

10
YEARS
OF UNIVERSITY
RECOGNITION
20 YEARS OF
ACADEMIC
EXCELLENCE



School of Electronics and Communication Engineering

Program
B.Tech. in ECM



UI/UX Design Lab

LABORATORY MANUAL

B20EP0601

VI Semester
2020-24

Vision of the University

"REVA University aspires to become an innovative university by developing excellent human resources with leadership qualities, ethical and moral values, research culture and innovative skills through higher education of global standards"

Mission of the University

- To create excellent infrastructure facilities and state-of-the-art laboratories and incubation centres
- To provide student-centric learning environment through innovative pedagogy and education reforms
- To encourage research and entrepreneurship through collaborations and extension activities
- To promote industry-institute partnerships and share knowledge for innovation and development
- To organize society development programs for knowledge enhancement in thrust areas
- To enhance leadership qualities among the youth and enrich personality traits, promote patriotism and moral values.

Vision of the School

The School of Electronics and Communication Engineering is envisioned to be a leading centre of higher learning with academic excellence in the field of electronics and communication engineering blended by research and innovation in tune with changing technological and cultural challenges supported with leadership qualities, ethical and moral values.

Mission of the School

- Establish a unique learning environment to enable the students to face the challenges in the field of Electronics and Communication Engineering and explore multidisciplinary which serve the societal requirements.
- Create state-of-the-art laboratories, resources, and exposure to the current industrial trends to enable students to develop skills for solving complex technological problems of current times and provide a framework for promoting collaborative and multidisciplinary activities.
- Promote the establishment of Centres of Excellence in niche technology areas to nurture the spirit of innovation and creativity among faculty and students.
- Offer ethical and moral value-based education by promoting activities which inculcate the leadership qualities, patriotism and set high benchmarks to serve the society

Program Educational Objectives (PEOs)

The Program Educational Objectives of B. Tech in B.Tech in ECE/ ECM Engineering are as follows:

- PEO -1: To have successful professional careers in industry, government, academia, and military as innovative engineers.
- PEO -2: To successfully solve engineering problems associated with the lifecycle of B.Tech in ECE/ ECM Engineering Systems either leading a team or as a team member.
- PEO -3: To continue to learn and advance their careers through activities such as participation in professional organizations, attainment of professional certification for lifelong learning and seeking higher education.
- PEO -4: To be active members ready to serve the society locally and internationally and will undertake entrepreneurship for the growth of economy and to generate employment.

Program Outcomes (POs)

On successful completion of the program, the graduates of B. Tech. in ECE/ ECM Engineering program will be able to:

- **PO-1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals for the solution of complex problems in B.Tech in ECE/ ECM Engineering.
- **PO-2: Problem analysis:** Identify, formulate, research literature, and analyze engineering problems to arrive at substantiated conclusions using first principles of mathematics, natural, and engineering sciences.
- **PO-3: Design/development of solutions:** Design solutions for complex engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO-4: Conduct investigations of complex problems:** Use research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **PO-5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **PO-6: The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **PO-7: Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO-8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO-9: Individual and team work:** Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.
- **PO-10: Communication:** Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.
- **PO-11: Project management and finance:** Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.
- **PO-12: Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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Course Title	UI/UX Design				Course Type	H C
Course Code	B20EP0601	Credits	3		Class	V Semester
Course Structure	LTP	Credits	Contact Hours	Work Load	Total Number of Classes Per Semester	
	Lecture	1	1	1		
	Tutorial	1	2	2	Theory	Practical
	Practical	1	2	2		
	Total	3	5	5	14+28	28
					50%	50%

COURSE OVERVIEW:

The course is organized around a practical project with iterative design of a graphical user interface to organize information about users into useful summaries with affinity diagrams, to convey user research findings with personas and scenarios and to learn the skill of sketching as a process for user experience design. The students will be given exposure to wire framing and Prototyping software in the various UI/UX Design tools.

COURSE OBJECTIVES:

The objectives of this course are:

1. The aim of the UI/UX course is to provide students with the knowledge of user-centered design,
2. User -centered methods in design, graphic design on screens, simulation and prototyping techniques, usability testing methods, interface technologies and
3. User centered design in corporate perspective

COURSE OUTCOMES (COs):

On successful completion of this course; the student shall be able to:

CO#	Course Outcomes	POs	PSOs
CO1	Understand iterative user-centered design of graphical user interfaces	1,2,3,5,9	1,2,3
CO2	Apply the user Interfaces to different devices and requirements	1,2,3,5,9	1,2,3
CO3	Create high quality professional documents and artifacts related to the design process.	1,2,3,5,9	1,2,3
CO4	Develop the complete design process.	1,2,3,5,9	1,2,3
CO5	Apply implementation of GUI to different devices.	1,2,3,5,9	1,2
CO6	Create Graphically User Interface for applications	1,2,3,5,9	1,3

BLOOM'S LEVEL OF THE COURSE OUTCOMES:

CO#	Bloom's Level					
	Remember (L1)	Understand (L2)	Apply (L3)	Analyze (L4)	Evaluate (L5)	Create (L6)
CO1	?	?	?	?		
CO2	?	?	?	?		
CO3	?	?	?	?		
CO4	?	?	?	?		
CO5	?	?	?	?		
CO6	?	?	?	?		

COURSE ARTICULATION MATRIX:*Mapping of Course Outcomes with Program Outcomes*

CO/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2		2				1				3	2	1
CO2	3	3	3		2				1				3	2	1
CO3	3	3	2		2				1				3	2	
CO4	3	3	3		2				1				2	2	1
CO5	3	3	2		3				1				3	2	1
CO6	3	3	3		3				1				3	2	1

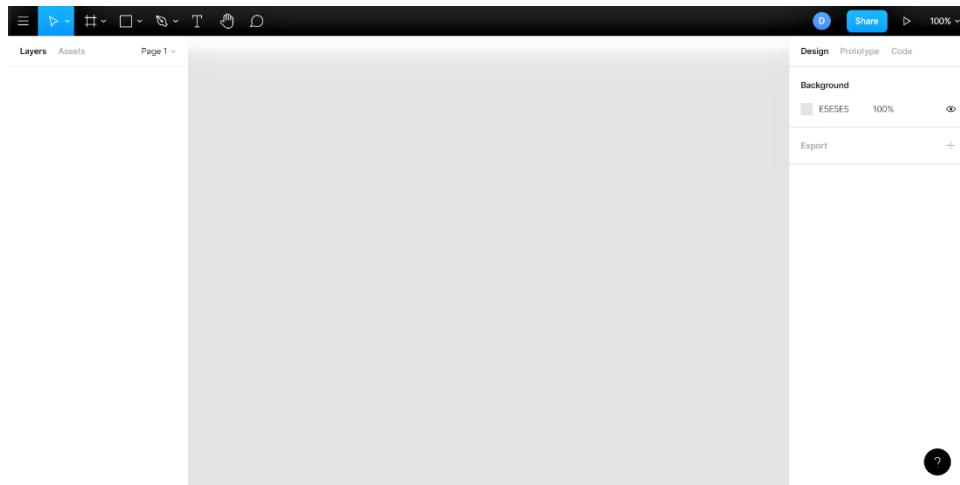
Note:1-Low,2-Medium,3-High COURSE CONTENTS

Experiment No-1

Aim: Introduction to Figma Design tools (All basic Components)

The Editor

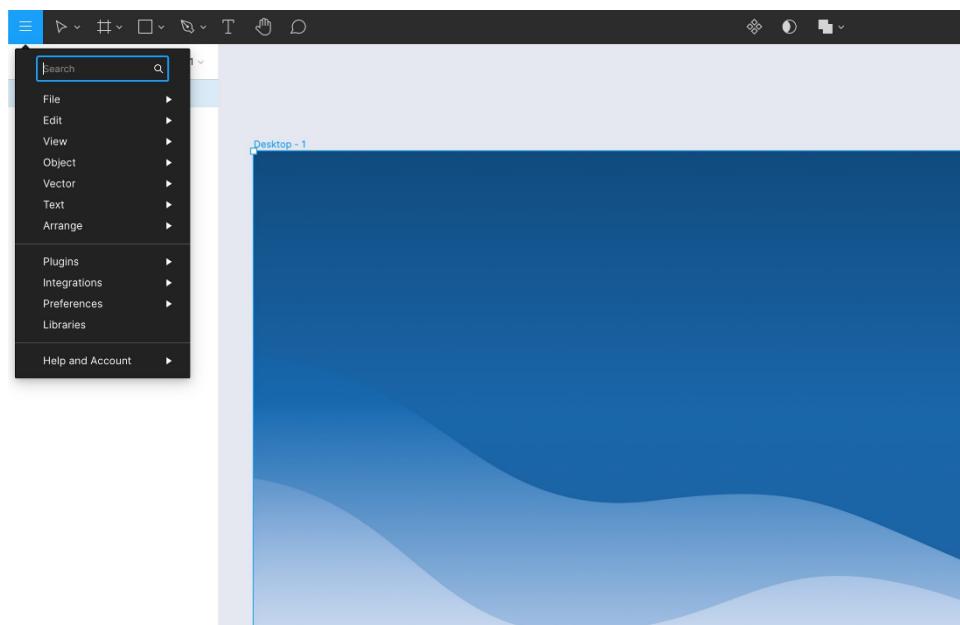
Most of the modern design tools, especially the UI design tools look the same. The editor is where you end up once you create a new file.



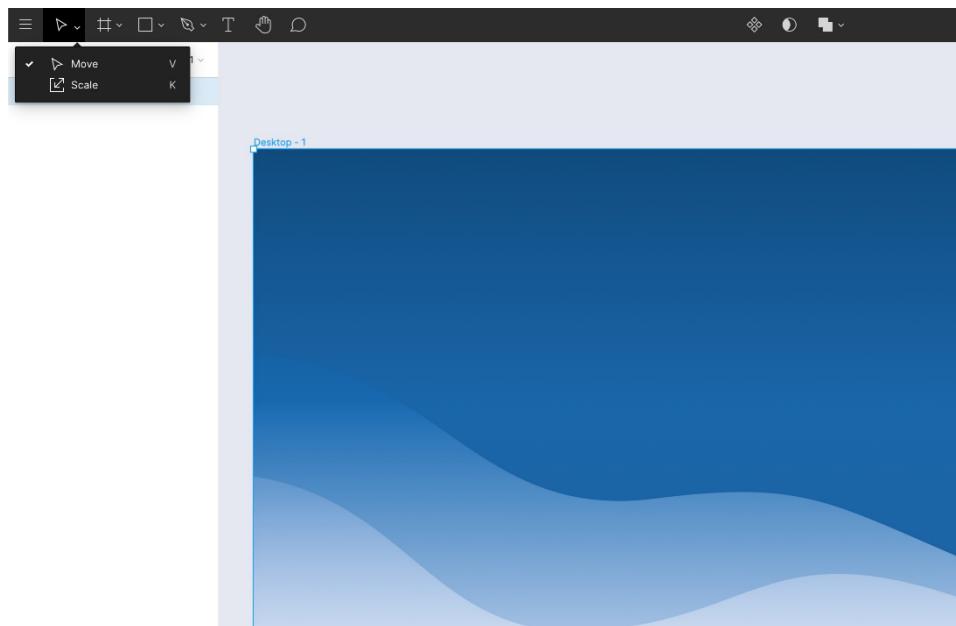
Toolbar

The first section we will talk about is the toolbar. It has tons of options. Let us go through those options one by one. Starting from the left:

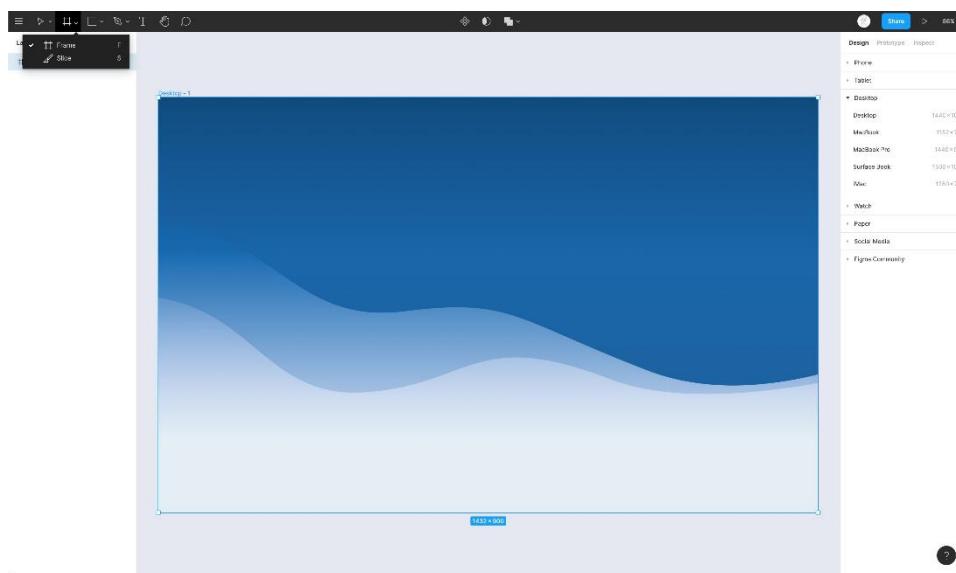
1. The hamburger menu gives you access to a lot of different options such as **Preferences**, **Plugins**, **Libraries**, **Account settings**, **Different Options**, and **Customizations**.



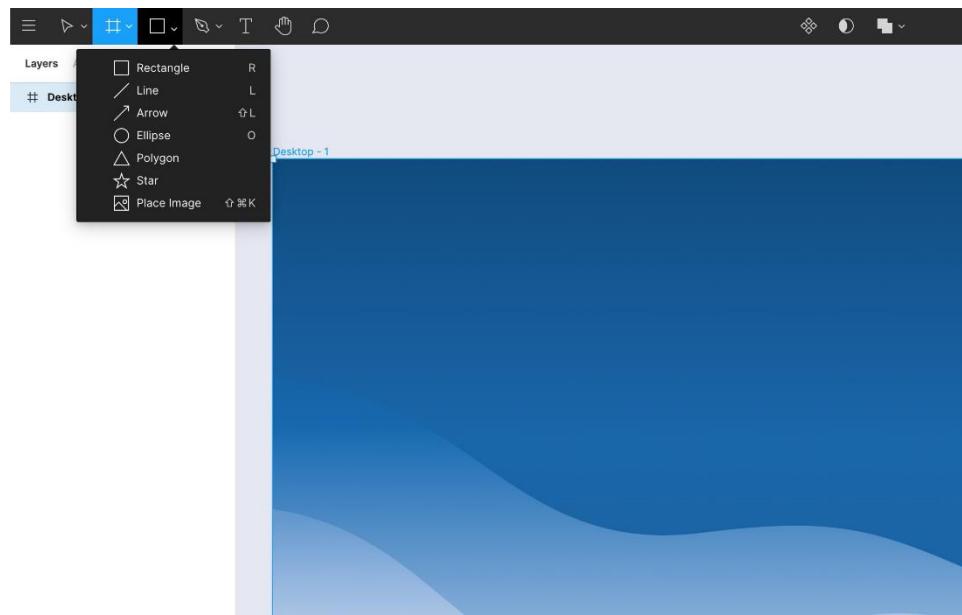
2. Next up is the select tool which gives you two options - **Move** and **Scale**.



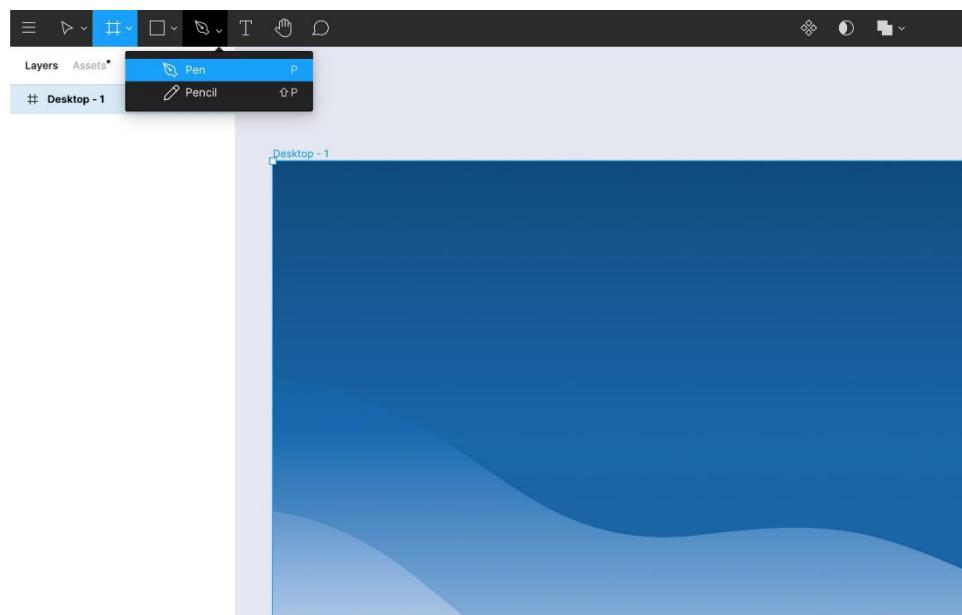
3. The frame tool allows you to create new artboards. You can either create a custom or select from one of the default options on the right panel. This tool also gives you access to the slice tool, which allows you to specify the region you would like to export.



