# PMH 1 –

# TP1

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*Date: 19 Octobre 2023*

## Table of Contents

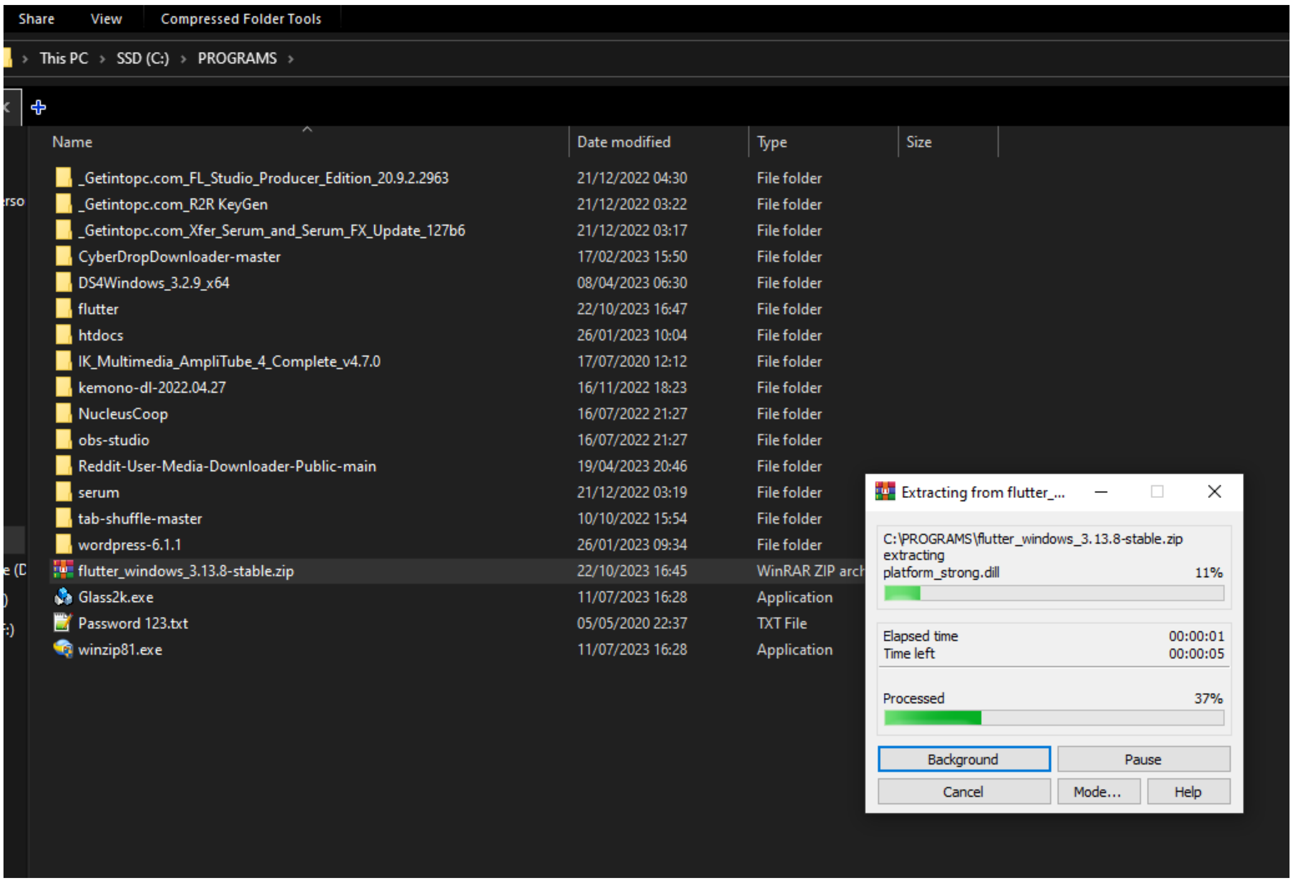
## Task 1 -

### Flutter environment Installation

During my internships I happened to work on app development using the react native platform ecosystem. Due to this I happened to already have a lot of the prerequisite software installed, For those reasons this section will only contain the installation of Flutter, I'll however show that everything's working as intended.

