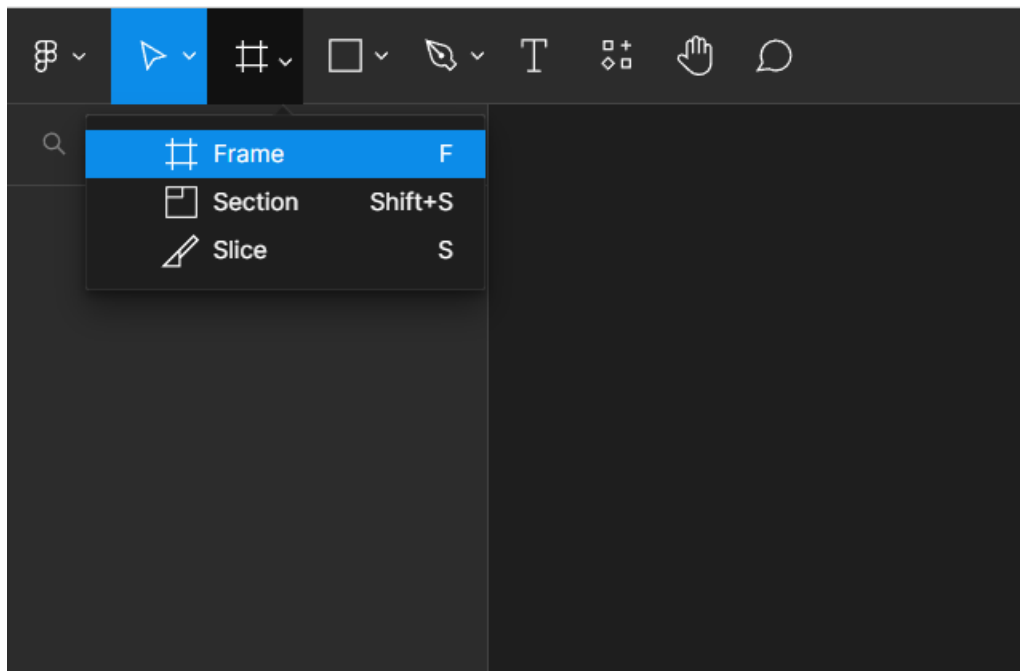
Add information about each tool with screenshot.
Stepwise answer is expected for each feature.

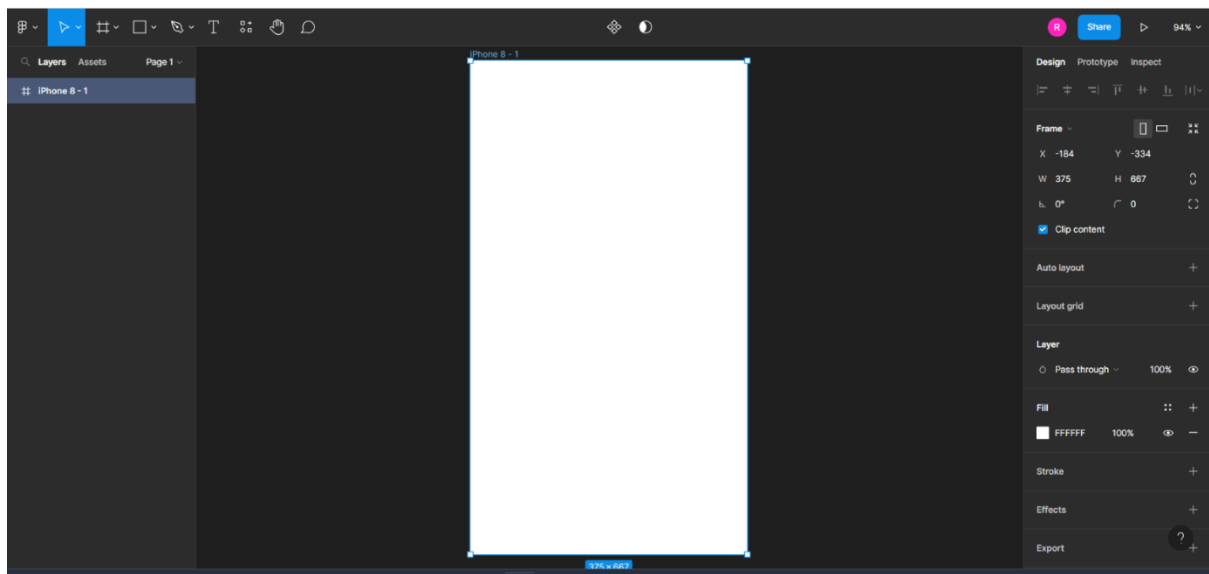
Frames:

In Figma, you can add layers directly to the Canvas. If you're designing for a specific device or screen size, you may want to create a container for your designs. This is where frames come in.