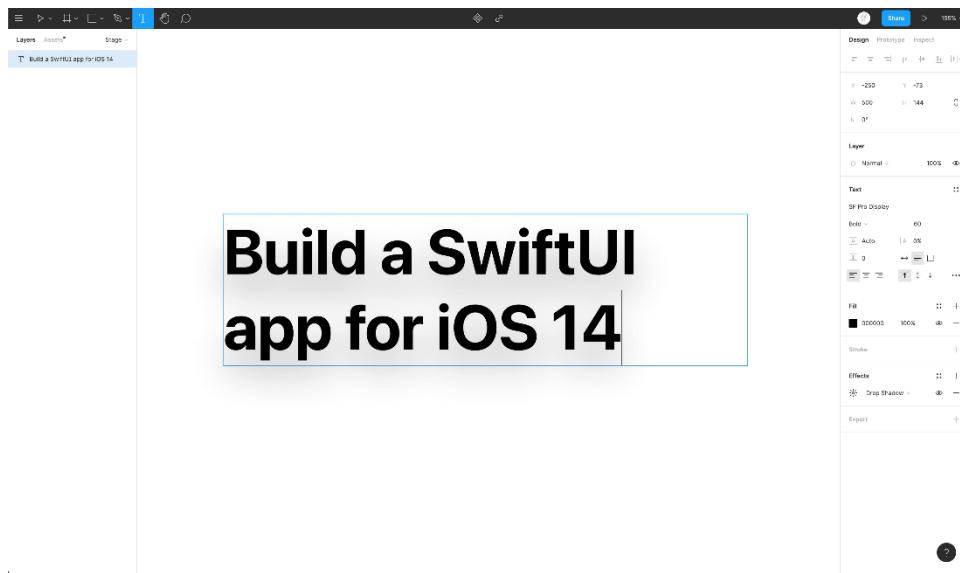
4. The shape tools give you the ability to create basic pre-defined shapes.



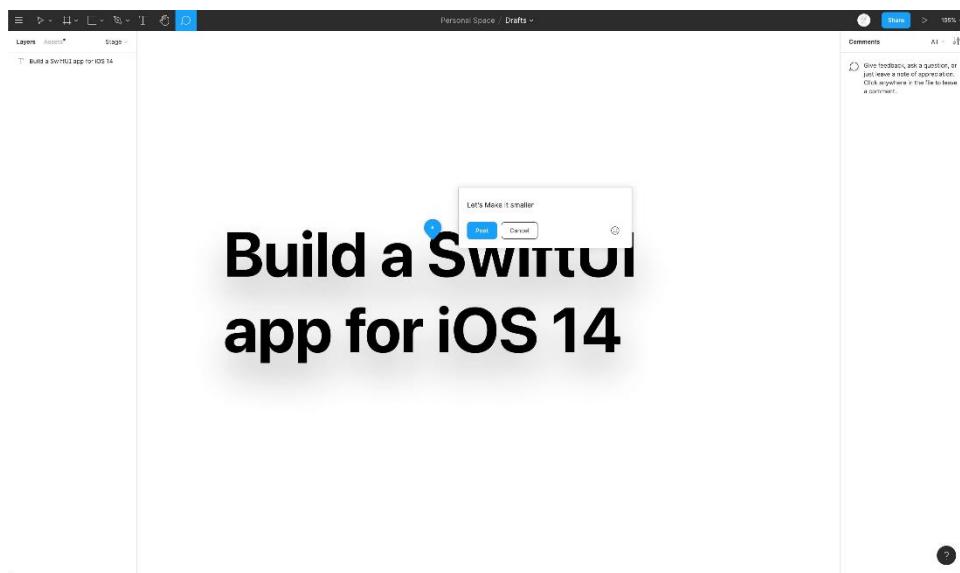
5. The pen tool allows you to create custom shapes using vector anchor points. The pencil tool is also available in the Pen tool dropdown.



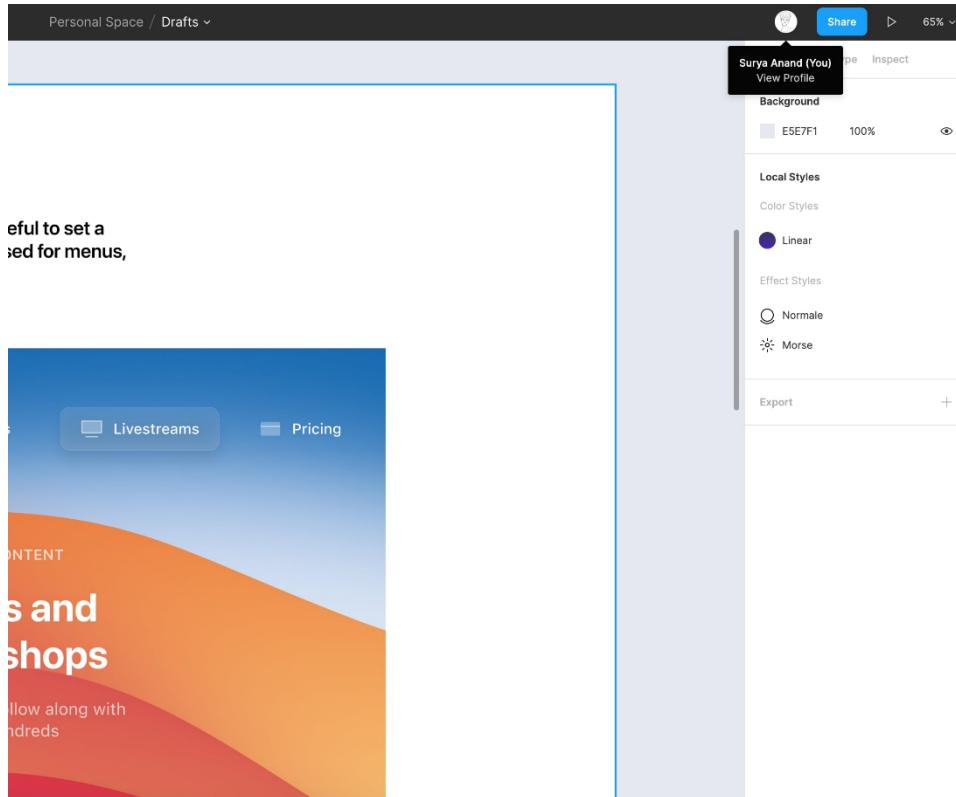
6. The type of tool is what you will use to add text elements to your design.



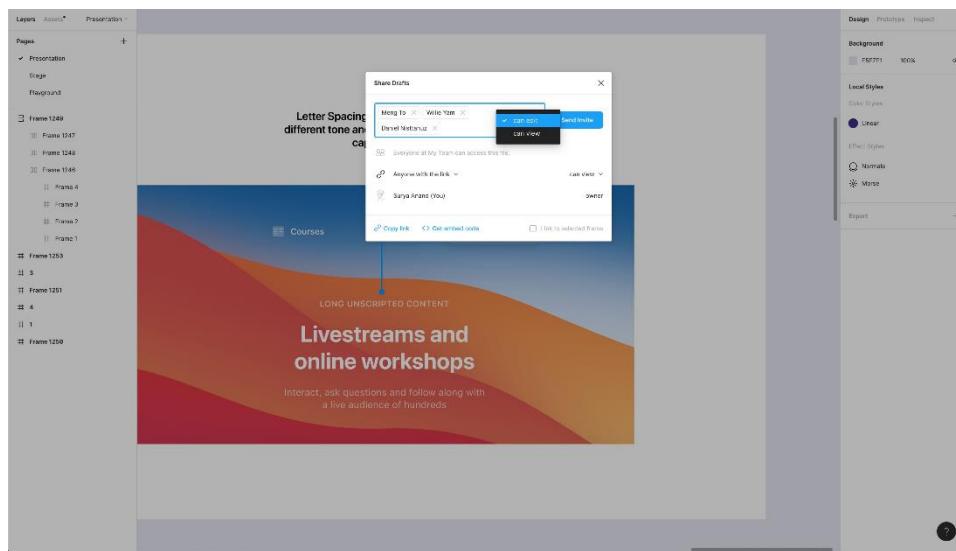
7. **Hand tool** comes in handy when you want to move around in your design file without activating hover lines, selecting elements, or accidentally moving the same.
8. Now, let us move on to the **Comment tool** which gives the user the ability to add comments throughout the design file, view said comments, and reply to the same.



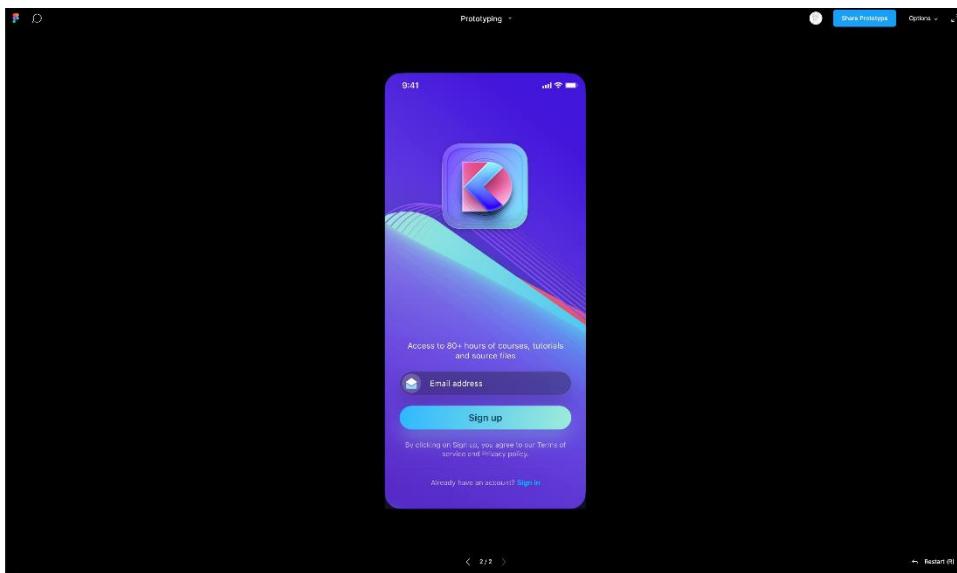
9. On the right side, we've user profile avatars which allow you to see who is viewing the file at any point in time.



10. Right next to it is the **Share** button which provides you with a link or an embedded code that you can share. It also opens share settings.

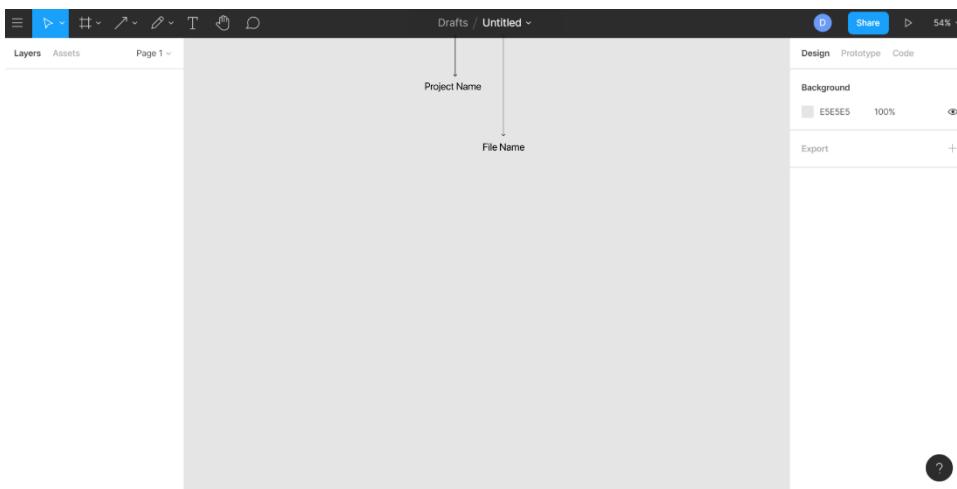


11 The play button allows you to view the prototype



File & Project Names

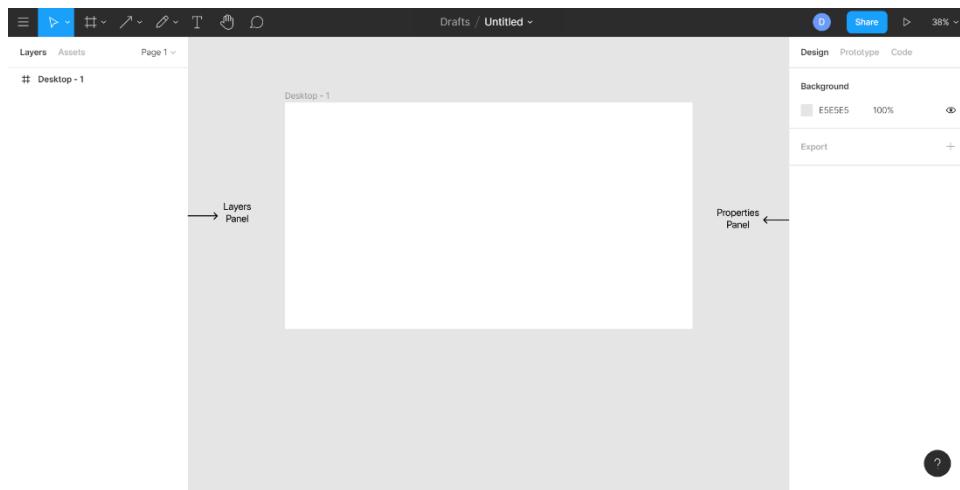
- The middle of the Toolbar contains the name of the file, which is 'Untitled' by default. Simply click on it to edit.
- The project name, 'Draft' by default, contains the file. You can change the project name to move the file to another project.



Panel

There are two panels located on either side of the editor.

- Layers Panel: the panel to the left is the Layers panel. It contains Layers, Assets and Pages that have been added to the file.
- Properties Panel: the one on the right side is the Properties panel. Here, you can customize the Frame Size, Positions, Colors, Strokes, and Effects. You can also view the code of an element here.



Conclusion

Figma is a fully web-based design tool, which can be run in your browser without sacrificing any of its functionalities. It is one of the most common choices when it comes to interface design tools. Outside of some of the useful features, such as real-time collaboration, auto layout, Figma has so many plugins and resources that can save a lot of time for our design process

Experiment No-2

Aim: Design backgrounds in Figma and Blending Modes

Theory:

Blend Modes allow you to define how you want two layers to blend. This involves taking the pixels from each layer and applying calculations to them.

This allows you to adjust aspects of an image, like the background color. Or create interesting overlays and textures.

You can adjust the Blend mode of an entire layer, or an individual fill. You can only apply one blend mode to each layer or Fill.

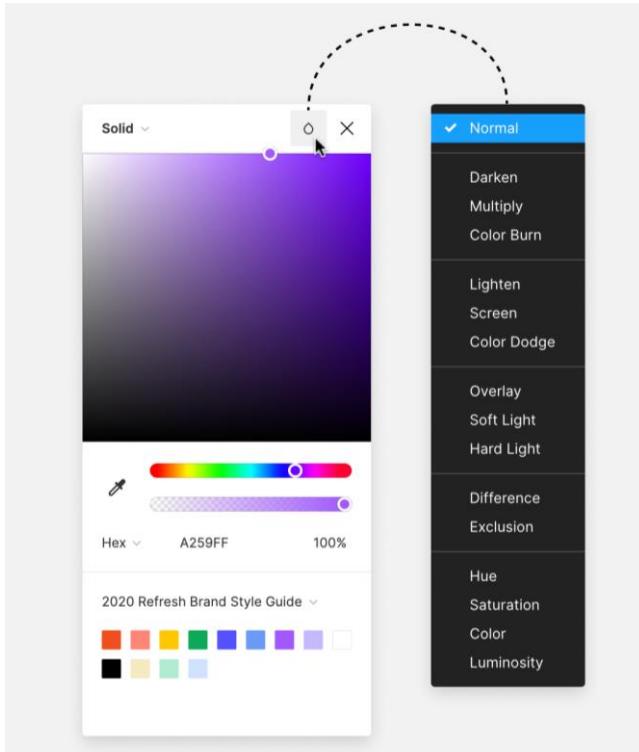
Blend Modes

There are 16 Blend modes available in Figma.