### Installing Flutter

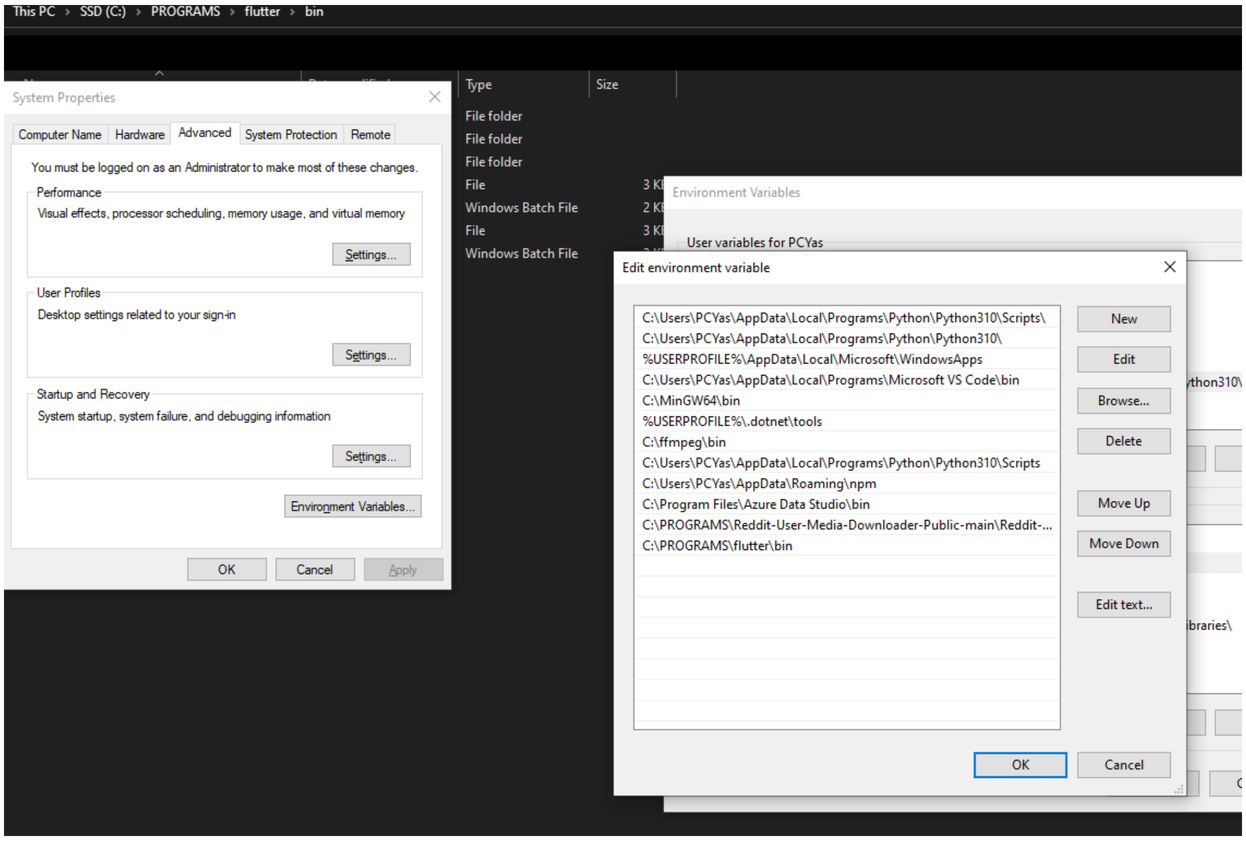
The installation of flutter was relatively straight forward and involved few hiccups.



| Name | Date modified | Type | Size |
|---|---|---|---|
| _Getintopc.com_FL_Studio_Producer_Edition_20.9.2.2963 | 21/12/2022 04:30 | File folder | |
| _Getintopc.com_R2R KeyGen | 21/12/2022 03:22 | File folder | |
| _Getintopc.com_Xfer_Serum_and_Serum_FX_Update_127b6 | 21/12/2022 03:17 | File folder | |
| CyberDropDownloader-master | 17/02/2023 15:50 | File folder | |
| DS4Windows_3.2.9_x64 | 08/04/2023 06:30 | File folder | |
| flutter | 22/10/2023 16:47 | File folder | |
| htdocs | 26/01/2023 10:04 | File folder | |
| IK_Multimedia_AmpliTube_4_Complete_v4.7.0 | 17/07/2020 12:12 | File folder | |
| kemono-dl-2022.04.27 | 16/11/2022 18:23 | File folder | |
| NucleusCoop | 16/07/2022 21:27 | File folder | |
| obs-studio | 16/07/2022 21:27 | File folder | |
| Reddit-User-Media-Downloader-Public-main | 19/04/2023 20:46 | File folder | |
| serum | 21/12/2022 03:19 | File folder | |
| tab-shuffle-master | 10/10/2022 15:54 | File folder | |
| wordpress-6.1.1 | 26/01/2023 09:34 | File folder | |
| flutter_windows_3.13.8-stable.zip | 22/10/2023 16:45 | WinRAR ZIP arch | |
| Glass2k.exe | 11/07/2023 16:28 | Application | |
| Password 123.txt | 05/05/2020 22:37 | TXT File | |
| winzip81.exe | 11/07/2023 16:28 | Application | |

```
Extracting from flutter_...
C:\PROGRAMS\flutter_windows_3.13.8-stable.zip
extracting
platform_strong.dill                              11%

Elapsed time                                 00:00:01
Time left                                    00:00:05

Processed                                         37%
```

- *Extracting the installer onto my C drive*


This PC › SSD (C:) › PROGRAMS › flutter › bin

| Type | Size |
|---|---|
| File folder | |
| File folder | |
| File folder | |
| File | 3 KB |
| Windows Batch File | 2 KB |
| File | 3 KB |
| Windows Batch File | |

System Properties

Computer Name | Hardware | Advanced | System Protection | Remote

You must be logged on as an Administrator to make most of these changes.

Performance
Visual effects, processor scheduling, memory usage, and virtual memory
Settings...

User Profiles
Desktop settings related to your sign-in
Settings...

Startup and Recovery
System startup, system failure, and debugging information
Settings...

Environment Variables...