Create frames in the canvas using the frame tool. There are a few ways to select the frame tool:

- Use the keyboard shortcuts **F** or **A**
- Select the frame tool in the toolbar:

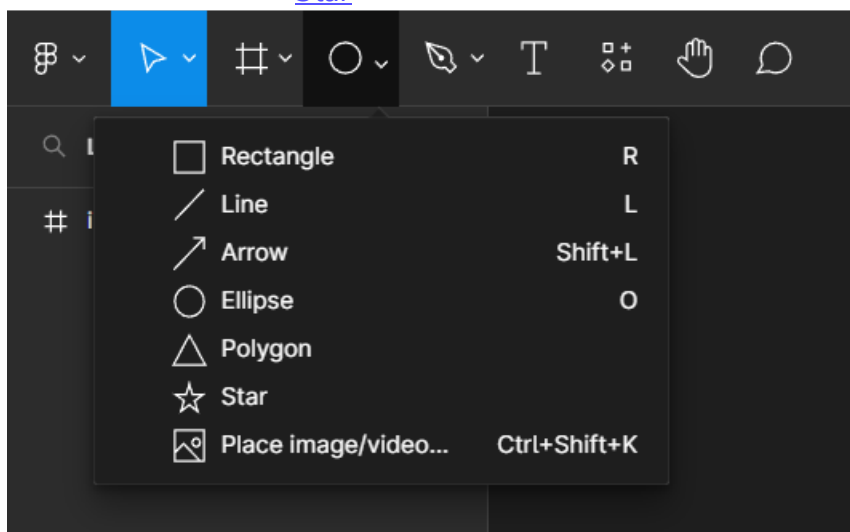




Shapes:

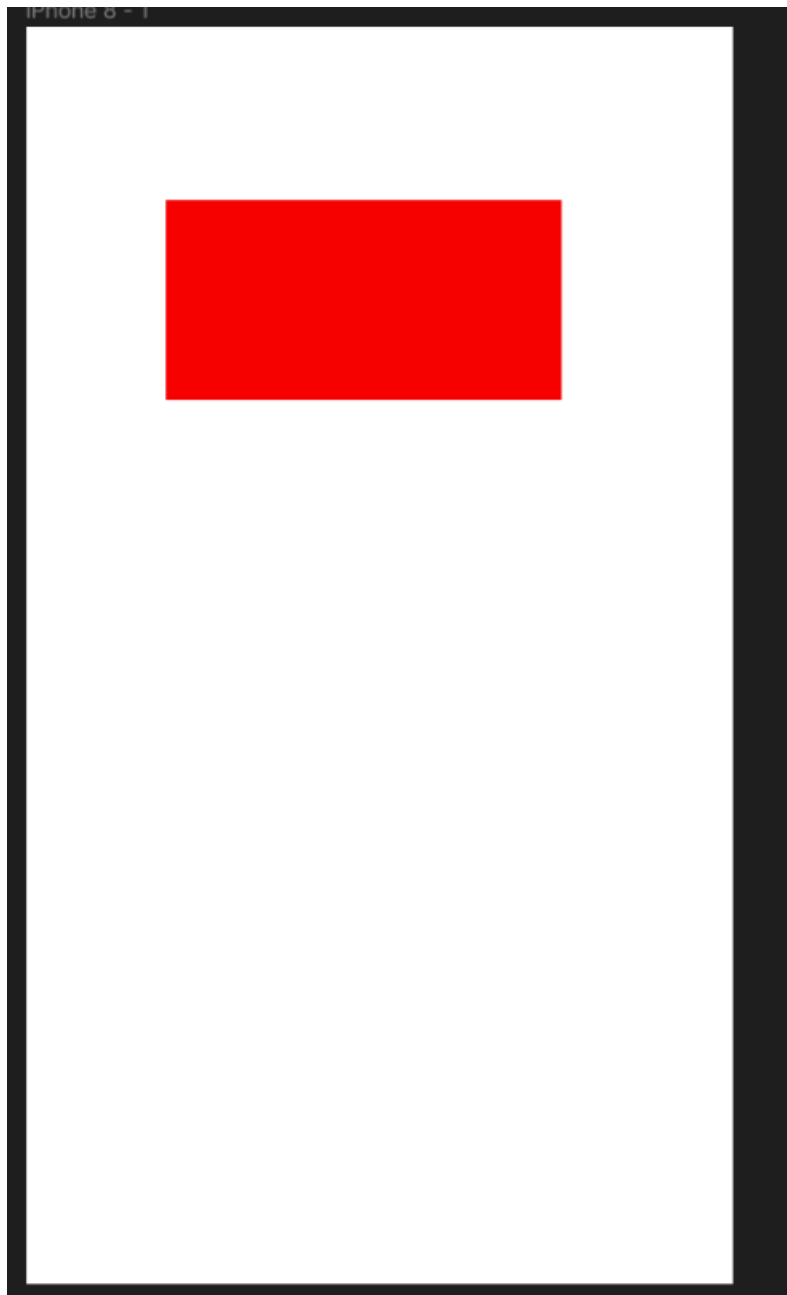
Shapes make up the majority of your layers in any given design. Figma has some basic shapes you can use as your building blocks.

- [Rectangle](#)
- [Line](#)
- [Arrow](#)
- [Ellipse](#)
- [Polygon](#)
- [Star](#)