- Normal
- Darken
- Multiply
- Color Burn
- Light
- Screen
- Color Dodge
- Overlay
- Soft Light
- Hard Light
- Difference
- Exclusion
- Hue
- Saturation
- Color
- Luminosity

Fill

11. Click on the Fill thumbnail in the Properties Panel to open the [Color picker](#).
12. Click the droplet icon in the top-right corner of the Color picker to select a Blend mode:

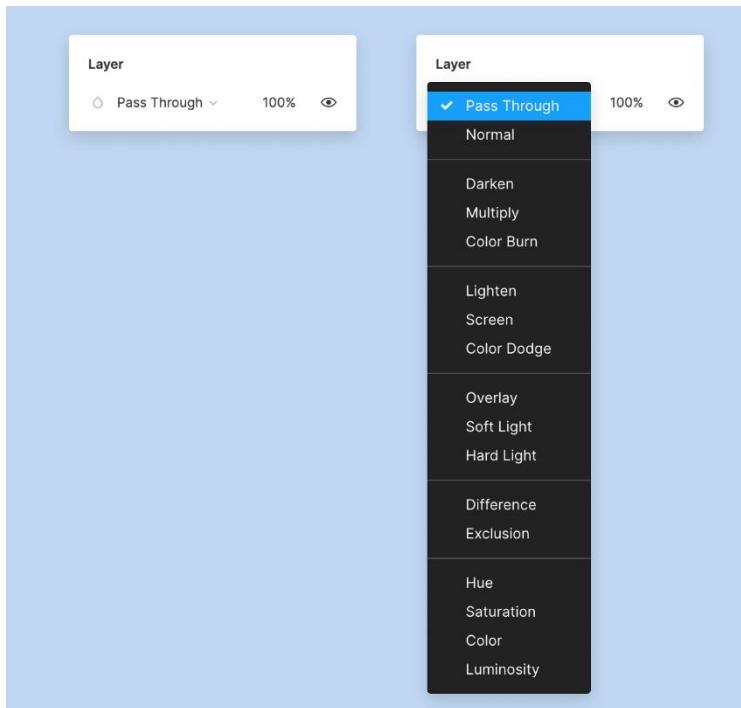


13. Select the desired Blend mode to apply. You can only apply one blend mode to each fill.
14. Click the X to return to the Canvas.

Layer

Apply a blend mode to an entire layer in the Layer section of the Properties Panel.

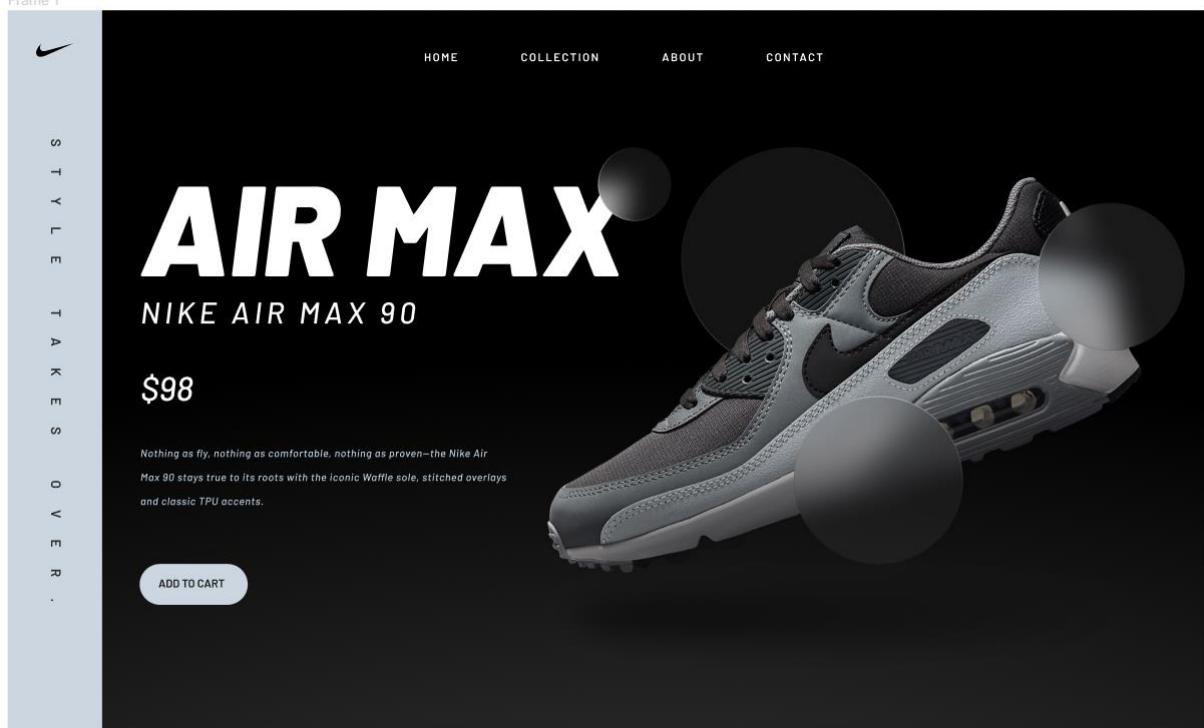
15. Select the layer you want to apply the blend mode to.
16. In the Layer section of the Properties Panel, click on the blend mode field. This will be set to *Pass through* by default.



17. Select the desired Blend mode to apply. You can apply one blend mode to each layer.

Create a Design

Frame 1

**Conclusions**

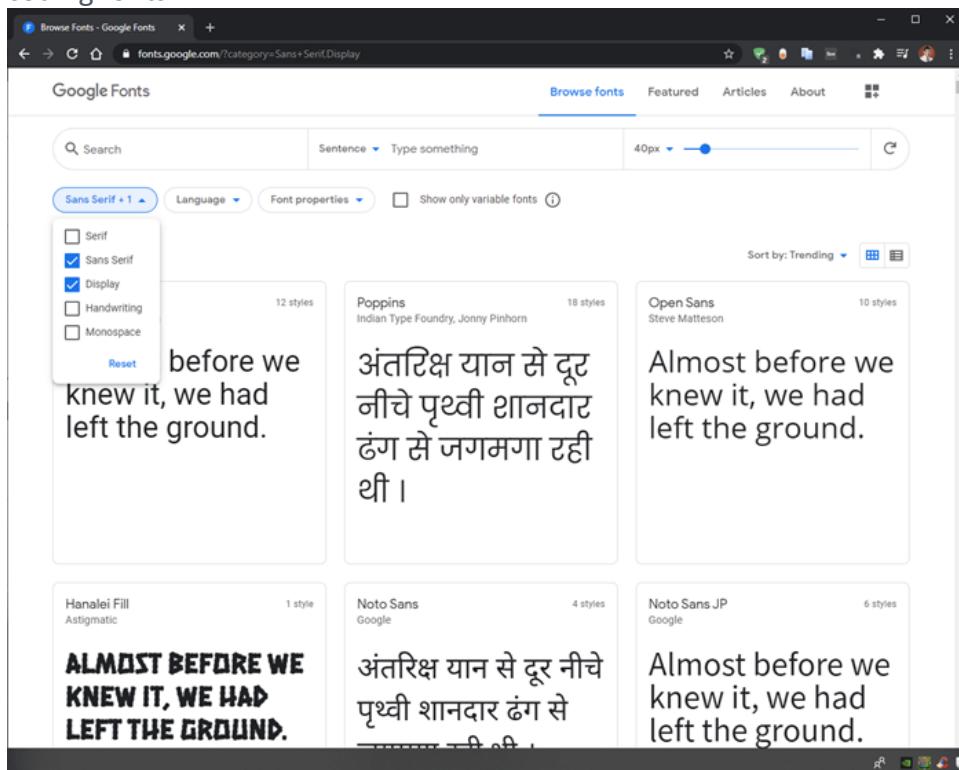
Creating backgrounds is a straightforward process, but what makes it stand out is its personality, style, and mood for the users. Use this as a base and start designing something that best suits you.

Experiment No-3

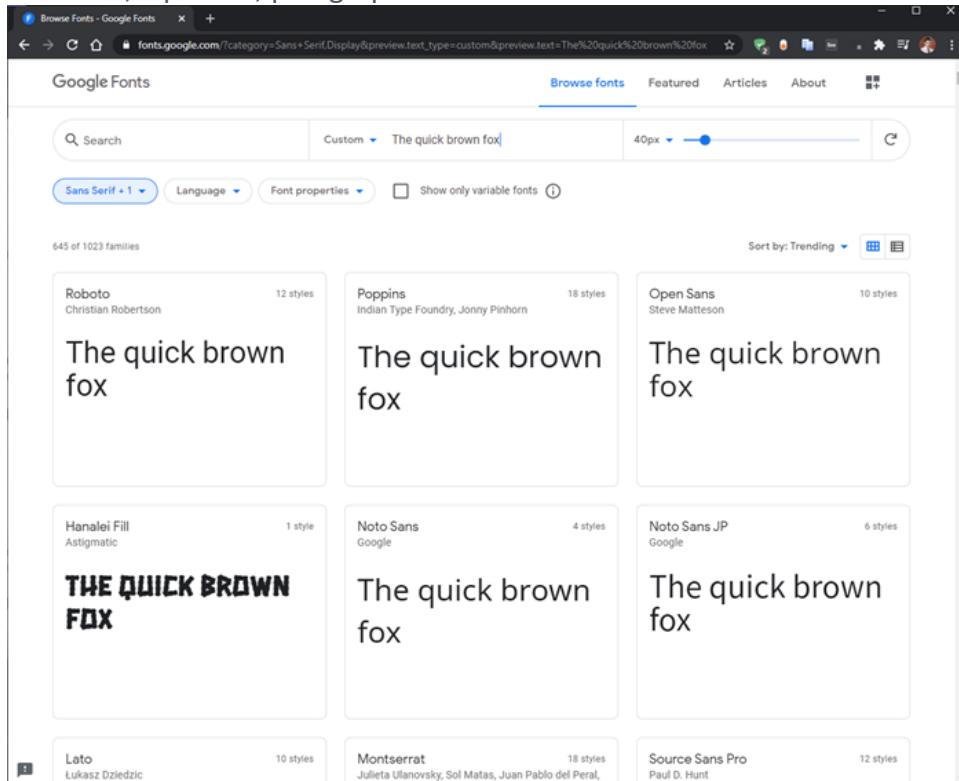
AIM: Steps of Figma fonts

Here are the following steps to mention below

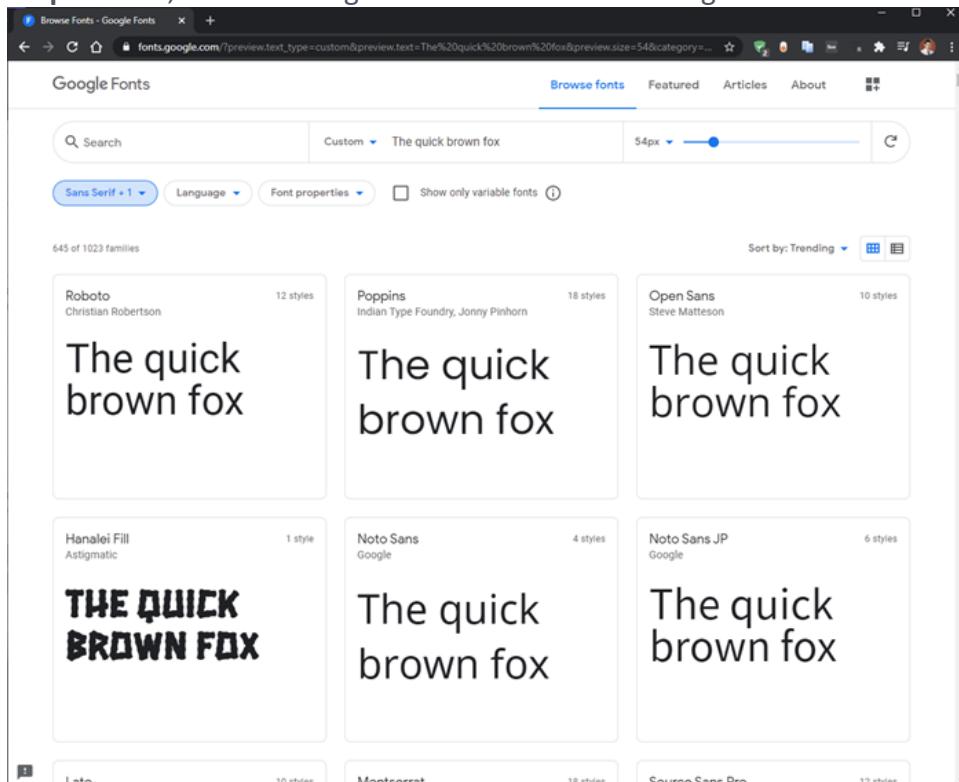
Step 1: Let's us start by first downloading fonts. There are many free and paid fonts sites from where you can download fonts. Some free websites are google fonts, dafont, urbanfonts, fontspace etc. We will see how to download from google fonts website as shown. First, we will change the filters to display on sans serif and Display which will reduce the search result. We do not want serif which puts flare on top of letters. Also, we do not want handwriting which will be more like cursive and not the monospace which are the coding fonts.



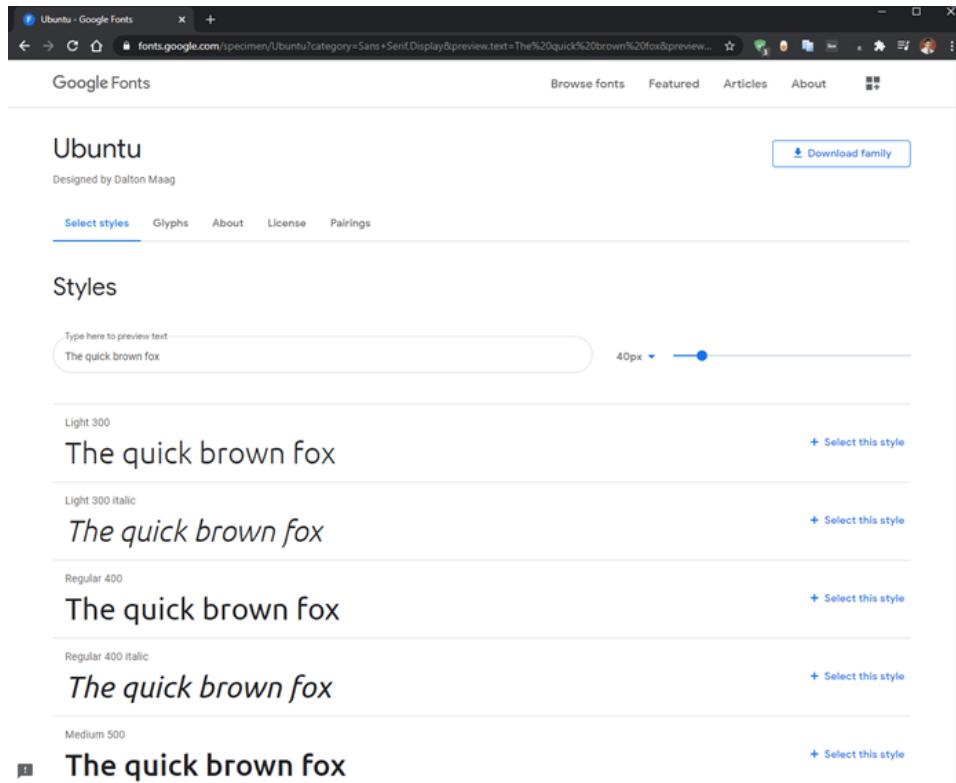
Step 2: Then we can customize the text if we want or we can select from the drop down for sentence, alphabet, paragraph or numerals.