OK | Cancel | Apply

Environment Variables

User variables for PCYas

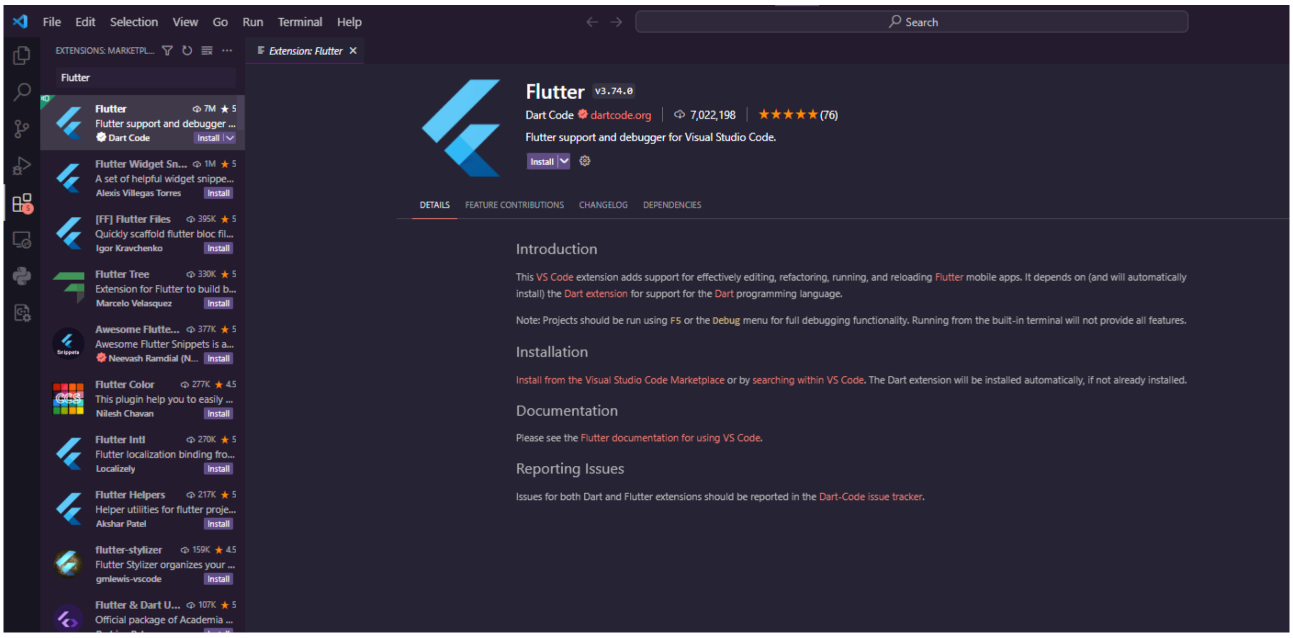
Edit environment variable

```
C:\Users\PCYas\AppData\Local\Programs\Python\Python310\Scripts\
C:\Users\PCYas\AppData\Local\Programs\Python\Python310\
%USERPROFILE%\AppData\Local\Microsoft\WindowsApps
C:\Users\PCYas\AppData\Local\Programs\Microsoft VS Code\bin
C:\MinGW64\bin
%USERPROFILE%\.dotnet\tools
C:\ffmpeg\bin
C:\Users\PCYas\AppData\Local\Programs\Python\Python310\Scripts
C:\Users\PCYas\AppData\Roaming\npm
C:\Program Files\Azure Data Studio\bin
C:\PROGRAMS\Reddit-User-Media-Downloader-Public-main\Reddit-...
C:\PROGRAMS\flutter\bin
```

New | Edit | Browse... | Delete | Move Up | Move Down | Edit text...

OK | Cancel

- *Adding flutter to path*


File Edit Selection View Go Run Terminal Help

Search

EXTENSIONS: MARKETPL...

Extension: Flutter

Flutter

| Extension | Installs | Rating | Description | Publisher |
|---|---|---|---|---|
| Flutter | 7M | 5 | Flutter support and debugger ... | Dart Code |
| Flutter Widget Sn... | 1M | 5 | A set of helpful widget snippe... | Alexis Villegas Torres |
| [FF] Flutter Files | 395K | 5 | Quickly scaffold flutter bloc fil... | Igor Kravchenko |
| Flutter Tree | 330K | 5 | Extension for Flutter to build b... | Marcelo Velasquez |
| Awesome Flutte... | 377K | 5 | Awesome Flutter Snippets is a... | Neevash Ramdial (N... |
| Flutter Color | 277K | 4.5 | This plugin help you to easily ... | Nilesh Chavan |
| Flutter Intl | 270K | 5 | Flutter localization binding fro... | Localizely |
| Flutter Helpers | 217K | 5 | Helper utilities for flutter proje... | Akshar Patel |
| flutter-stylizer | 159K | 4.5 | Flutter Stylizer organizes your ... | gmlewis-vscode |
| Flutter & Dart U... | 107K | 5 | Official package of Academia ... | |

Flutter v3.74.0
Dart Code dartcode.org | 7,022,198 | ★★★★★ (76)
Flutter support and debugger for Visual Studio Code.
Install

DETAILS | FEATURE CONTRIBUTIONS | CHANGELOG | DEPENDENCIES

Introduction

This VS Code extension adds support for effectively editing, refactoring, running, and reloading Flutter mobile apps. It depends on (and will automatically install) the Dart extension for support for the Dart programming language.

Note: Projects should be run using F5 or the Debug menu for full debugging functionality. Running from the built-in terminal will not provide all features.

Installation

Install from the Visual Studio Code Marketplace or by searching within VS Code. The Dart extension will be installed automatically, if not already installed.