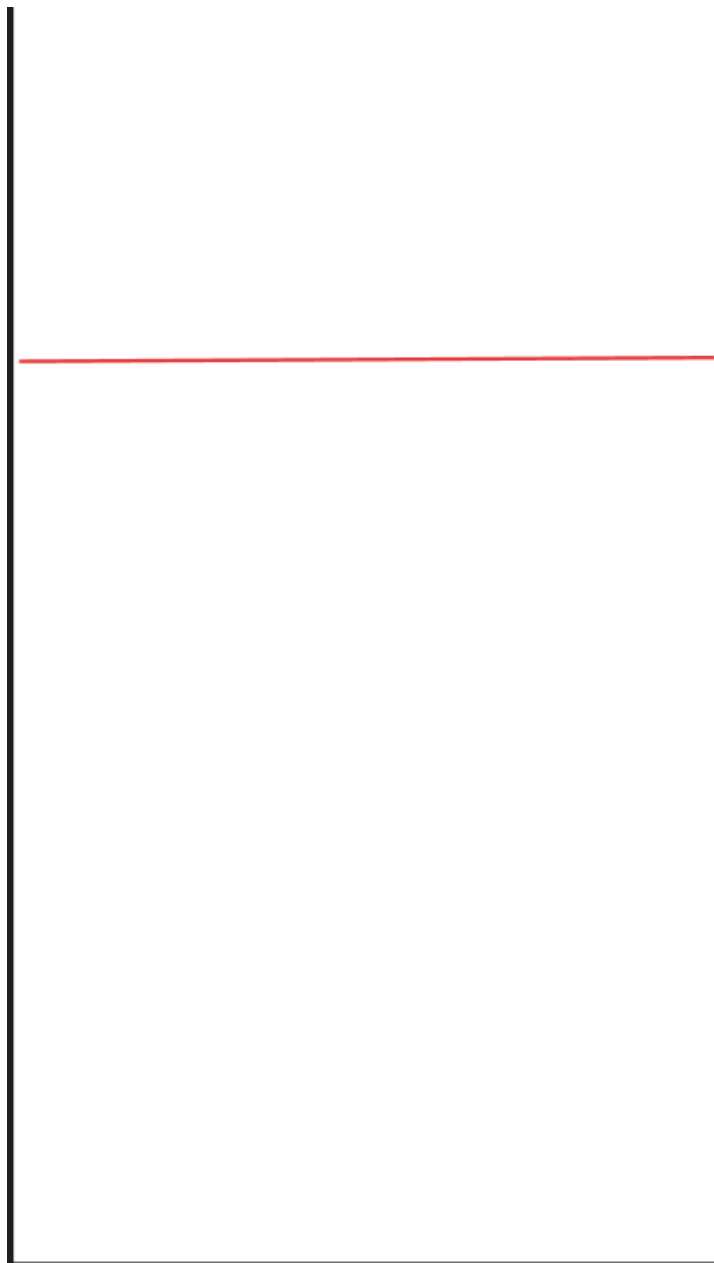


You can access these basic shapes from the Shape tools menu in the toolbar. Click the arrow next to the Rectangle to open the shape tools menu.

Rectangle:



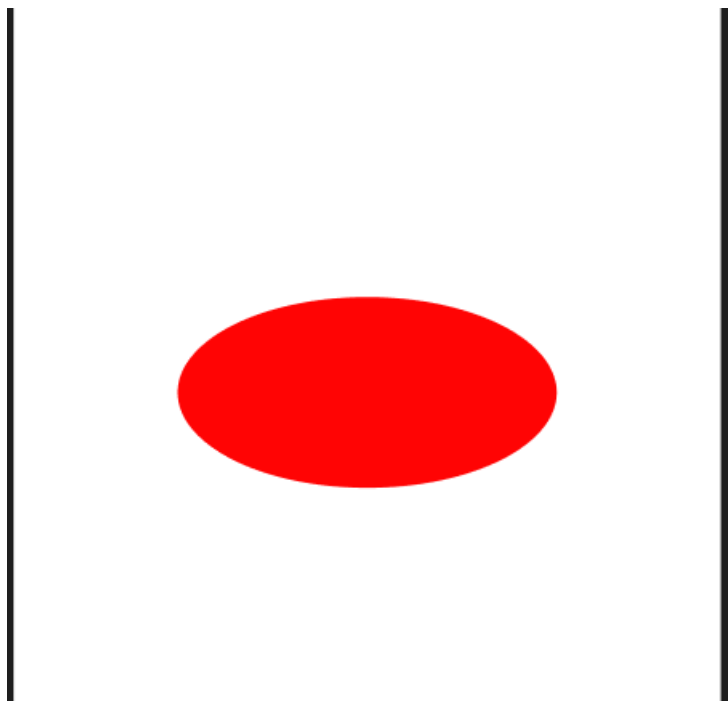
Line:



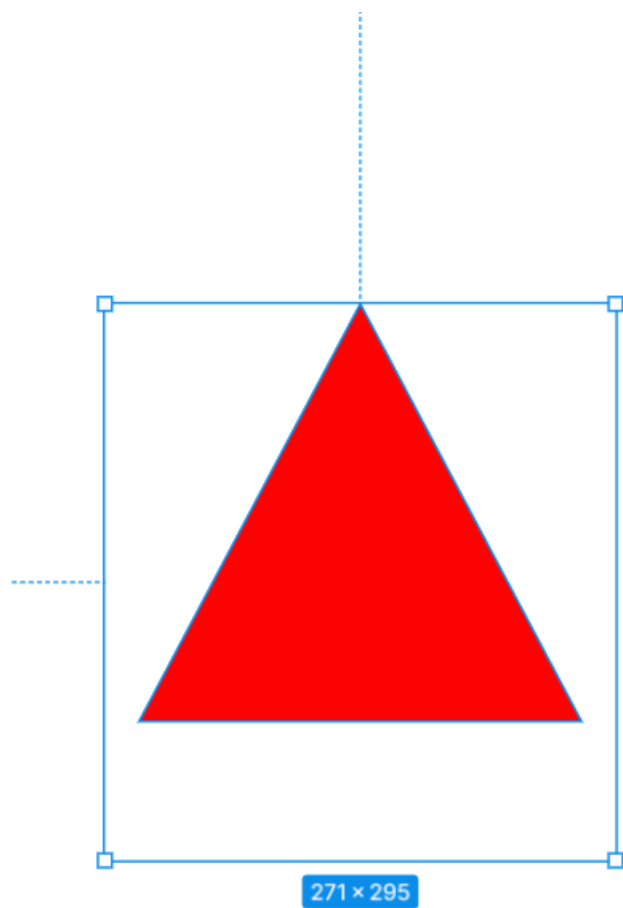
Arrow:



Ellipse:



Polygon:



Star:

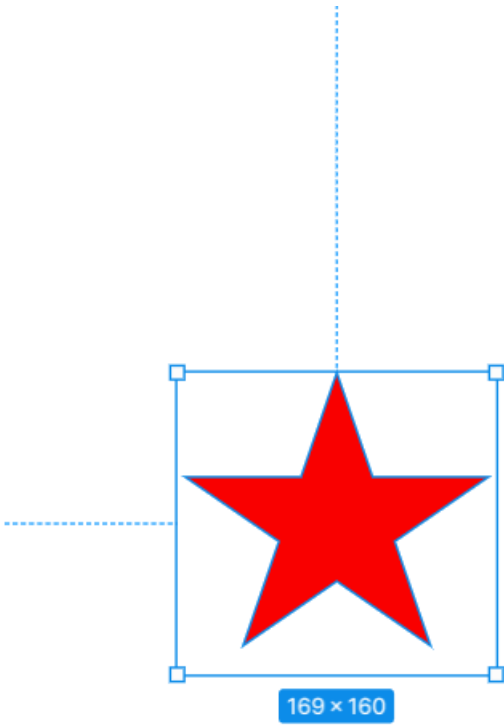
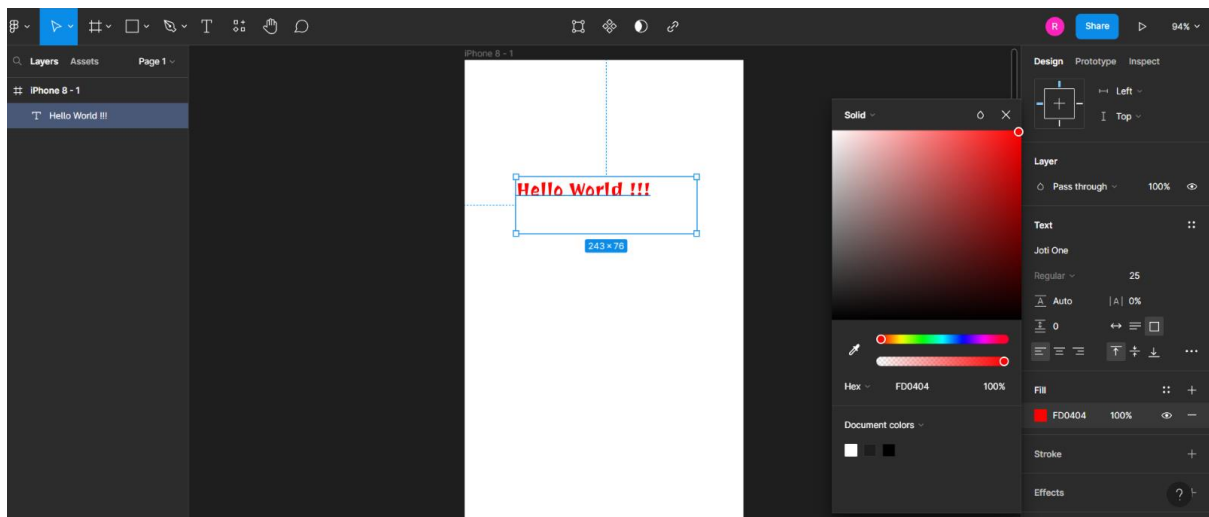


Image:



Text Tool:



Experiment Number 3

Project Proposal and Requirement Gathering (Choose the project).

System Concept Statement:

Mention name of your project.

Introduction of your project.

Work Flow of your project.

Need of you project and need of user friendly UI.

Car Website

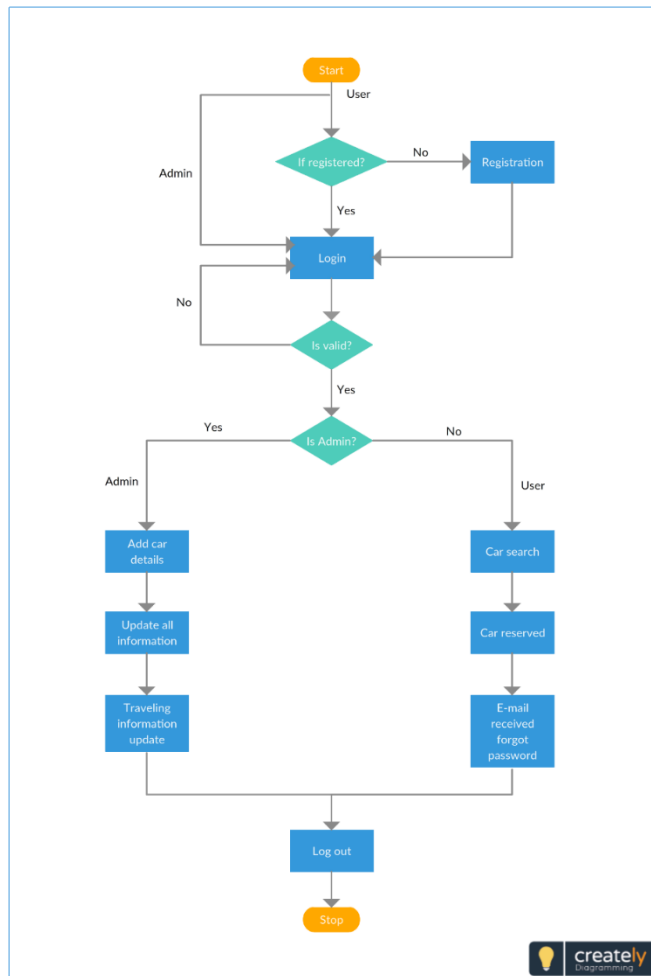
Car website is a Website. The Car Website is being developed for customers so that they can book their cars from any part of the world. This Website takes information from the customers through filling their details