Step 3: Next, we can change the size of the fonts using the slider

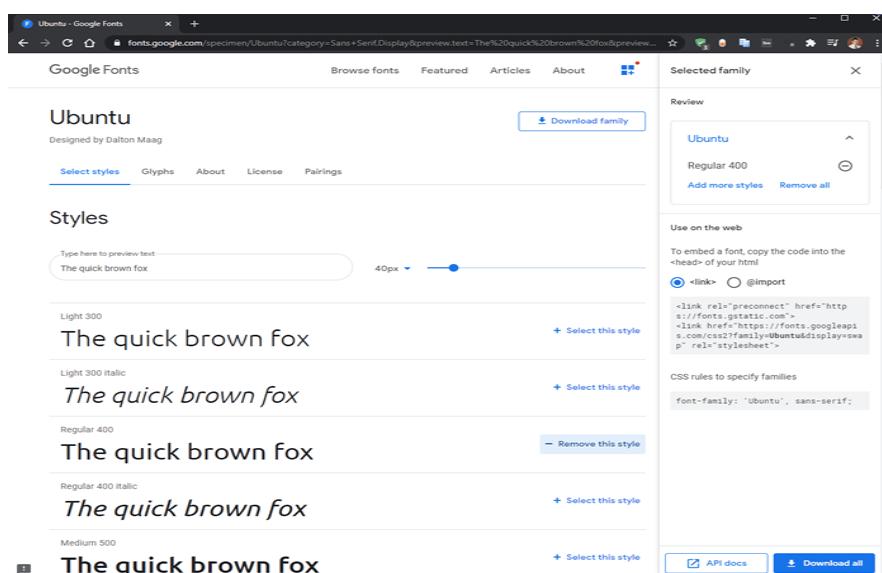


Step 4: Then we have selected a font named Ubuntu and we can see multiple options or styles are available. You can also see the type of glyphs the font has if you are looking for characters which are not standard. In About section you can get bit of a history of the font and authors or designer information. Also, there is a licencing option if you are looking fonts for commercial purpose and the last option is pairings which is suggested by google if you want another font in combination with this font.

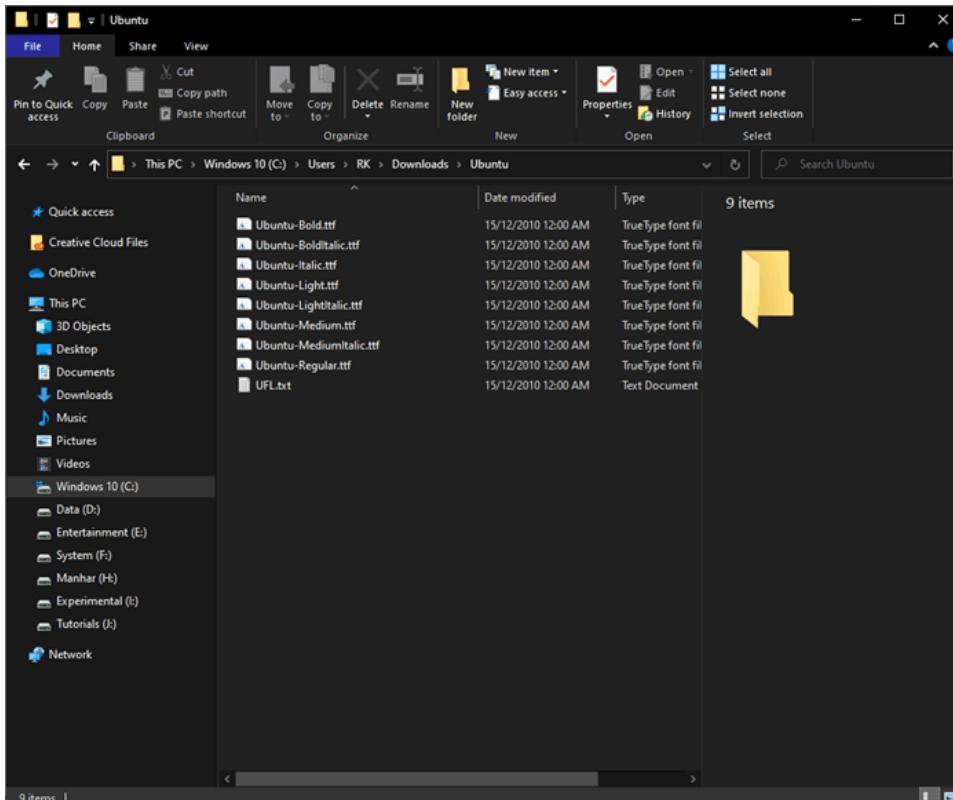


Step 5: Now we have selected the regular style. Here we have option to review the fonts we have selected and an option to embed the font if you are using on a website or for our purposes if we want to use with Figma then we select download all. Also, there is an option to download family if you want

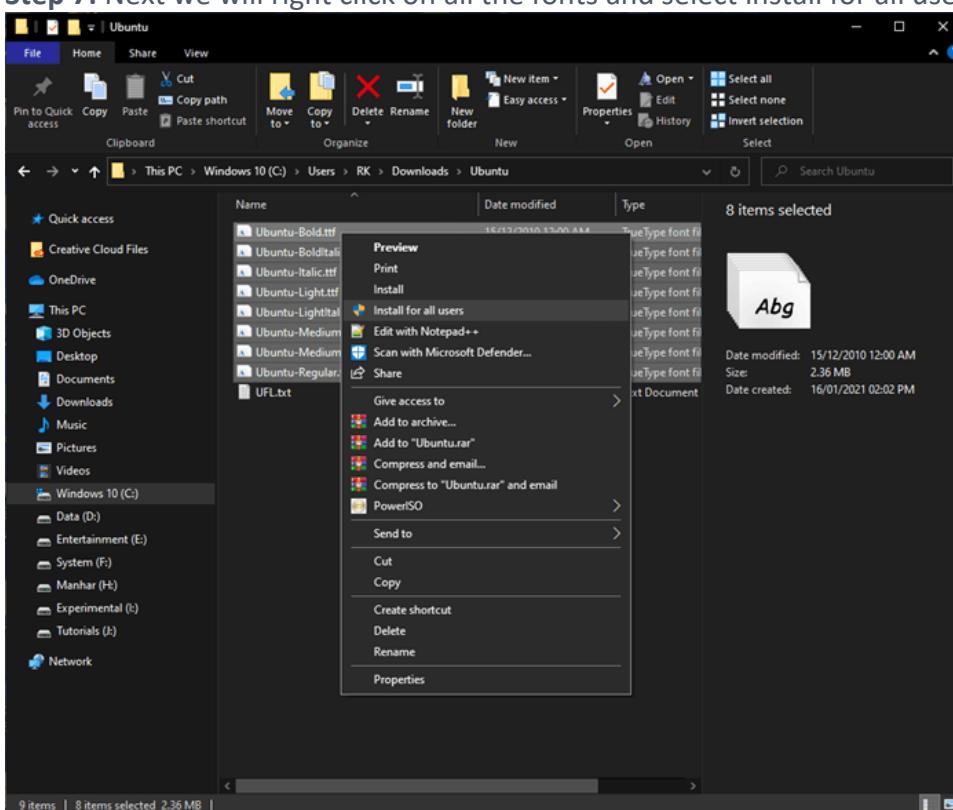
To download all the font styles in this font.



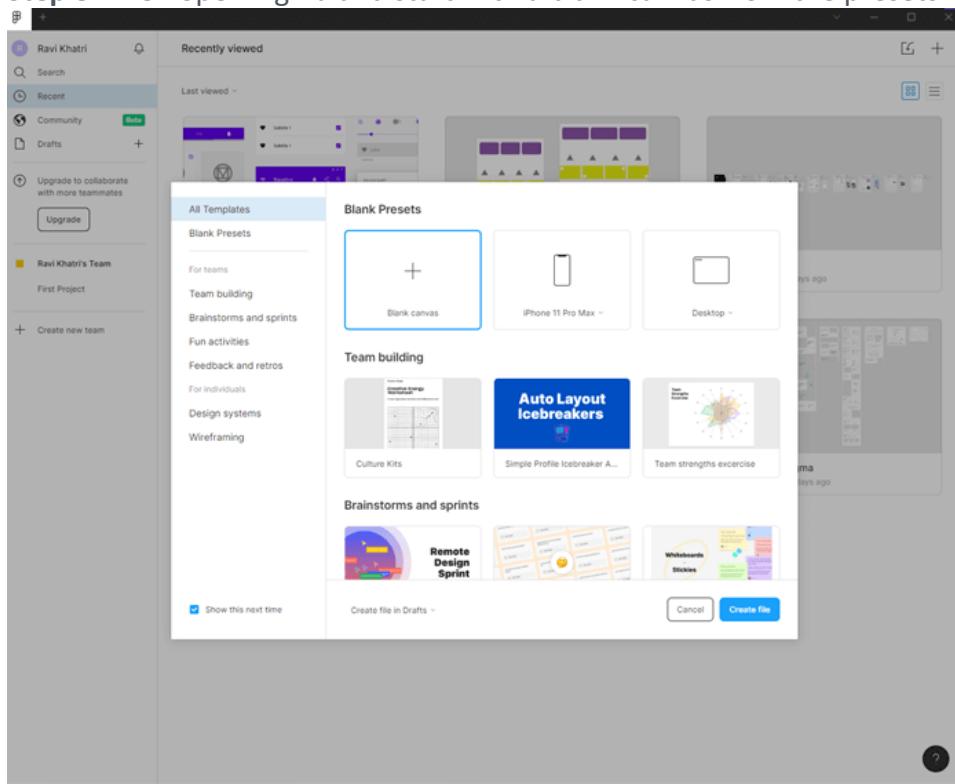
Step 6: A zip file will be downloaded on your computer which can be extracted by right clicking it and all the fonts will be inside the extracted folder. This procedure will work on windows.



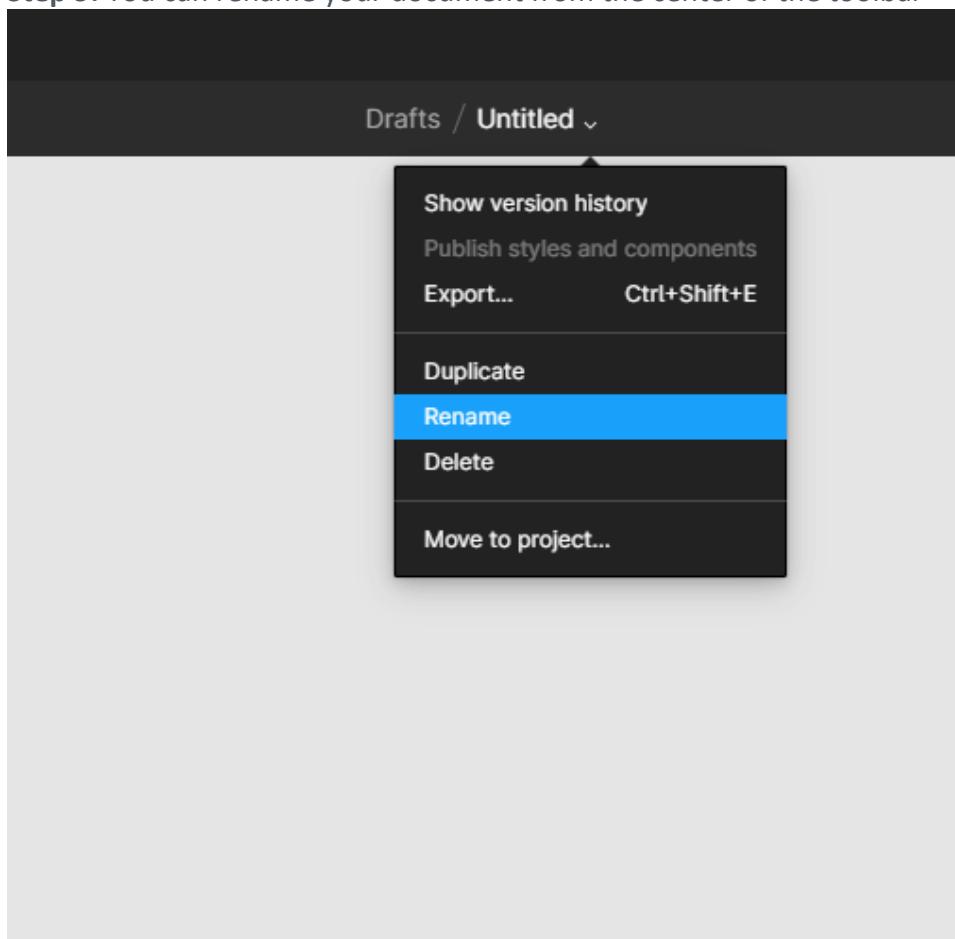
Step 7: Next we will right click on all the fonts and select install for all users.



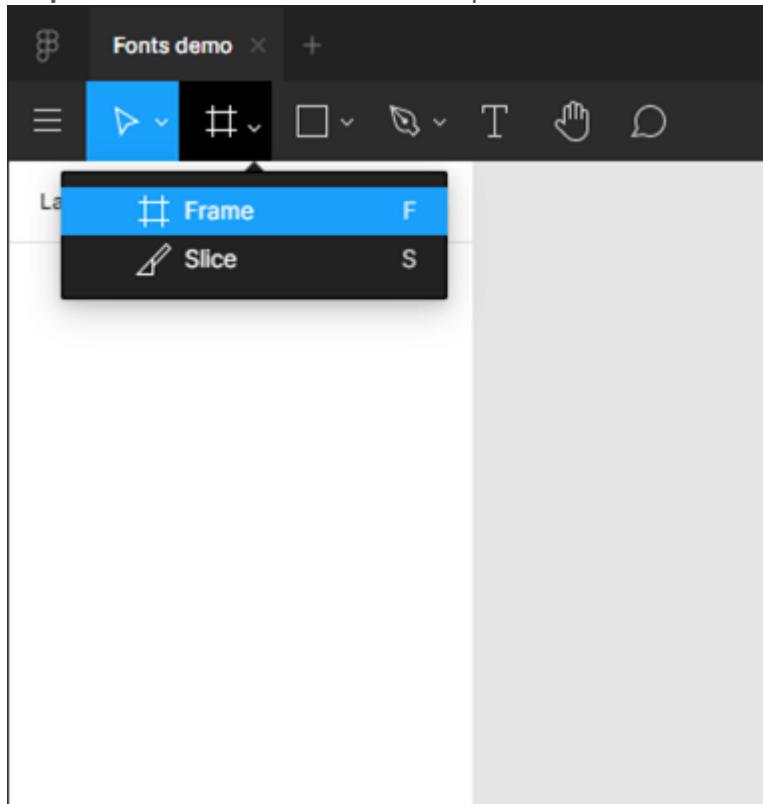
Step 8: Then open Figma and start with a blank canvas from the presets.