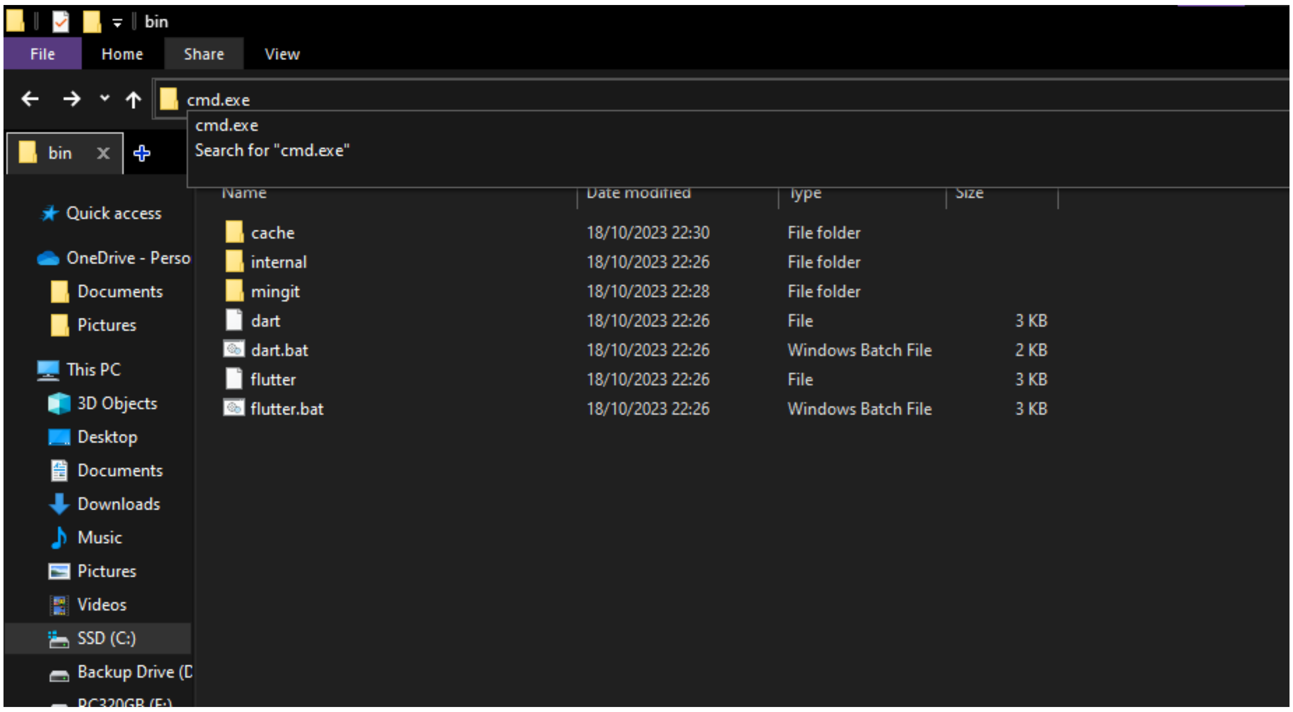
Documentation

Please see the Flutter documentation for using VS Code.

Reporting Issues

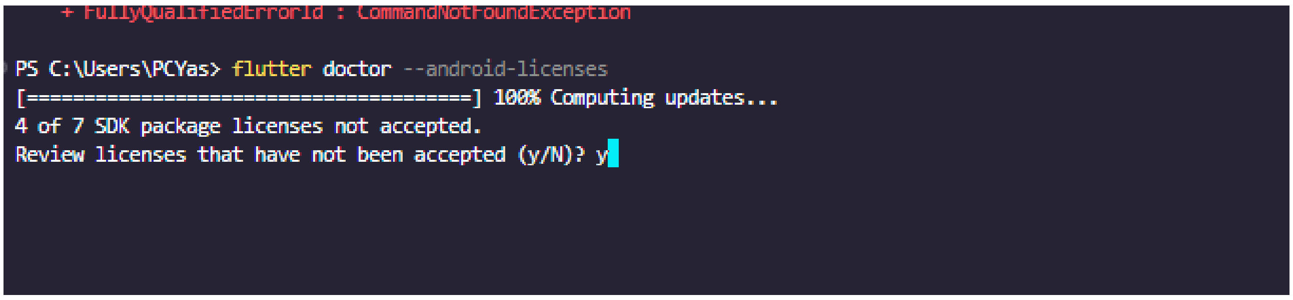
Issues for both Dart and Flutter extensions should be reported in the Dart-Code issue tracker.

- *Installing the flutter extension on VSC (which includes dart)*



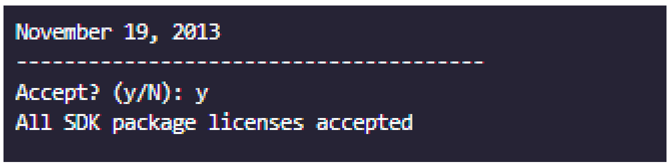
| Name | Date modified | Type | Size |
|---|---|---|---|
| cache | 18/10/2023 22:30 | File folder | |
| internal | 18/10/2023 22:26 | File folder | |
| mingit | 18/10/2023 22:28 | File folder | |
| dart | 18/10/2023 22:26 | File | 3 KB |
| dart.bat | 18/10/2023 22:26 | Windows Batch File | 2 KB |
| flutter | 18/10/2023 22:26 | File | 3 KB |
| flutter.bat | 18/10/2023 22:26 | Windows Batch File | 3 KB |