Second is news section. A customer being registered in the website has the facility to book a Car which he requires. The proposed system is completely integrated online systems. It automates manual procedure in an effective and efficient way.

Experiment Number 4

Analysis

Initial Flow Model : here you have to show diagrammatically flow model of your project



SiteMap : you need to show diagram of sitemap.

User Personas for your application:

You need to show user personas for different users as per the template provided by teacher.

Experiment Number 5

Design

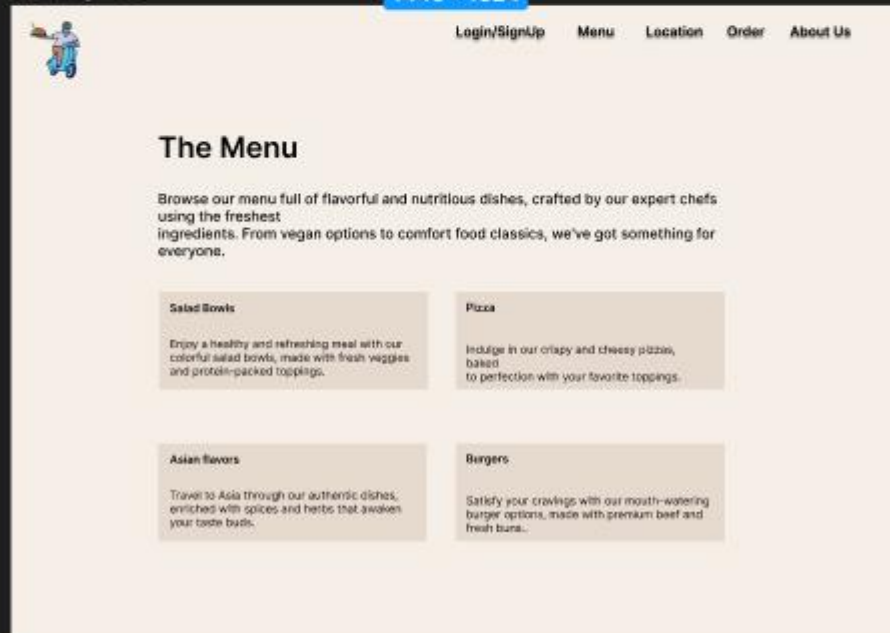
Creation of Scenario:

Desktop - 1



Desktop - 2

1440 × 1024

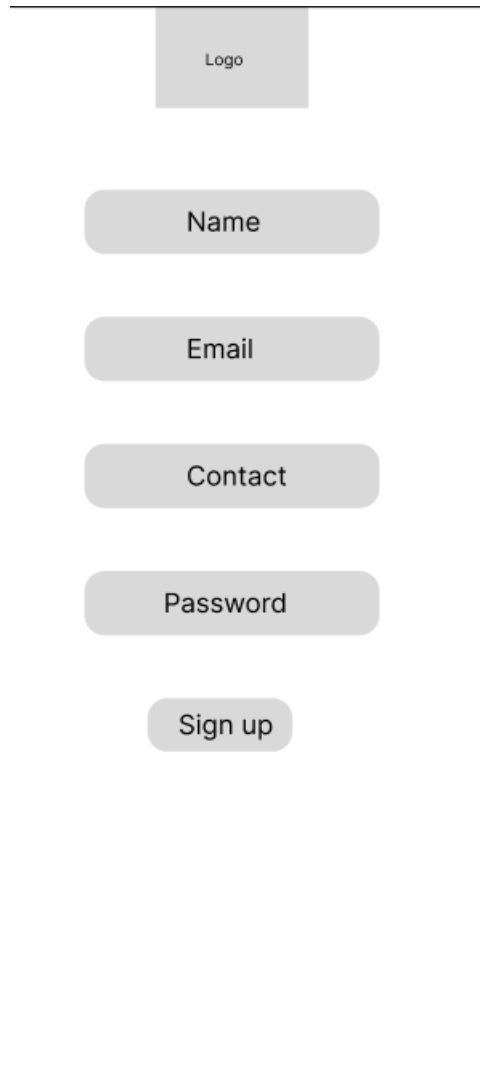


Experiment Number 6

Prototype

Paper Prototype:

Wireframe:



A wireframe of a sign-up form. It consists of a vertical stack of elements: a logo placeholder at the top, followed by five input fields labeled 'Name', 'Email', 'Contact', 'Password', and 'Sign up'. The 'Sign up' field is a button. The entire form is enclosed in a thin black border on the right and bottom, with a horizontal line at the top.