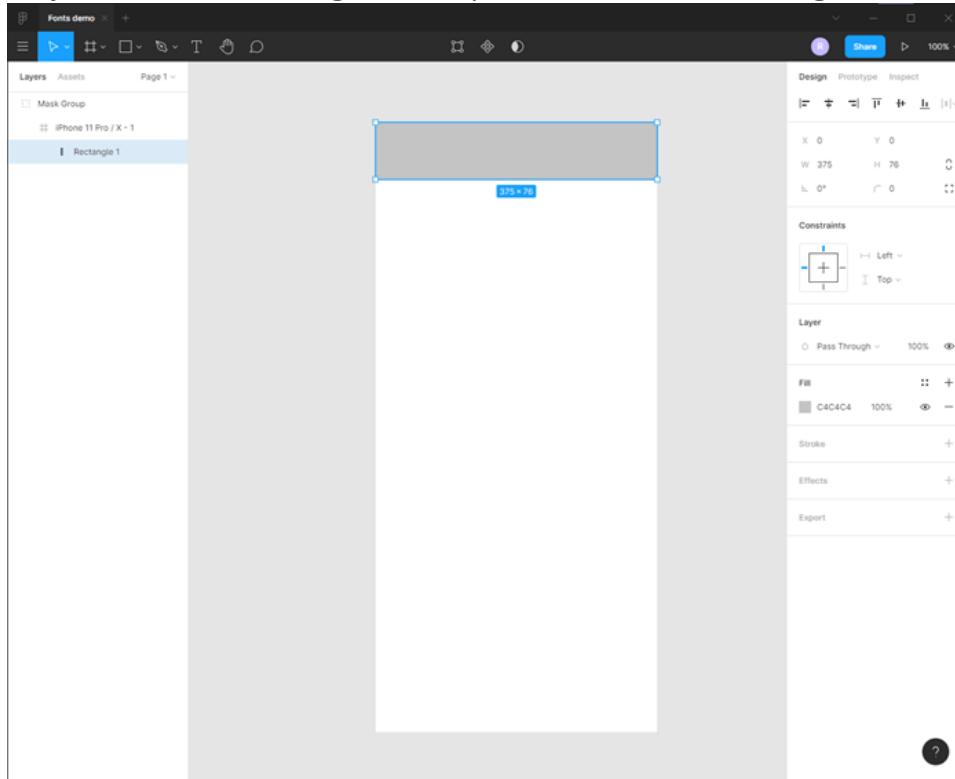
Step 9: You can rename your document from the center of the toolbar



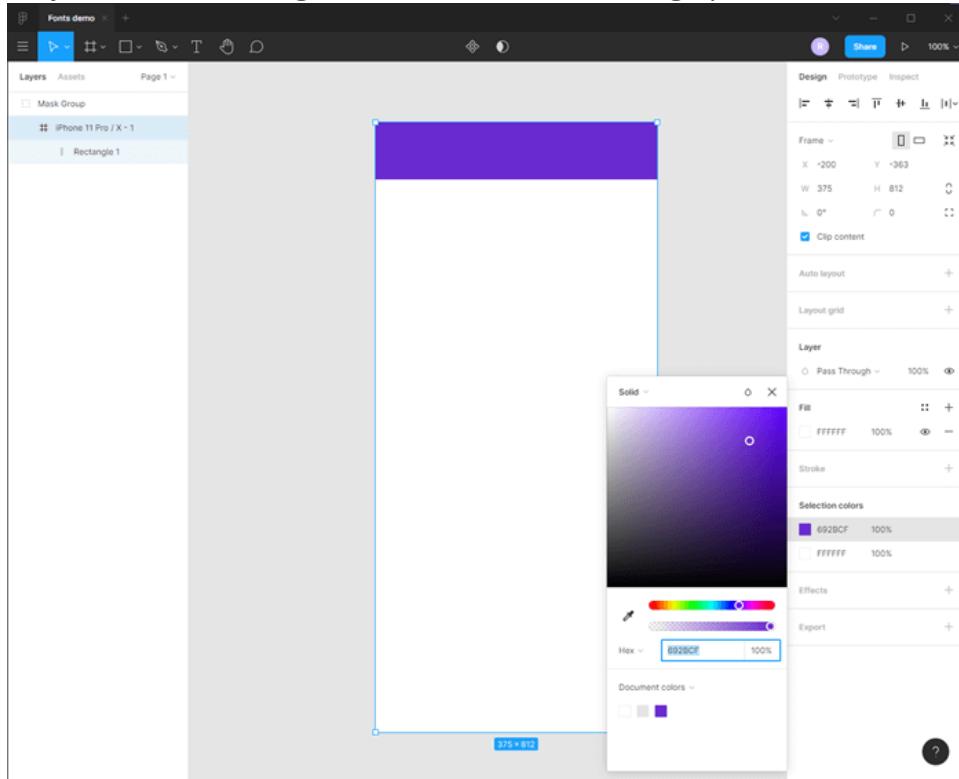
Step 10: Let's start with a Frame or press F and select the design of iPhone 11 Pro.



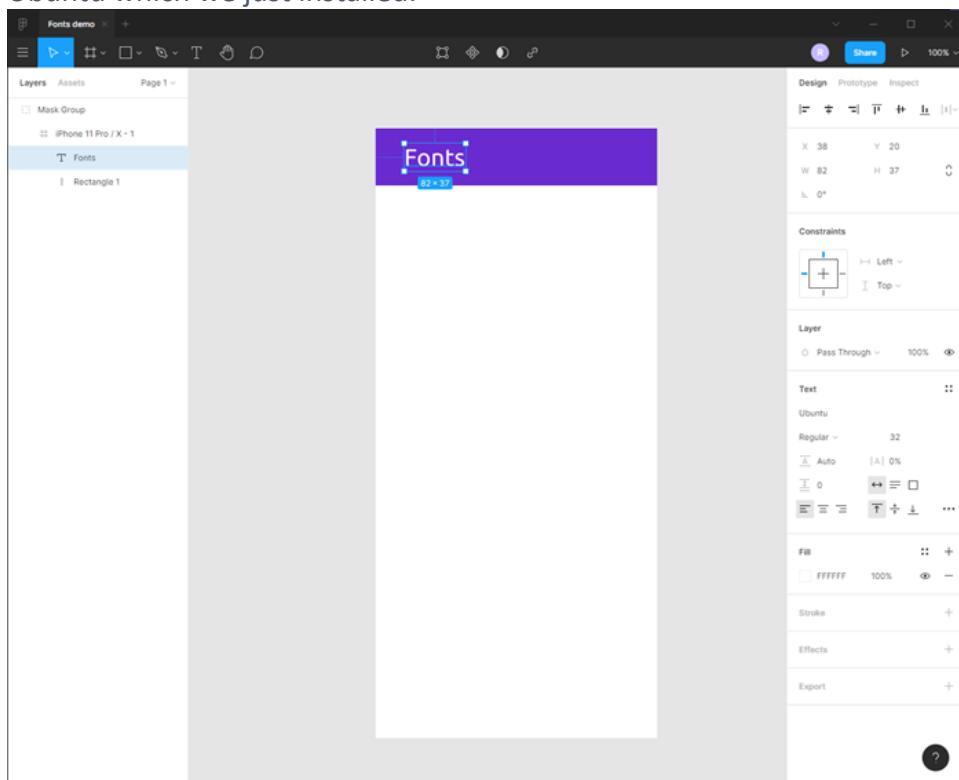
Step 11: Then use rectangle tool or press R and make a rectangle as shown.



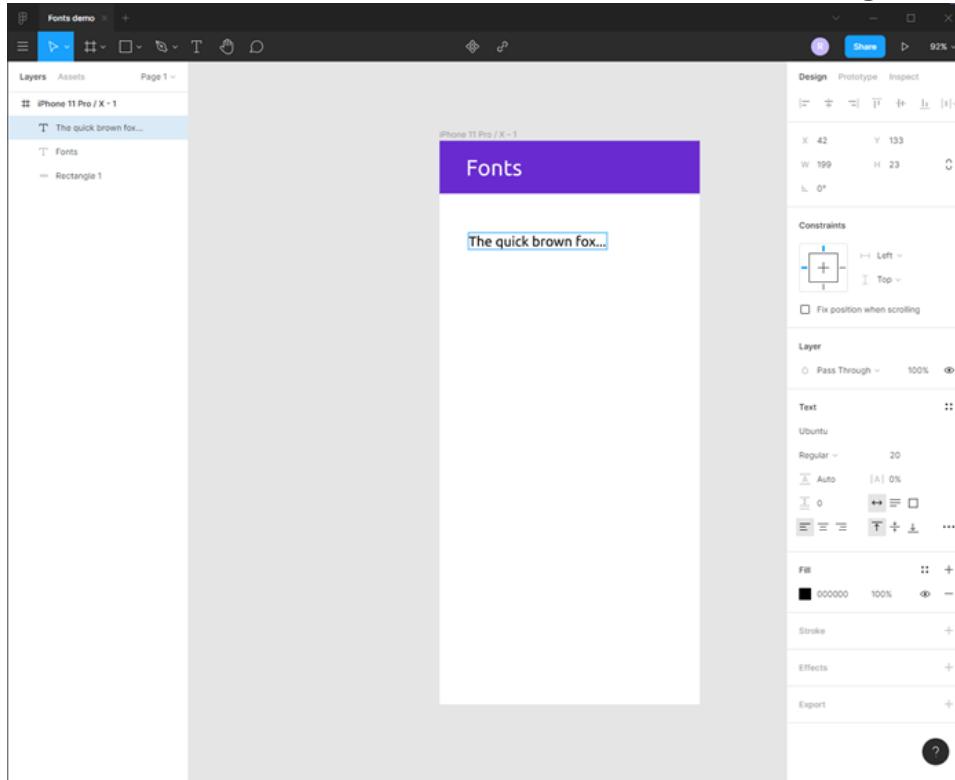
Step 12: You can change the fill color from the design panel.



Step 13: Now use the text tool or press T and click on the rectangle which will create a text box, then add the text, change the font fill color to white and size to 32 and the font style to Ubuntu which we just installed.



Step 14: Again, use the text tool set the size to 20 other options should be same as the last text except the fill which is black and click once and type this create text box with auto resize attribute to width which allows the width of the textbox to grow along with the text.



Step 15: Next let us click and drag a text box which creates a fixed sized text box and the auto resize is fixed once the text reached the end of the text box the box will not resize vertically.

Step 16: So, in the design panel in text section, we can set auto height for this text box and now we can type more, and the height will be adjusted according to the text.

Step 17: Next we create three text fields to demonstrate Bold using Ctrl + B, Italic using Ctrl + I, Underline using Ctrl + U.

Step 18: Then we adjust the line height to 140% which is 100% by default and it changes the space between the lines. So, by holding shift and tapping up arrow key we can increase line height in increment of 10% and set letter spacing to 2px which is in percent by default, and it changes the space between the characters.

Step 19: Create another frame or duplicate the existing frame by copying and pasting and keep the header. Then create a text box by dragging and putting some random text. Create paragraphs by hitting enter at the end of the sentences.

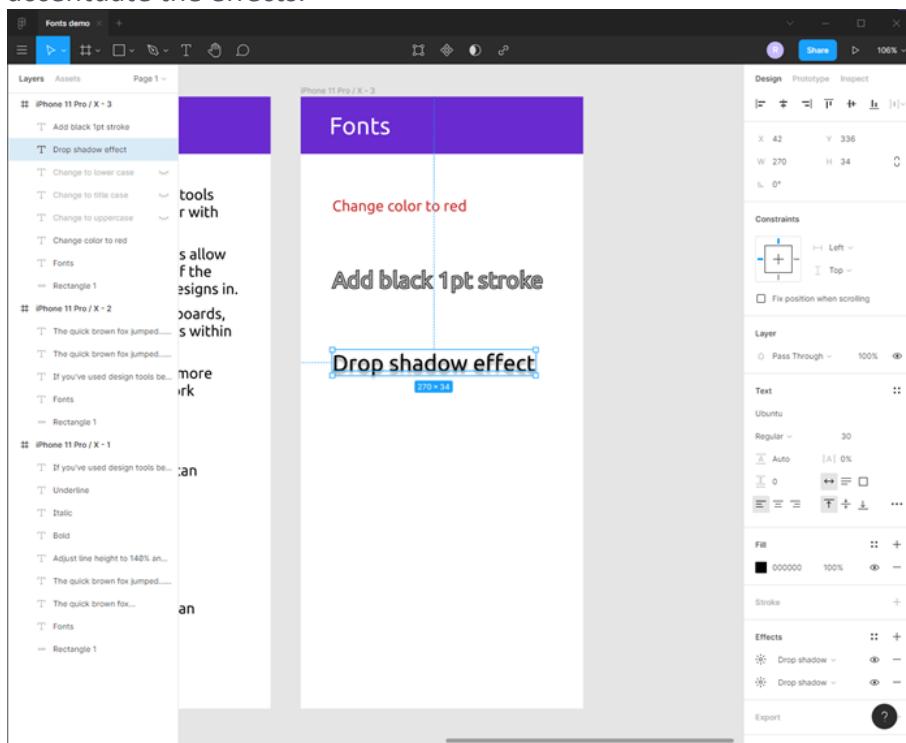
Step 20: Now we set the paragraph spacing to 10 and paragraph indentation to 20 so at the start of each paragraph there is some space.

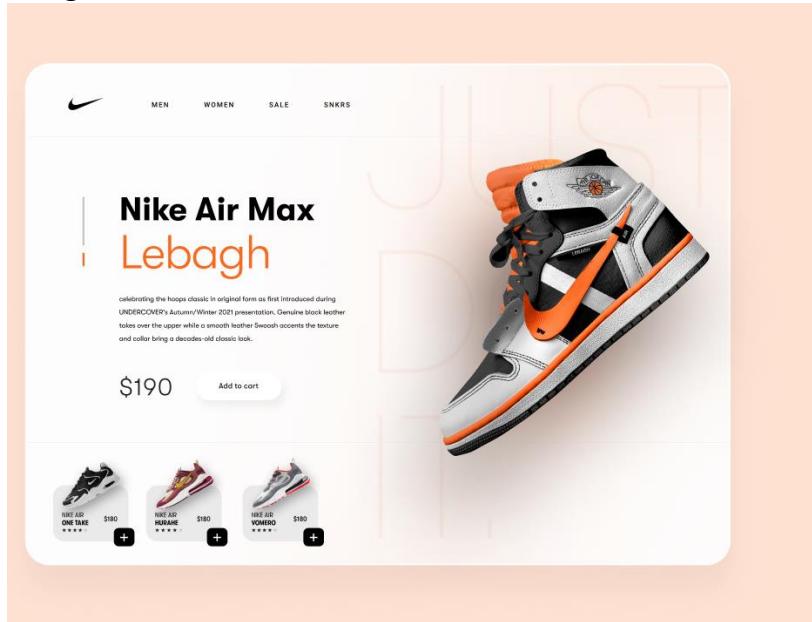
Step 21: Now we have created another two paragraphs, in first we can change the horizontal text alignment to left, center or right. In the second larger textbox we can change the vertical text alignment to top, middle and bottom.

Step 22: Next we will look at some text effects. First, we can change the fill of the text to red as shown.

Step 23: Next we add some text and make the fill grey. Then we use the stroke property to add a stroke of 1pt on the outside.

Step 24: Lastly, we can add drop shadow effect. We can stack multiple drop shadows to accentuate the effects.



Design Website**Conclusion**

We have seen how to use fonts in Figma. First, we have seen how to download fonts from google fonts and customize them to our needs. Then we saw how to install it in the window. Then we saw the basics of text tools to use fonts we downloaded.

Experiment No-4

Aim: Design Layout Grids and Responsive Design

The grid helps you with accuracy and adaptability. It also improves the readability and hierarchy of your design. Having a grid that fits will provide a good structure and consistency to your design, as it could help you determine the placement of elements and objects which in turn will make your design responsive.

Grid System

Setting up a Grid System for your web design is good practice and very helpful when you're designing for various screen sizes. It will help web developers match your design. There are some commonly used Grid Systems you can refer to on the web.

Uniform Grids

The uniform grid helps arrange items in an evenly spaced set of rows and columns so that you stay consistent with your spacing and alignment across your design.

Column Grids

Column grids are the most used form of grid, especially for the web. These grids mostly consist of 12 columns that are evenly spaced to align elements or objects in your design with perfection. The number of the column decreases as the screen size decreases for responsiveness.

Baseline Grids

Baseline grids or Rows help you set up proper horizontal alignment and spacing for your typography or other elements of your design to rest on. These simply are just guides that help you design with consistency.

Fixed Layout

This layout contains a grid system that retains its width and position regardless of the change in screen size or orientation. This keeps all the elements of your design in a defined space.

Flexible Layout

Fluid layouts are the exact opposite of fixed as they take advantage of the available screen space. This means the grid width increases and decreases as the screen size changes but the margin and gutter width remains unchanged.

Setting up your Grid

1. Navigate to Properties Panel and click on the '+' icon next to Layout Grids.
2. By default, it'll apply the Uniform grid. By clicking on the Grid icon, you can select between Grid, Columns and Rows from the drop-down.

3. Choose the Column and set the Count to 10 (depending upon how many columns you need)
4. Set the Type to Centre, width to 70px and finally, gutter to 30px
5. By clicking on the ':' icon, you can create a grid style to reuse it later or add it to your design system. Remember that ultimately, you can customize your own Grid System for your design and there's no limitation to this.

The layout grids, columns, rows, and margins are invisible elements in the design. Using these will make your design look more balanced and have consistent negative spacing. Proper use of white space can emphasize the importance of the content.

Responsive Design

Designing websites that progressively change the layout to view across multiple devices as well as screen sizes by scaling its content and elements accordingly is known as responsive design.