- *opening a prompt on the flutter path*

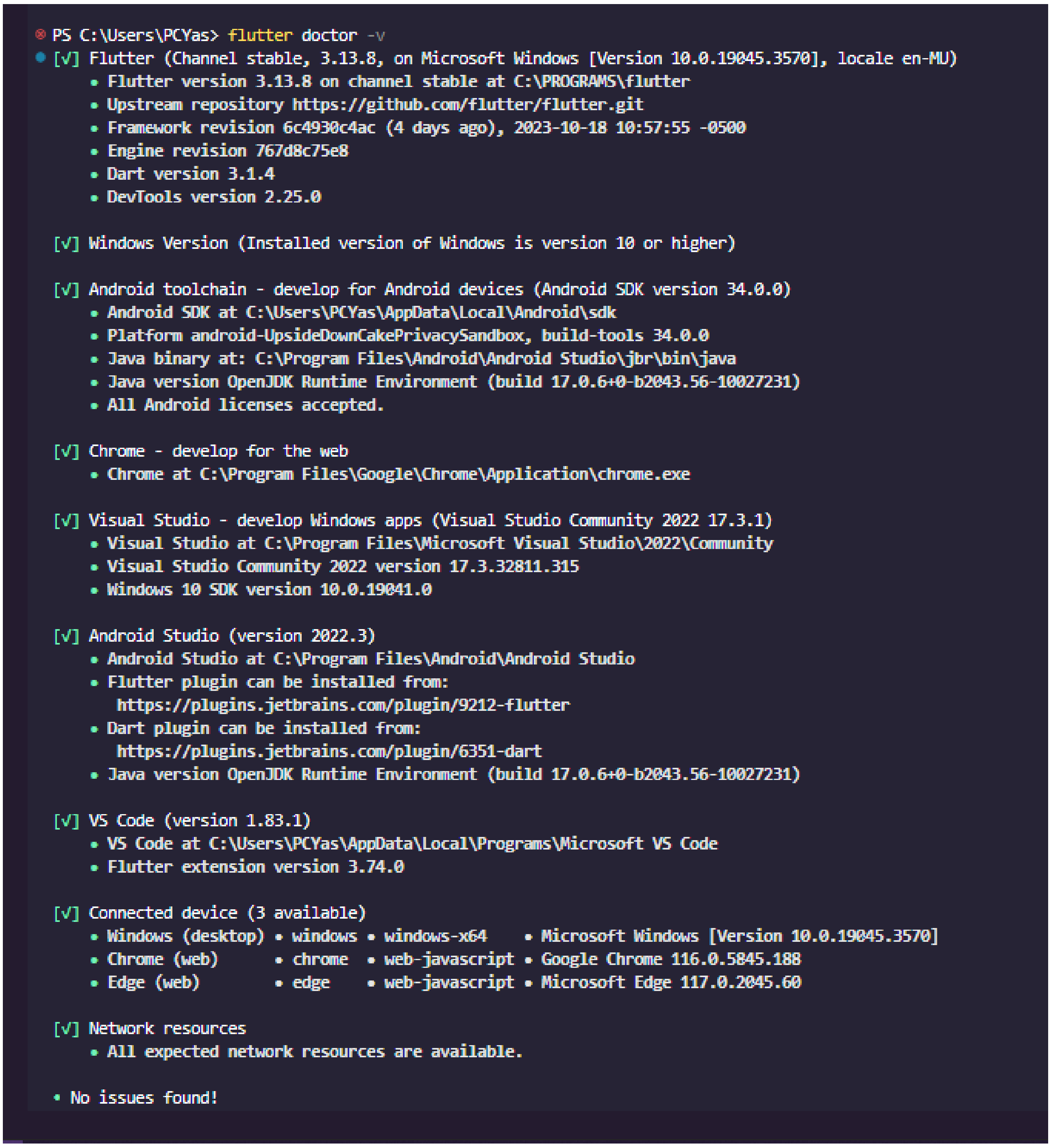


```
    + FullyQualifiedErrorId : CommandNotFoundException

PS C:\Users\PCYas> flutter doctor --android-licenses
[=======================================] 100% Computing updates...
4 of 7 SDK package licenses not accepted.
Review licenses that have not been accepted (y/N)? y
```

- *fixing dependencies and android sdk licenses for flutter*



```
November 19, 2013
---------------------------------------
Accept? (y/N): y
All SDK package licenses accepted
```