Logo

Name

Email

Contact

Password

Sign up

Logo

Email

Password

Log in

Desktop - 7



Desktop - 9



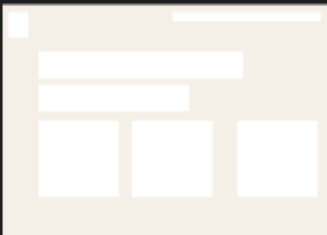
Desktop - 13



Desktop - 8



Desktop - 14



Desktop - 12



PIZZA



PIZZA



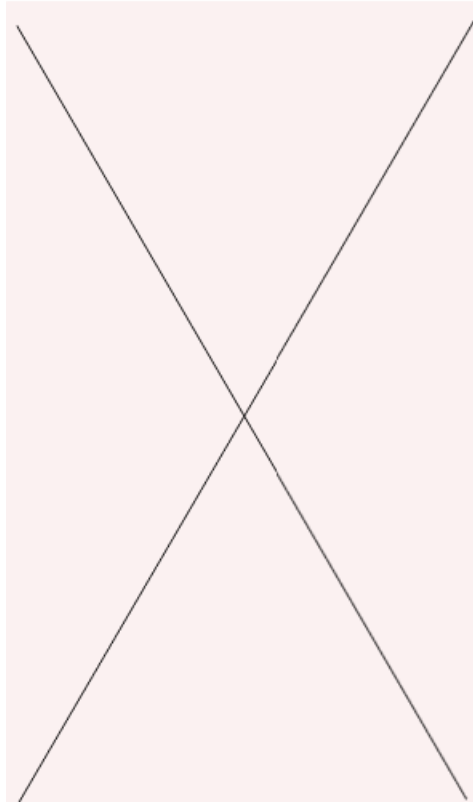
PIZZA



PIZZA



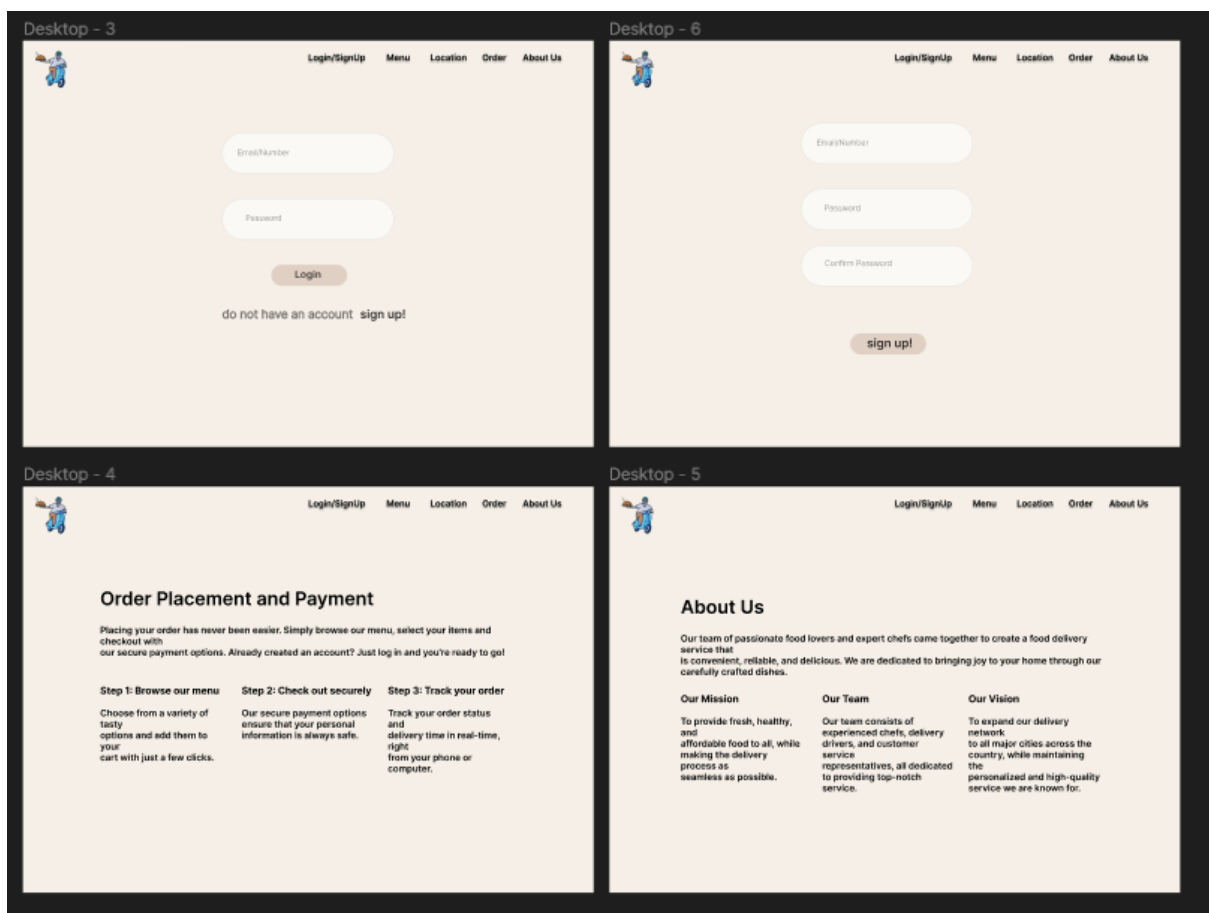
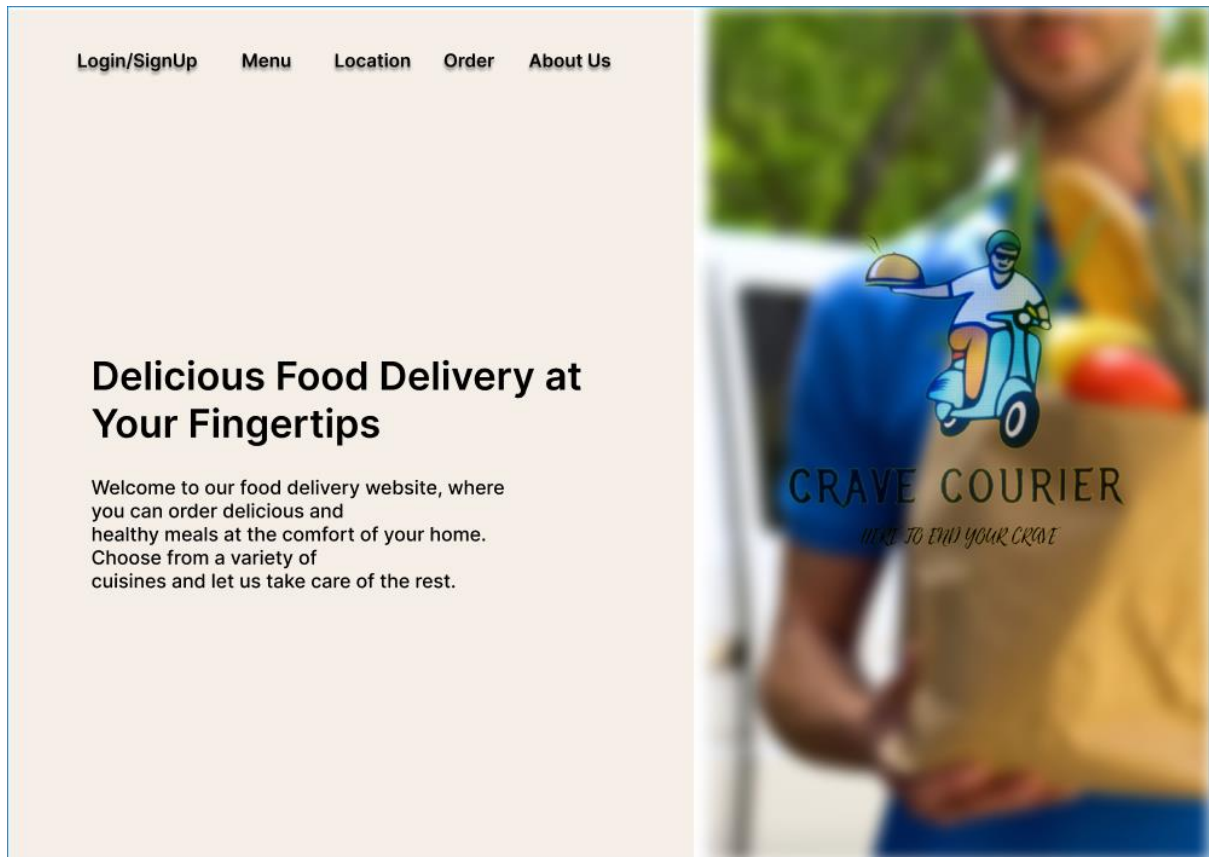
Logo