Breakpoints

Breakpoints are when the structure of your design changes to give the user the best possible layout in a given screen size. Defining breakpoints helps you a lot in planning the layout when designing. It's best to start off with designing for three important breakpoints.

- 1440 for Web
- 768 for iPad
- 375 for iPhone

Flexible Layouts

Your content must adapt and fit as the screen size changes to accommodate all the necessary information. In short, your layout must stay responsive by decreasing the spacing, changing your layout from horizontal to vertical and changing the grid sizes. Try to maintain a comparable experience in all contexts. Make sure everything stays consistent.

Dynamic Type

Dynamic type helps maintain and keep your type hierarchy consistent across multiple screen sizes, making it easier for users to read on smaller devices and screen sizes. If you want to learn more, please refer to Apple's Human Interface Guidelines.

Touch Targets

It is common that we often do not precisely tap on every icon and Text Label. So, it is important that you provide more tap area for users to perform their desired action. Having a larger touch target ensures a positive user experience.

- Apple recommends a minimum target size of 44px x 44px for all controls (Read More on Apple's Human Interface Guidelines)
- Android suggests that touch targets should be at least 48 x 48 dp (Read More on Material Design guidelines: Touch Targets)

Constraints

Constraints determine how elements in your design should respond as you resize their Frames. This helps you control how your designs look on different screen sizes. Working with constraints is a crucial part of the workflow as you design for so many screens. Your layout needs to be flexible enough to react to any content or screen change.

Auto Layout

Auto layout allows elements to resize automatically according to the items inside it. It automatically resizes the content according to the frame size. This means you don't have to keep resizing the elements every time a change has been made or new items have been added. Turning your designs responsive is now a breeze as the layout changes based on the direction you choose!

How to make your design Responsive

Let's see how to make our design responsive for iPad and iPhone by using Constraints and Auto Layout. Start by adding the Auto Layout to the "Course Hero Card" and "Information." Set the layout to Horizontal and the Spacing Between items to 60px.

Let's set Auto Layout combining Course Information, Section Info and Livestream Card. Set the layout to Vertical and the Spacing between items to 40px and change the name to Content.

Now, set the constraints of the Content to Centre on the horizontal axis and Top on the vertical axis.

Let's duplicate the Frame and set the width of the Frame to 768 (iPad Mini). Let's Navigate to the Content > Course Information > Course Hero Card and change it's width and height to 280x400 and **set the **Spacing Between items of the Course Information to 30px.

Now, change the number of columns in the Livestream Card from 3 to 2 ****by hiding a column inside Columns of the Liversteam Card. Awesome! We've now made our design responsive to iPad.

Moving on to the iPhone. Duplicate the Frame and set the width to 375 (iPhone 11 Pro) and set the Course Information direction from Horizontal to Vertical.

Align the Information and Course Hero Card inside the Course Information to Left. Now, let's change the Width and Height of the Course Hero Card to 335x280.

Set the Heading to 32px from 60 and the Body Main Copy to 17 from 20. Also, set it's width to 335px.

Navigate to Columns inside the Livestream Card and change the layout from Horizontal to Vertical.

Now, set the width of the Small Text and Caption 2 inside the Section Info to 335px. Voila! We've completed making our design responsive for both iPad and iPhone. You can download the assets and practice what've exercised.

Responsive design is very important when it comes to web applications. Designers and developers alike should ensure that the product is fully responsive across all devices and screen resolutions. As you can see, the process is made very simple by using features like Constraints and Auto Layout offered in Figma.

Experiment No-5

Aim: Microinteractions in UI Design Animate Icons in Figma- UI KITS

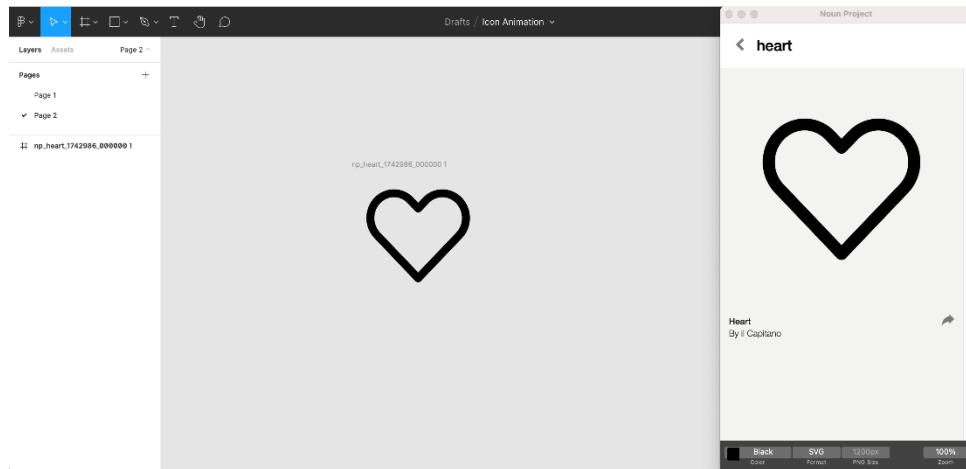
Change Icon Color on Hover & Click

This is one of the most simple and foundational UI design practices. In this example, we're going to make an icon change states and act as a button by creating a Component with several different Variations.

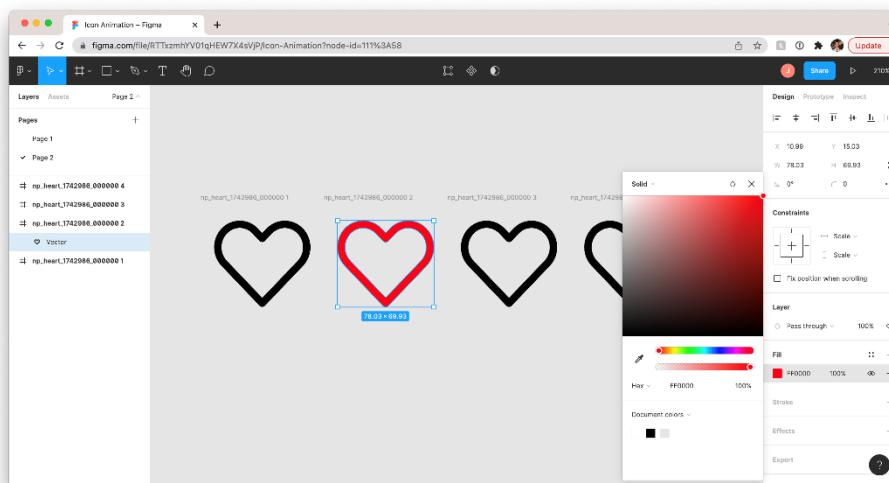
When animating any icon, think about what you want it to do: change color, size, or position during each stage of the process.

- Open [Figma](#) and click "New Design File"
- If using the [Noun Project Mac app](#), open the app and log in to start searching icons, or pull .SVG icons you've downloaded from the website from your hard drive.

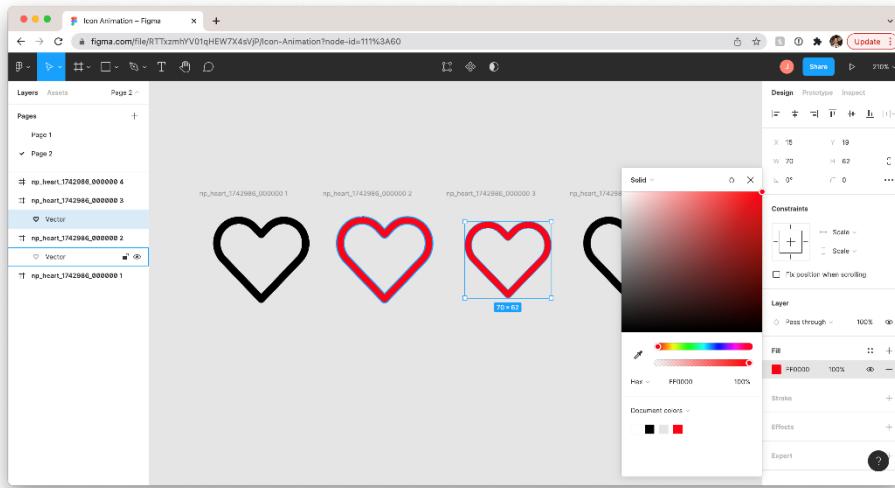
Note that using SVG icons in Figma, rather than .PNG, will leave them free to edit, recolor and resize without losing resolution. Along the bottom of the Noun Project app window, you'll see the option to insert SVG format icons of a certain color (black is fine for now).



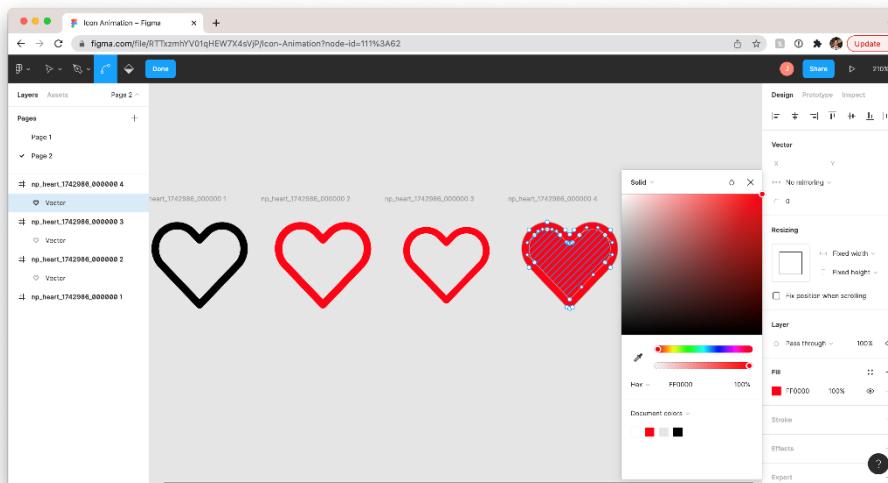
- Click and drag a vector icon into your Figma window. The icon will appear in a Frame of its own (we don't need a document frame just yet since we're independently editing the vector)
- Copy and paste the icon by clicking its frame, and hitting Option (or Alt) and dragging. In this example, I'll copy twice more to have four heart icons in different states.
- Recolor the second icon: Click the directly on the icon and adjust the Fill within the Design menu on the right. Pick a new color for the icon. This will become our "Hover State" so when a cursor hovers over the black icon, it'll turn red.



- Recolor and scale down the third icon – this will be the first part of our animation when the heart is clicked, so it shrinks to appear as if it's an actual button being depressed. Double-click on the vector itself (rather than the frame, as we want each frame to be the same size), and hold both Option (or Alt) and Shift while dragging a corner inwards so that it scales proportionally and symmetrically from its center.



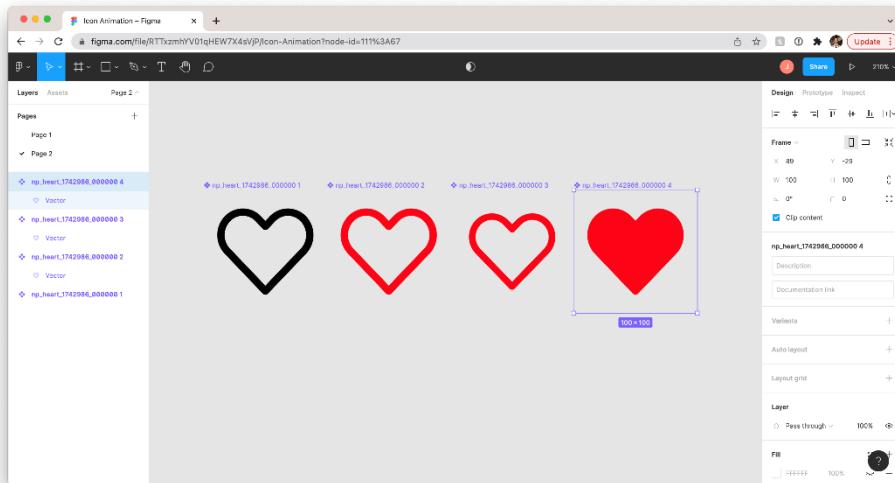
- Finally, let's change the fourth icon to a solid fill so it more clearly conveys that the heart has been clicked. With the vector selected, hit Enter to go into vector edit mode. To fill the middle, hit B to pull up the (paint) Bucket. Hover and click in the middle to fill.



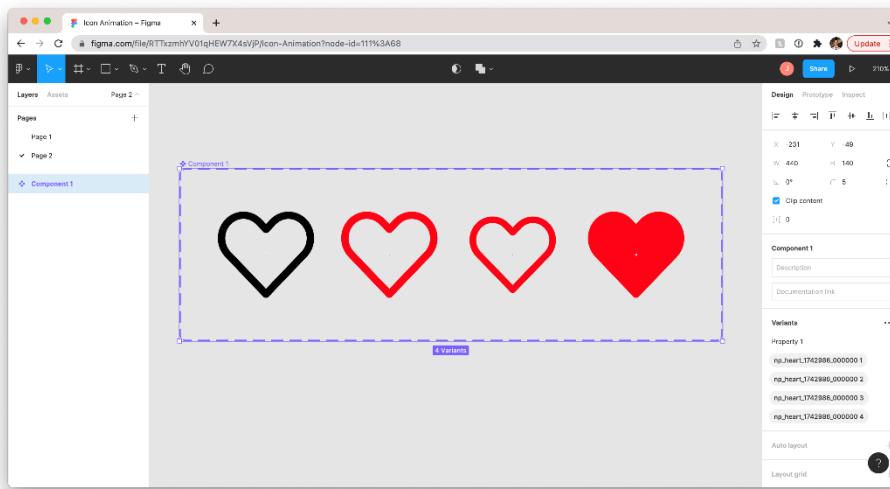
Now we have 4 distinct icon states. You can use this process to make a free-standing animation, but let's make this a functional button – a button that we can add to any design, and while prototyping it'll behave the same way.

To do this, we're going to convert each frame to a component.

- Click each frame and hit the Make Component button (the four squares in the top-middle of the Figma header, or click Shift-Command-K). You'll see the frame turn purple and each layer within the layers panel on the left will have the component icon next to it.

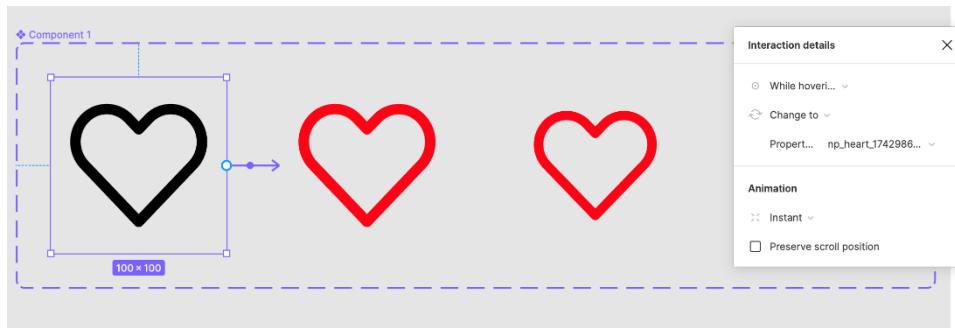


Next, click and drag to select all 4 components, and on the right-hand Design menu click “Combine as Variants.” This will swap all 4 variations out within a singular component depending on action.



Animate a “Microinteraction” within Prototype

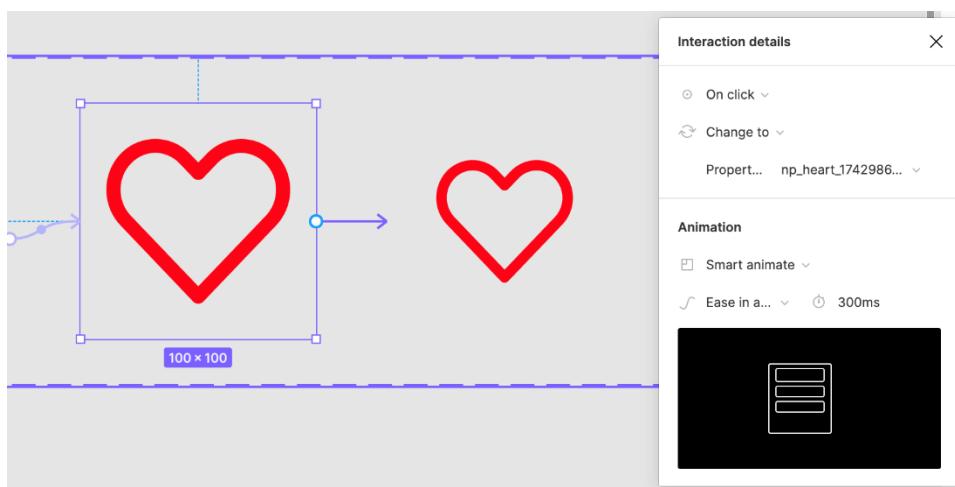
- Double-click to grab the icon component and select “Prototype” at the top of the Design menu on the right-hand side. You’ll see a new circle pop up on the right side of the frame’s bounding box. Click and drag that circle to the next frame over and you’ll create your first flow in the sequence.