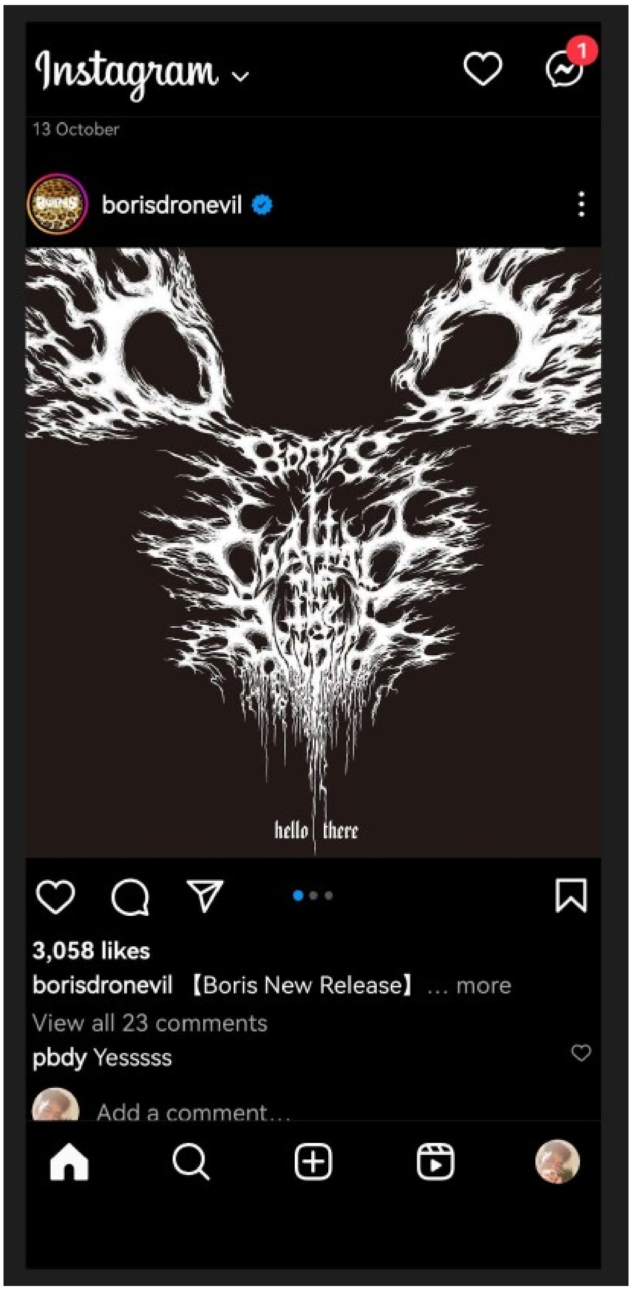
```
⊗ PS C:\Users\PCYas> flutter doctor -v
● [√] Flutter (Channel stable, 3.13.8, on Microsoft Windows [Version 10.0.19045.3570], locale en-MU)
      • Flutter version 3.13.8 on channel stable at C:\PROGRAMS\flutter
      • Upstream repository https://github.com/flutter/flutter.git
      • Framework revision 6c4930c4ac (4 days ago), 2023-10-18 10:57:55 -0500
      • Engine revision 767d8c75e8
      • Dart version 3.1.4
      • DevTools version 2.25.0

  [√] Windows Version (Installed version of Windows is version 10 or higher)

  [√] Android toolchain - develop for Android devices (Android SDK version 34.0.0)
      • Android SDK at C:\Users\PCYas\AppData\Local\Android\sdk
      • Platform android-UpsideDownCakePrivacySandbox, build-tools 34.0.0
      • Java binary at: C:\Program Files\Android\Android Studio\jbr\bin\java
      • Java version OpenJDK Runtime Environment (build 17.0.6+0-b2043.56-10027231)
      • All Android licenses accepted.

  [√] Chrome - develop for the web
      • Chrome at C:\Program Files\Google\Chrome\Application\chrome.exe

  [√] Visual Studio - develop Windows apps (Visual Studio Community 2022 17.3.1)
      • Visual Studio at C:\Program Files\Microsoft Visual Studio\2022\Community
      • Visual Studio Community 2022 version 17.3.32811.315
      • Windows 10 SDK version 10.0.19041.0

  [√] Android Studio (version 2022.3)
      • Android Studio at C:\Program Files\Android\Android Studio
      • Flutter plugin can be installed from:
        https://plugins.jetbrains.com/plugin/9212-flutter
      • Dart plugin can be installed from:
        https://plugins.jetbrains.com/plugin/6351-dart
      • Java version OpenJDK Runtime Environment (build 17.0.6+0-b2043.56-10027231)

  [√] VS Code (version 1.83.1)
      • VS Code at C:\Users\PCYas\AppData\Local\Programs\Microsoft VS Code
      • Flutter extension version 3.74.0

  [√] Connected device (3 available)
      • Windows (desktop) • windows • windows-x64    • Microsoft Windows [Version 10.0.19045.3570]
      • Chrome (web)      • chrome  • web-javascript • Google Chrome 116.0.5845.188
      • Edge (web)        • edge    • web-javascript • Microsoft Edge 117.0.2045.60

  [√] Network resources
      • All expected network resources are available.

  • No issues found!
```