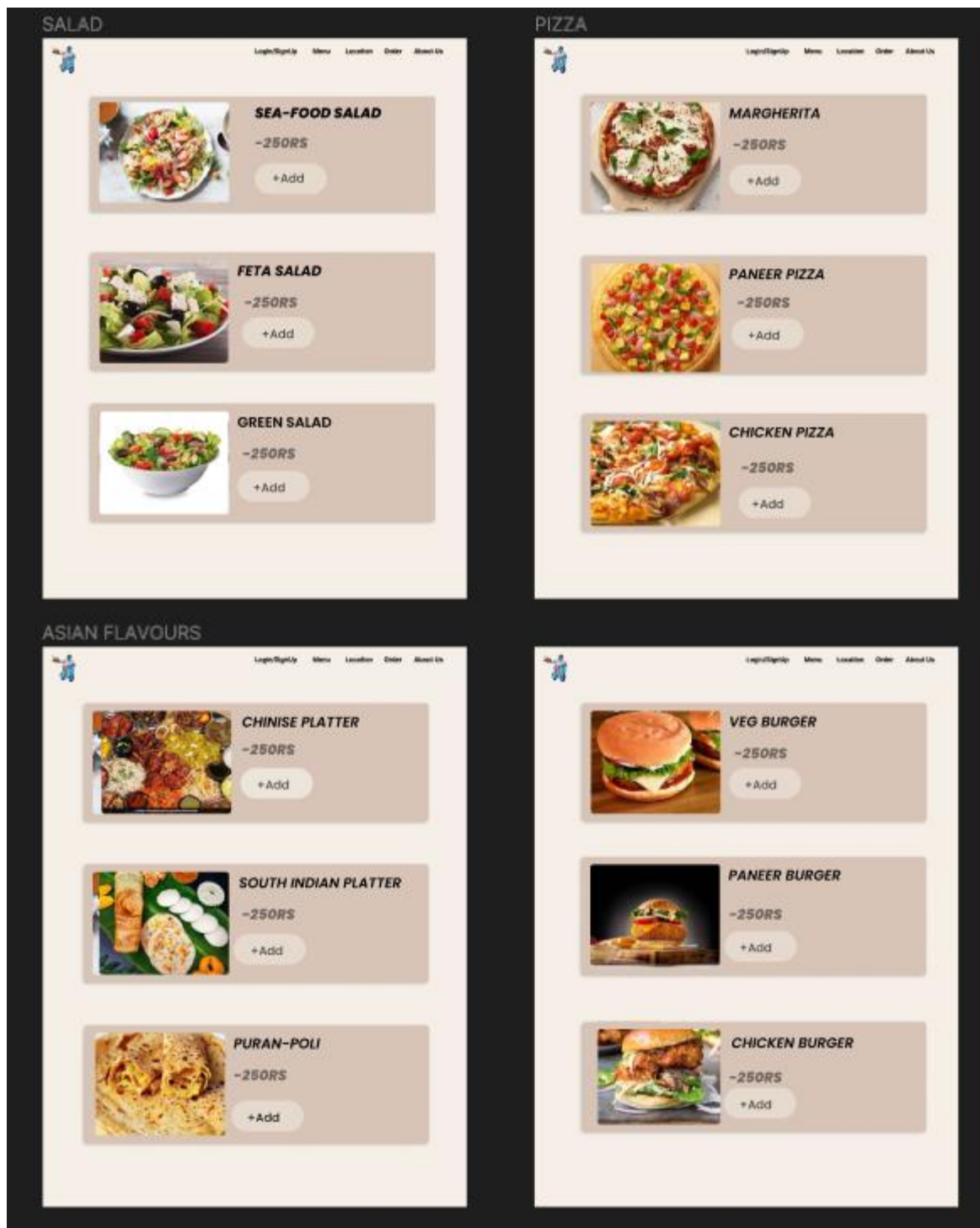


Experiment Number 7

Implementation

You can include coding of designing part and It should be optimized.





Experiment Number 8

In this part take the overall feedback from users for different parameters used in your project.

For Example:

User1:

John Alice

You can show it in tabular format.

Sr.no	Goal	Description	Analysis (Scale 1 to 5)
1	Aesthetically Pleasing	Layout , Background / foreground color	5
2	Clarity	All the controls provides clarity of the functionality of the features	4
3	Compatibility	All age group can understand the interface easily	4
4	Transparency	Permit the user to focus on the task or job, without concern for the mechanics of the interface	4
5	Trade-Off	People's requirement always take precedence over technical requirements	5
6	Familiarity	Images and options are relevant	5

SUS Evaluation:

Scale Strongly Disagree->1 Disagree->2 Average->3 Agree->4 Strongly Agree>5

Sr. No.	Parameter	Analysis	Description
1	I think that I would like to use this system frequently	Yes the application is used in daily life for reading news and motivational quotes.	5
2	I found the system unnecessarily complex.	No the system is not that complex. Can be easily interpreted	5
3	I thought the system was easy to use.	Yes the system is easy to use and understand and get frequent updates	5
4	I Need technical support to use the system	No. All the controls provides clarity of the functionality of the features. Thus no need of technical support.	4
5	I found the various functions in this system were well integrated	Yes , up to some extent the functions are well integrated.	3
6	I thought there was too much inconsistency in this system.	No, there are inconsistencies due to network issues while communication.	4

7	I would imagine that most people would learn to use this system very quickly.	All the controls provides clarity of the functionality of the features. All age group can understand the interface easily.	5
8	I found the system very cumbersome to use.	Yes at all. As it takes a very less space of mobile storage.	3
9	I felt very confident using the system	Yes as it was easy to use. It can send original image to receiver.	4
10	I needed to learn a lot of things before I could get going with this system.	I needed to learn a lot of things before I could get going with this system.	2

Evaluation based on Nielsen heuristics:

Sr.no	Parameters	Opinion	Scale (From 1 to 7)
1	Visibility of system status	User gets all the necessary information that he/she has Requested and also can differentiate the same	6
2	Match between system and the real world	User can see the content with different languages whichever user is comfortable with it.	5
3	User Control and Freedom	User has full authority to check application security and also to update the same for account.	4
4	Consistency and Standards	Users should not have to wonder whether different words, situations or actions mean the same thing	3
5	Help users recognize, diagnose and recover from errors.	Checkpoints are used to maintain the state of the applications, those can be used to recover from the failure.	7
6	Error prevention	Hike allows user to provide a privacy to send messages and status.	5
7	Recognition rather than recall	No illiterate people can use Hike App by remembering few keywords such as name	5
8	Flexibility and efficiency of use	It has various section to differentiate between Category of app such language selection, send normal messages without internet, sticker.	2
9	Aesthetic and minimalist design	User gets all updated information, only with internet connectivity.	7
10	Help and Documentation	A proper user manual is provided to user to the user where user can get all the basic required answer.	7

Improvements:s

Sr.no	Suggestions
1	Must have common language for illiterate people
2	Must have location of train where it is being at current.

This way you can show it for at least 4/5 users.

Scales can be changed.

You can decide range and description for scale.

For ex: (Range 1 to 5)

Poor 1

Average 2

Good 3

Very Good 4

Excellent 5

Please note that all user's feedback/comment should be taken through google form and attach screenshots of report generated by google form compulsory.