- You'll see the "Interaction Details" menu pop up. Where it says "On Click" at the top, switch it to "While Hovering." You can change the animation to "Instant" to immediately change the color.

Next, we want to determine how the heart animates when it's clicked.

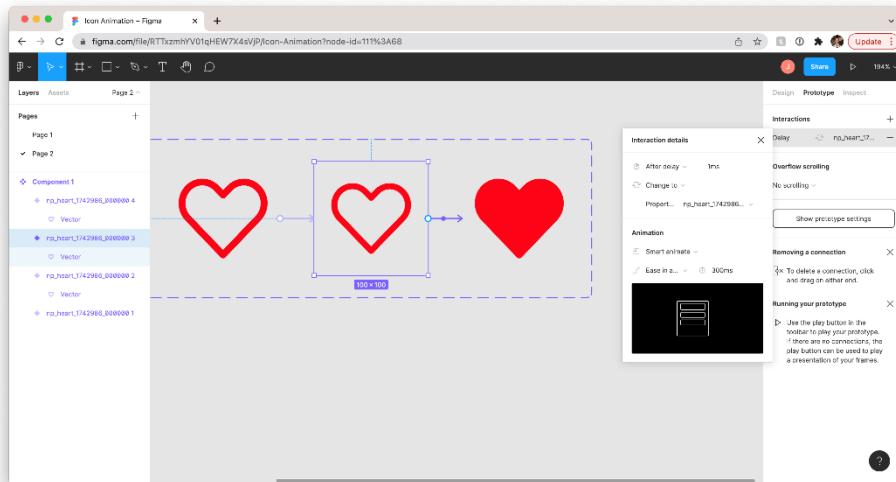
- Click the second icon in the sequence and click and drag a new interaction to the third.
- This time, leave the interaction as "On Click" and set the animation to "Smart Animate." This will automatically tween the motion instead of instantly showing the smaller icon, so it'll appear as more of a "bounce."
- "Ease in and Out" will smooth the motion with a natural bounce. The number of microseconds you set the animation for will make for a quicker animation (try ~300ms) or a slower one (~700ms or more will make the animation slow enough that it may appear too "clunky" for users, but experiment with different time settings to your liking).



- Finally, we want our icon to bounce back to its original size but with the red fill to show that it's clicked. Create a new interaction from the smaller icon to the filled icon. This time, the interaction should be set to "After Delay" – it's not being clicked

a second time, but is just changing states. Set the delay to 1ms – it should bounce back smoothly and immediately.

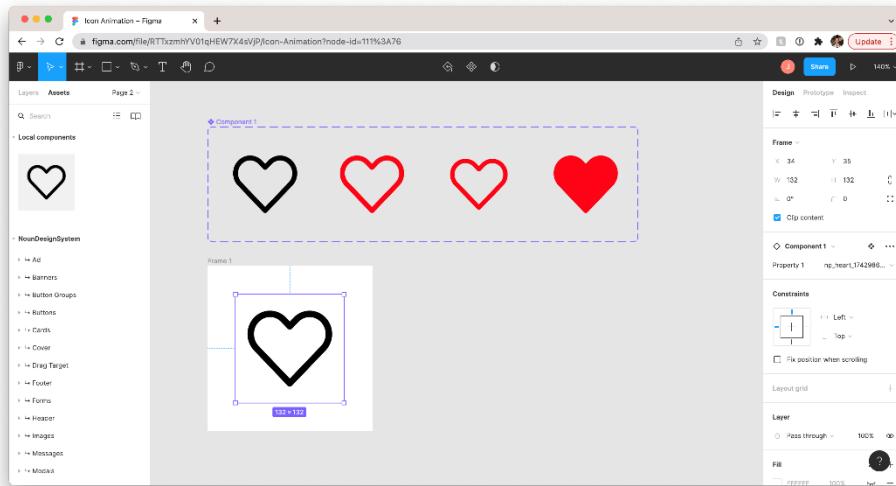
- Click “Smart Animate” once again, with “Ease In and Out” and set time to 300ms.



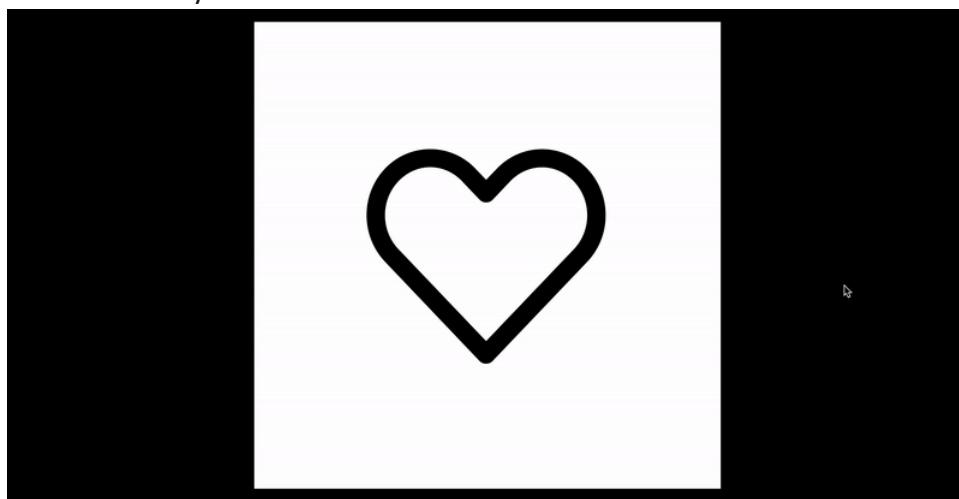
We're almost ready to test our prototype, but let's make it a repeatable sequence. Drag the final icon's interaction back to the first icon and set it to "On Click" so users can return to their original button state. This can be an "Instant" animation.

Finally, we need a Frame to hold our component so we can test out the prototype. Hit F to make a frame and hold Shift while clicking and dragging to make a perfect square.

You can load the animated component you've made by going to "Assets" instead of "Layers" in the left-hand menu, and you should see the icon appear as a "Local Component." Click and drag it into the middle of your frame (using the alignment tools under "Design" at right to center it).



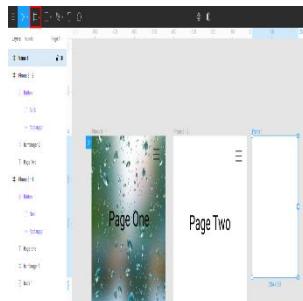
We're ready to test! Click the "Play" button next to "Share" at the top-right of the Figma window. You'll enter a preview presentation where you can see the hover & click animation in action with your cursor.



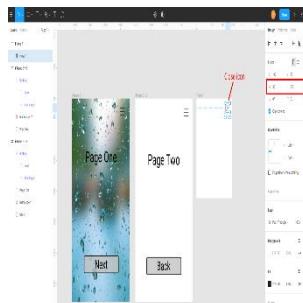
Experiment No-6

Aim: Design an Icons using Tools -To Popup menu as overlay

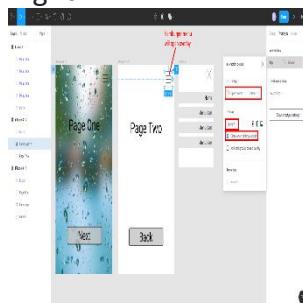
Select the frame tool (click it once). Instead of selecting a default frame from the sidebar, draw the frame:



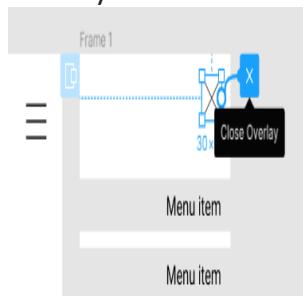
From the folder of .svg icons drag & drop the **close.svg** icon to Figma and add it to the frame. Set its size to 30x30:



You can now add some menu items to that menu. I have created a Component 'Menu item' for that, which is similar to the 'Button' but with different styling. After that, switch to prototyping mode, and add connections. Connect the hamburger menu icon to the Frame. Make sure to set the interaction is set to 'Overlay' and the Overlay position is set to 'Top Right':



To make it possible to close the popup menu, drag the blue dot of the close-icon onto the close symbol which will appear next to it when you start dragging:



Click the play button to test the mockup interaction.

Experiment No-7

Aim: To Create a Blob Background

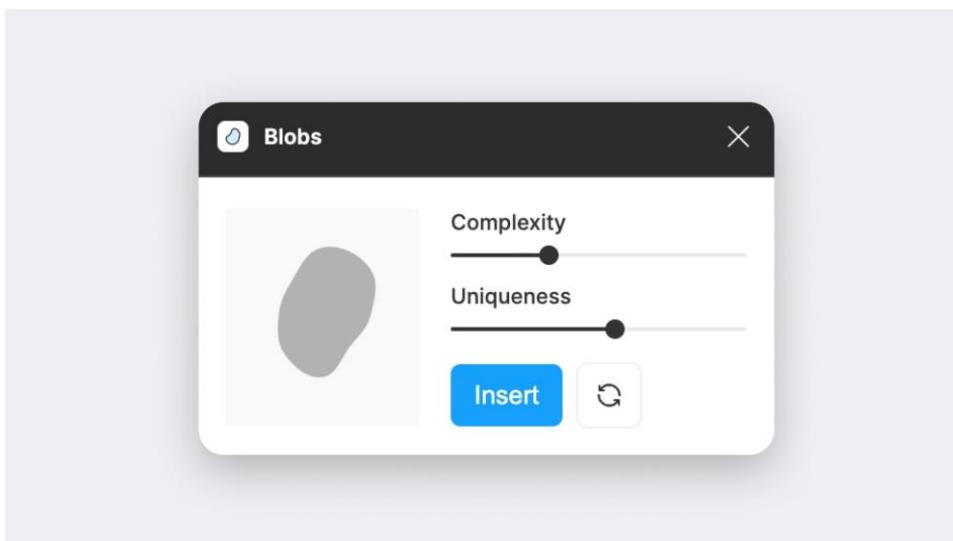
Blobs Plugin

- Figma have a plugin that you can use to make the process easier. Install the [Blobs plugin](#) by clicking Try It Out
- Right-click on the canvas, click on Plugins and then Blobs

Blobs Plugin Settings

You will see a panel with settings with two slider options. Choose the value of complexity and uniqueness. Honestly, I don't see much difference between the two options. However, you must play with the sliders until you get the desired result.

- Set the value of complexity and uniqueness and then, click on Insert



Blobs Design

We will start with the first shape, a circle, we will add beautiful color gradients using the radial effect and a blur effect.

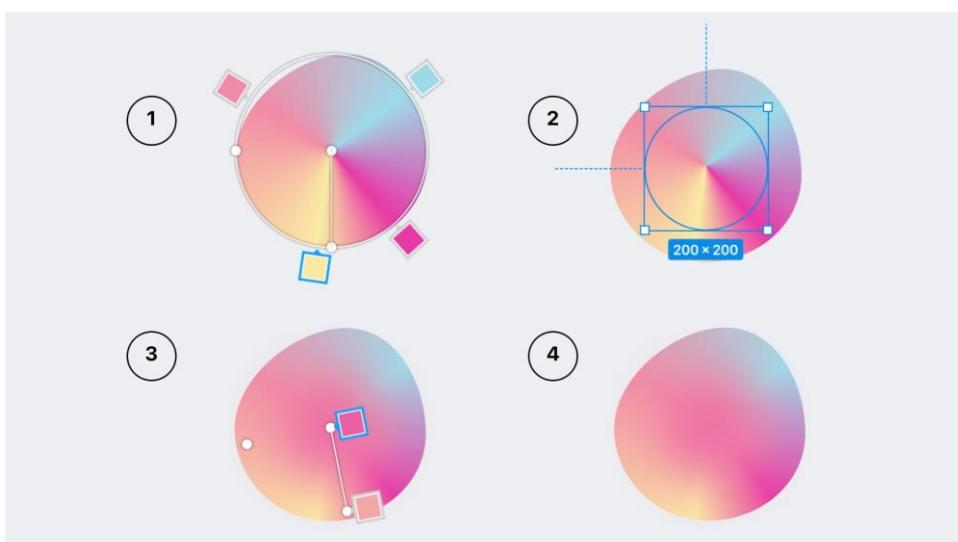
- Use Ellipse to create a circle of 668x668
- Add fill radial; first color #E839A6, second color #FAEAA5, opacity 50% and place the line of the color diagonally
- Duplicate the circle, change opacity to 20%
- Add effect, background blur 40, layer blur 100. Move the second circle to the right so you can see the blur effect
- Duplicate the first circle, use the scale tool by pressing **Command + K** on your keyboard and scale down the circle to 485x485



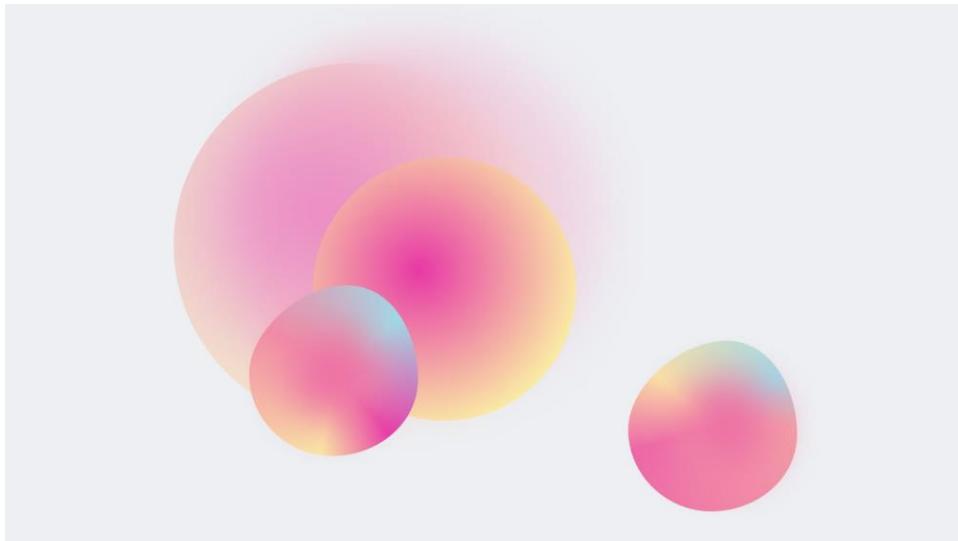
Egg Shapes

Let's create another blob, an egg shape, using ellipse and angular gradient of 4 colors.

- Use Ellipse and create a circle of 300x300. Go to Edit Object and move the point tool to look like an egg
- Add fill angular; add four colors, color 1 #E839A6, color 2 #FAEAA5, color 3 #9EDBE9 and color 4 #F18BA6
- Create another circle of 200x200 to hide the sharp effect
- Add fill radial; first color #EC5EA6, second color #F3A7A6, add effect, layer blur 80
- Group the egg shape layer and the circle layer together, rename layer by **Egg 1**



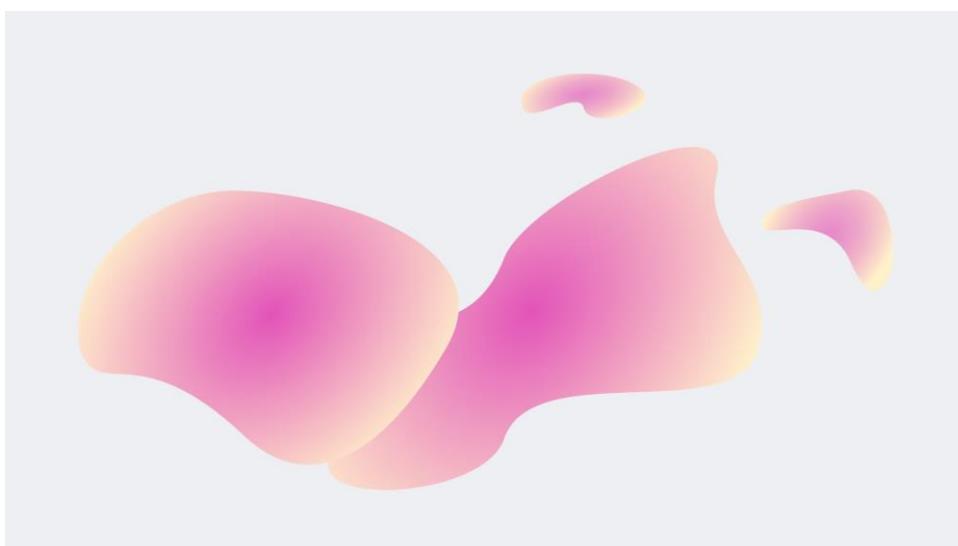
- Duplicate the egg group, go to fill, angular and play with the direction of the colors



Liquid Shapes

To make the design more interesting, we will create a unique liquid shape and fill it with the same color gradients.