## Task 2

### Using an appropriate online tool create a wireframe for a Flutter App

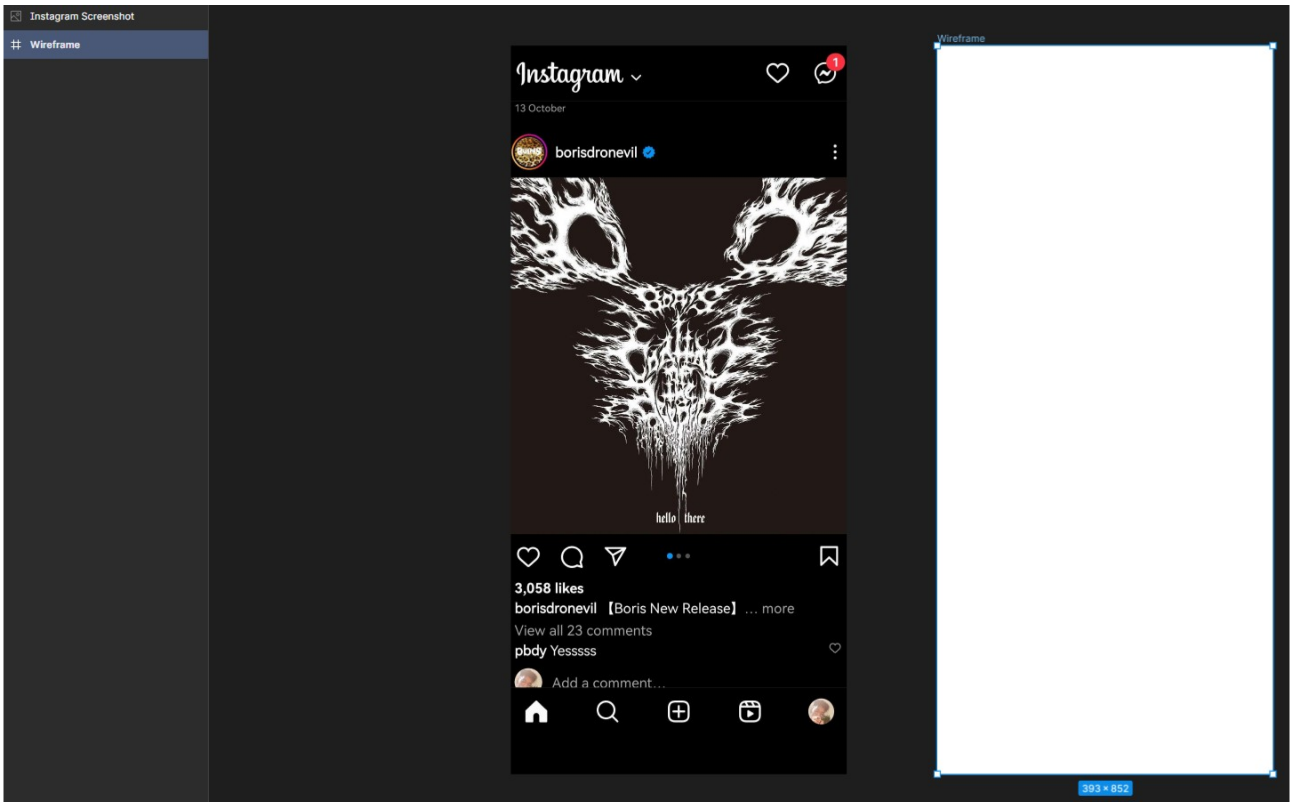
Wireframes are a 2d visual illustration that generally aid us in the form of a visual guide as to how the final application will look like. It does not showcase the entire application's design, but rather, gives insight on the key elements and the UI of the application.

I've decided for this task to recreate a wireframe of the instragram application. I've chosen instagram as it has a lot of tropes in application design and happens to have a lot of shapes that would be a good idea to showcase on a wireframe demo. This is the screenshot we'll be basing the wireframe off of.