- Use ellipse and create an oval, go to Edit object and play the point tool until you get the liquid shape.
- Copy the circle properties and paste properties to your liquid shape
- Create three more liquid shapes using the same technique
- Select the entire layer of the liquid shape and place it below the other shapes. The liquid shapes must be behind the other shapes



Conclusion

Blobs can use them for your future designs and be more creative with them

Experiment No-8

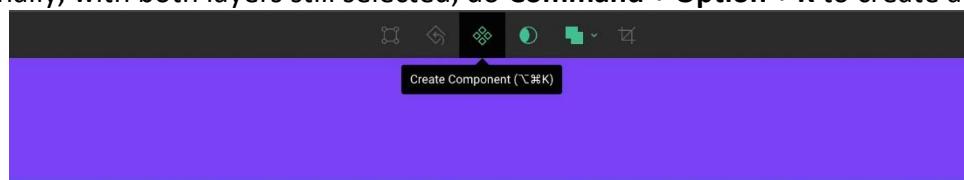
Aim: Design Styles and Components

Creating a Component

Before creating a Component, you need at least 2 layers. You can decide to select multiple layers to create a Component, or you can select an existing Group and turn it into a Component.

Let's duplicate another Design System frame for Buttons. Create a Rectangle at 260x60 with a corner radius of 30. Set a Fill Style to **Purple Violet**. Add an Effect Style to **Button Shadow**

1. Press T and write Primary Button. Set the Text Style to **Heading 4** with a Fill Style to **White**, aligned center. Select both the Text and Rectangle and align center horizontally and vertically. Finally, with both layers still selected, do **Command + Option + K** to create a

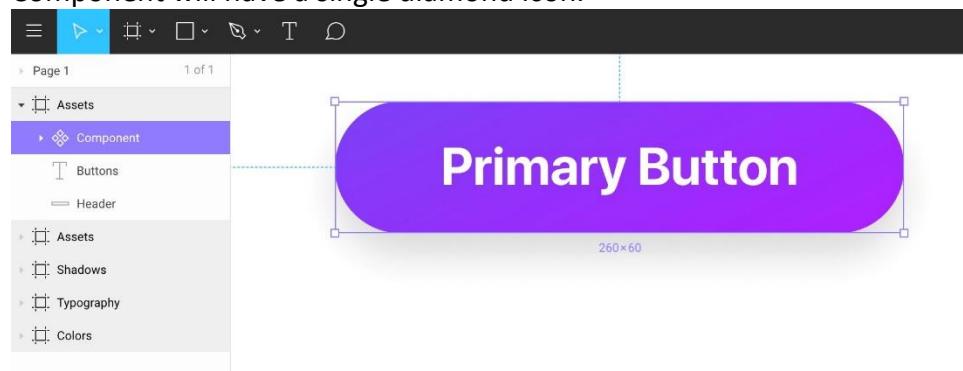


Component.

Master Component

The first time you create a Component, it becomes a Master Component. Unlike Sketch, it doesn't reside in a separate Page. It's directly available for edit right in the current document. You can edit on the fly just as you would edit any other elements.

The Master Component can be distinguished by an icon with 4 diamonds while copies of the Component will have a single diamond icon.



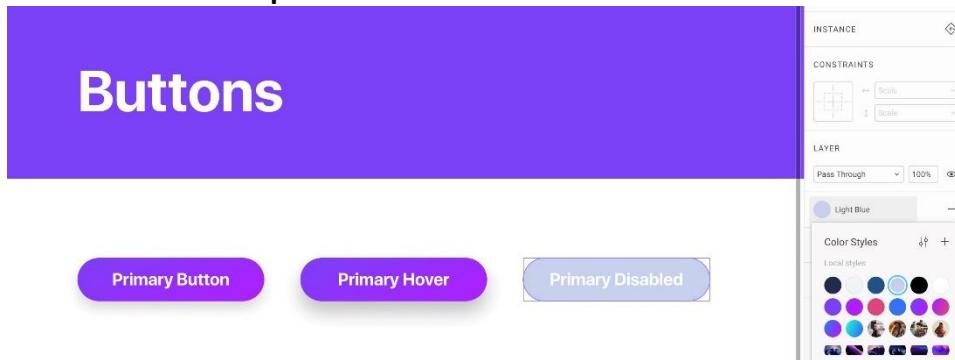
Any structural change, such as **position** and the actual **composition** of the layers will affect copies of that Component.

Property Overrides

Editing the contents of the copies won't affect the Master Component. Overrides can affect text, images, colors, shadows, and even styles.

Let's Option-Drag the Master Component to create a Copy. Edit the text to **Primary Hover**. You can even change the Effect Style to **Button Shadow 2** and it won't affect the Master Component. That's powerful and so simple to use.

Duplicate to create a third button. Change text to **Primary Disabled**, the Fill to **Light Blue** and remove the **Drop Shadow**.



Nested Components

A Component can exist inside another Component. This is a powerful workflow because you want to be able to reduce the size of your Component as much as you can. There are small Components, such as Buttons and Icons, and there are big components like Cards, Overlays, and Modals. For example, the Card Component can contain Button and Icon Components. This thinking is very much in line with how React works.

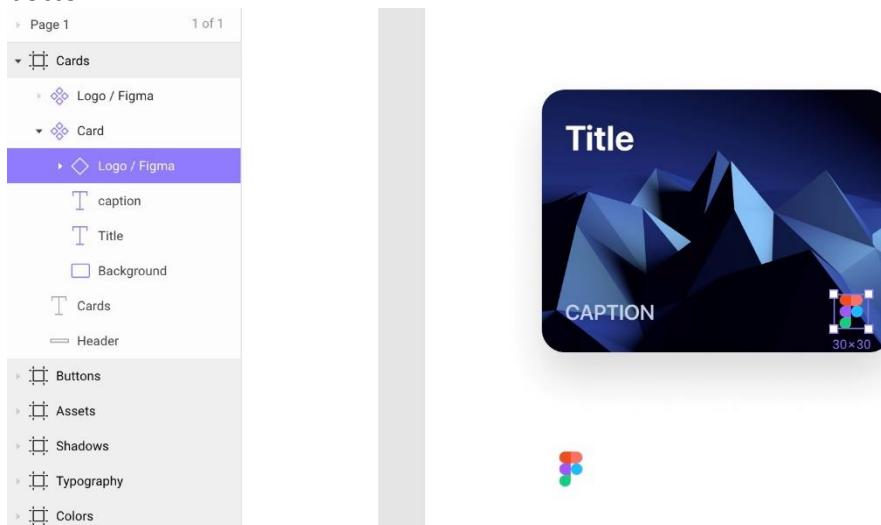
Let's duplicate a Frame to create one for **Cards**. Create a Rectangle 300x225 with a corner radius of 20. Set the Effect Style to **Card Shadow 1**.

Add a text layer with a Style to **Heading 3 (30)** and color to white. Since the text can be spread over multiple lines, we should add a Fixed width of 175. Distance 20 from top and left. Add a new text layer with **Caption** text and **Light Blue**.

Select all the layers and create a Component. Name it **Card**.

Now, let's create a Frame that's 30x30. Put any number of layers in there, like the Figma logo in vector and center it. Rename the Frame to **Logo / Figma** and create a Component (Command + Option + K). Hide the white background.

You can't put a Master Component inside another Component, so it's best to create a copy first (Command + D). Move the Copy to be inside the Card Group, and 20 from the right and bottom.

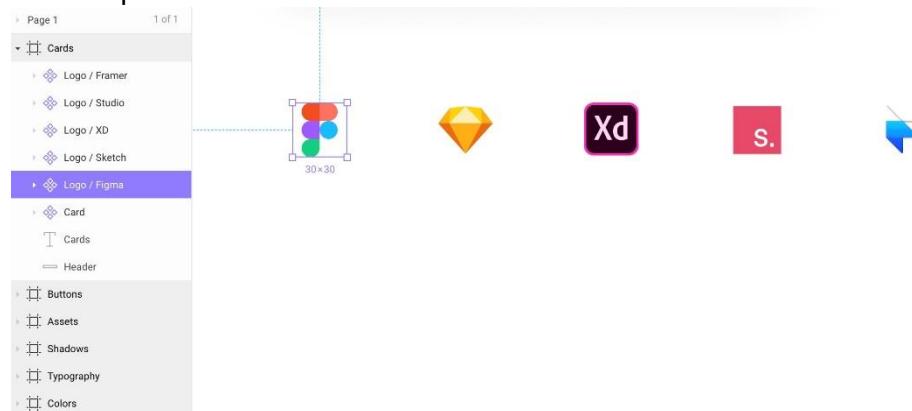


Component Overrides

Changing the content of your Component is crucial to creating reusable elements. At the basic level, you can only change properties in the Inspectors. However, sometimes, you want to be able to change groups of elements, such as icons. The only way to do this is to create multiple duplicates of a Component.

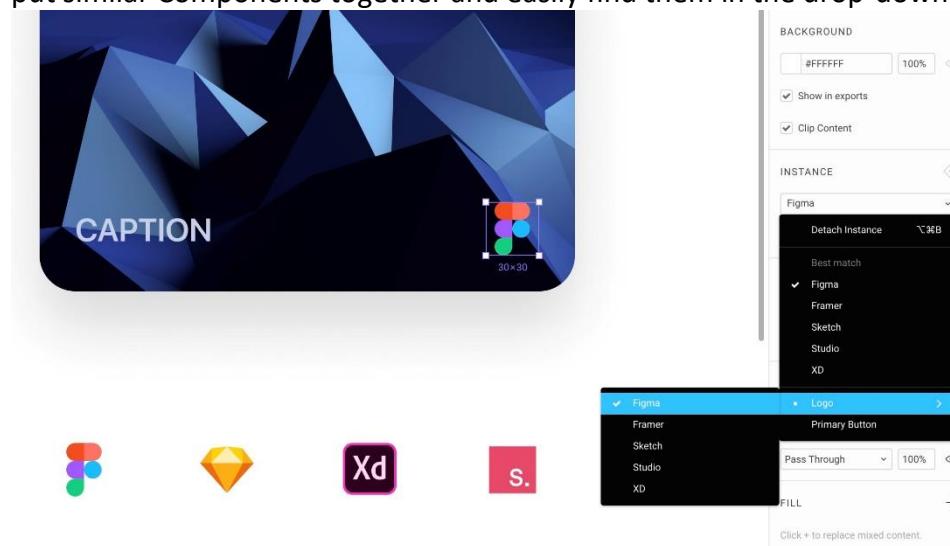
For example, you'd have an icon inside a Frame. Then, you'd create multiple duplicates of that Frame. For each of them, you'd create a Component (Command + K). Make sure that these Frames have the exact same sizes.

The next time you use this Icon Component, you'll be able to see a drop-down in the inspector which would allow you to switch between the numerous icons you've created. Let's duplicate the **Logo / Figma** Component 4 times. For all the copies, right-click to **Detach Instance**. Now, for each Frame, you can import a new logo and create a Component with their respective names.



Component Naming

Notice that we added a Slash to the name to group component overrides. This allows us to put similar Components together and easily find them in the drop-down menu.

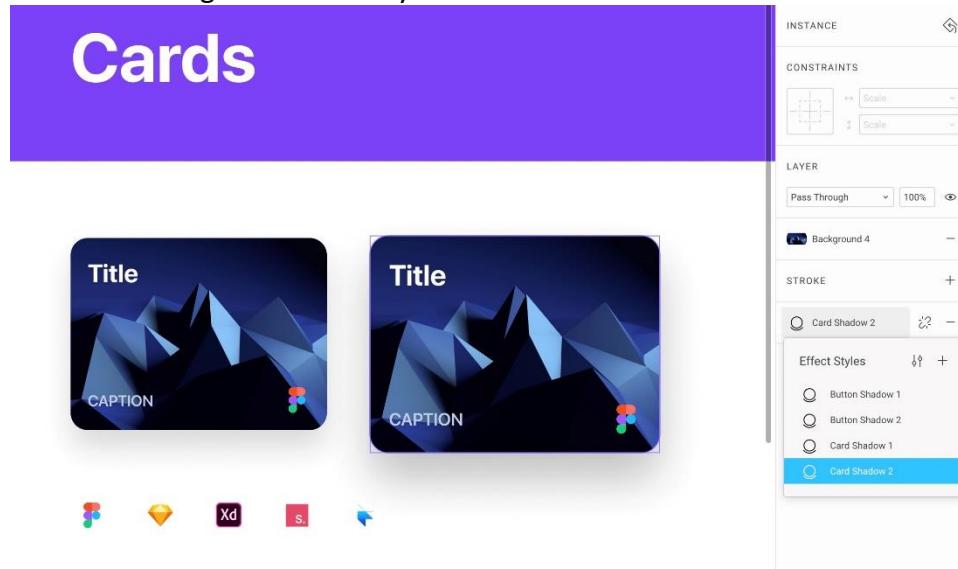


Component Resizing

You can resize your Component by changing its width and height, but you can also use the Scale tool.

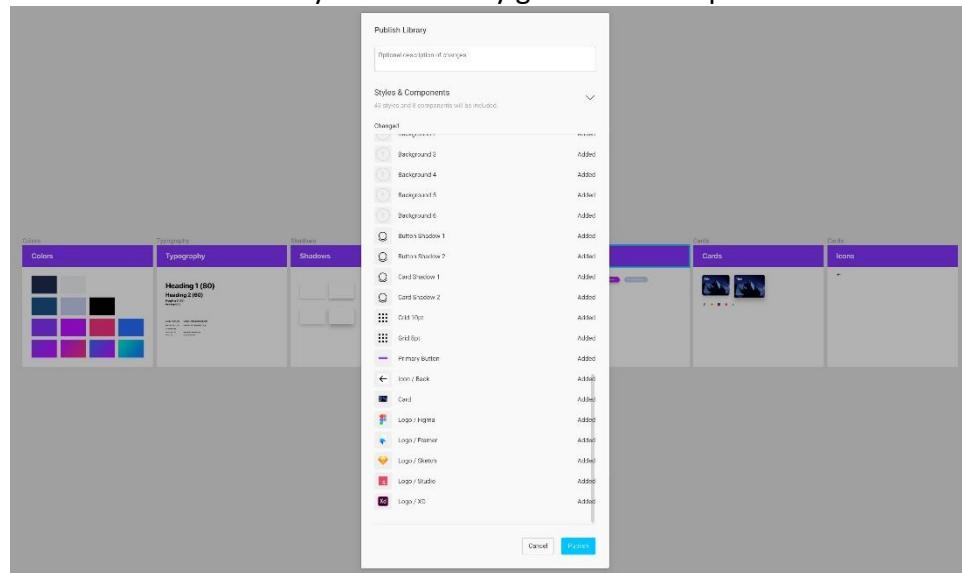
Let's duplicate the Card component 50px to the right and press K to resize it to 340x255. Notice that every layer has also changed its size! This will be the Hover state for our Card.

Let's also change the Effect Style to **Card Shadow 2**.



Publish Changes

Every time you make changes to your Design System library, you will be asked to Publish so that other members in your team may get the same updates. Let's Publish.



Organizing Projects

To create a new Project, go back to the main space in Figma and click on New Project. Name it **Design+Code 3**. Go back to Drafts and drag and drop the **Design System** and **Design+Code 3** files to the new Project.

Experiment No-9 and 10 Case Study:

- a) REVA Navigator App**
- b) Travel App**
- c) Grocery Delivery App**



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