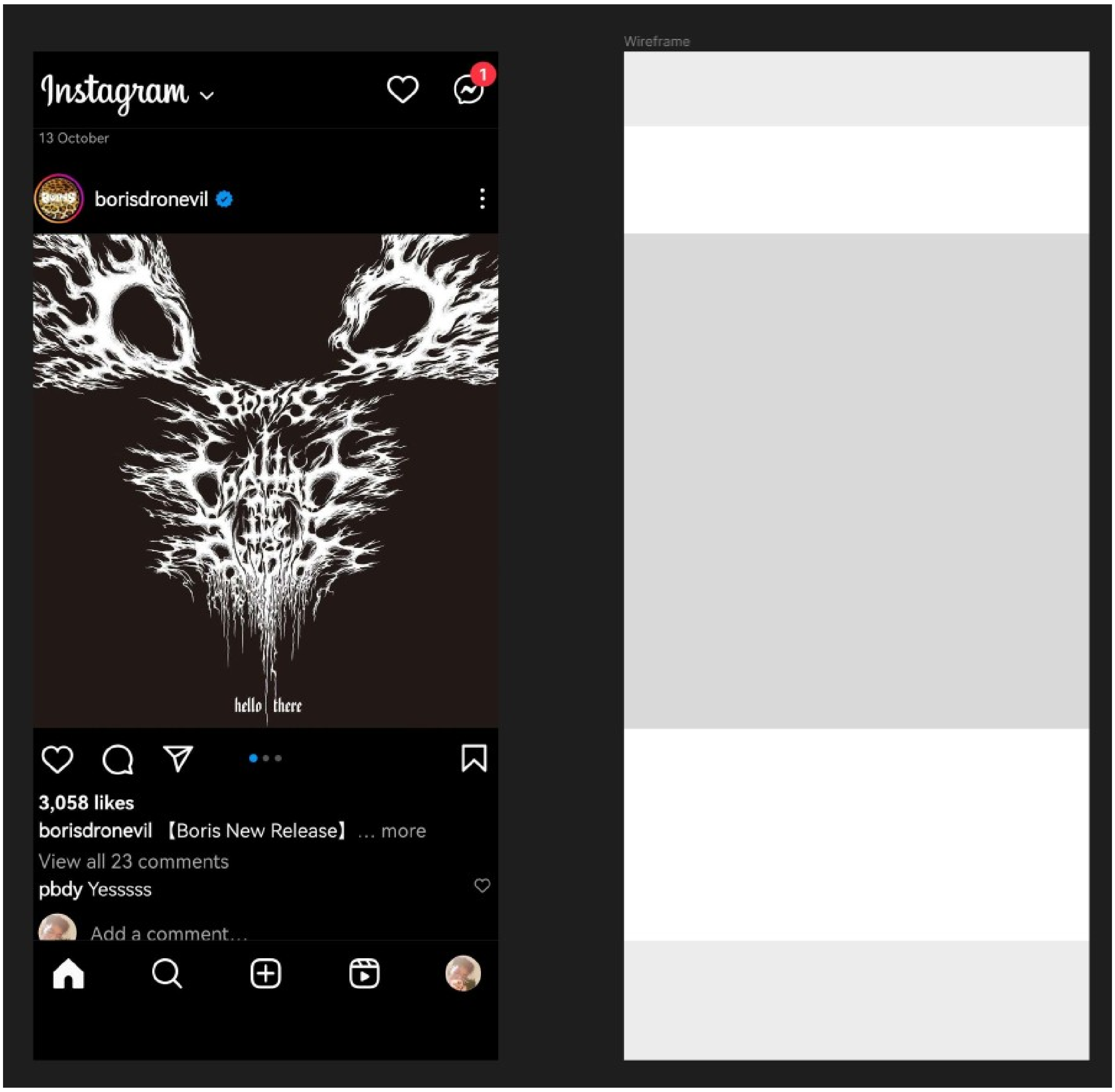


## Using Figma

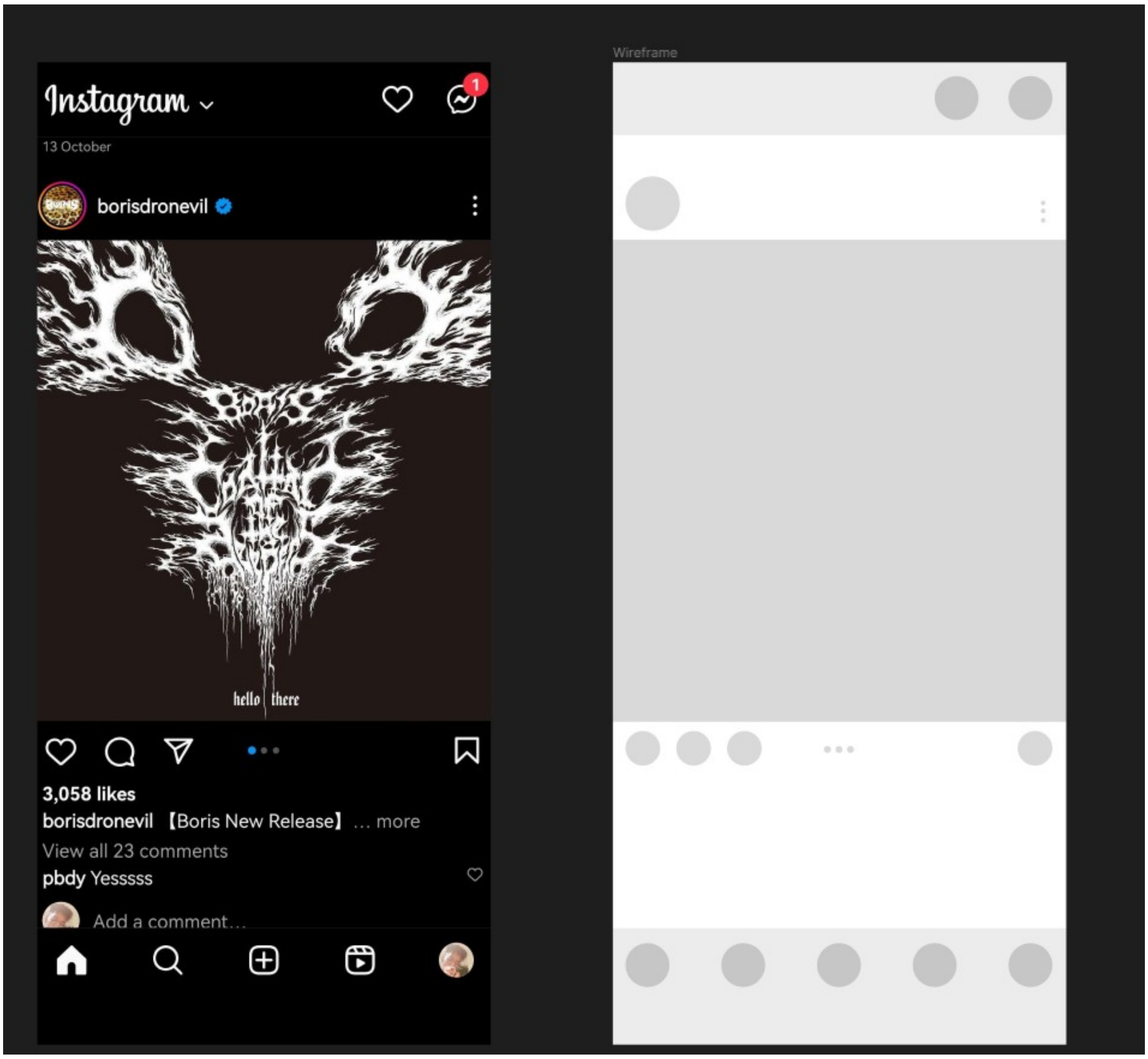
To make our wireframe I've chosen to Figma. Figma is a design application commonly used in industry for the making of desktop and mobile applications. I happened to have worked with figma previously during my internship so I was familiar with the application. As a result I decided to go with that for the creation of this wireframe.



As a start I made a wireframe layer using a phone screen for reference, this will be the base for our wireframe of the screenshot. Keep in mind that we won't be making a dark mode of the wireframe; after all a wireframe is just there to give an outlook of the design elements, not necessarily the design choices – so a dark mode would be redundant here.

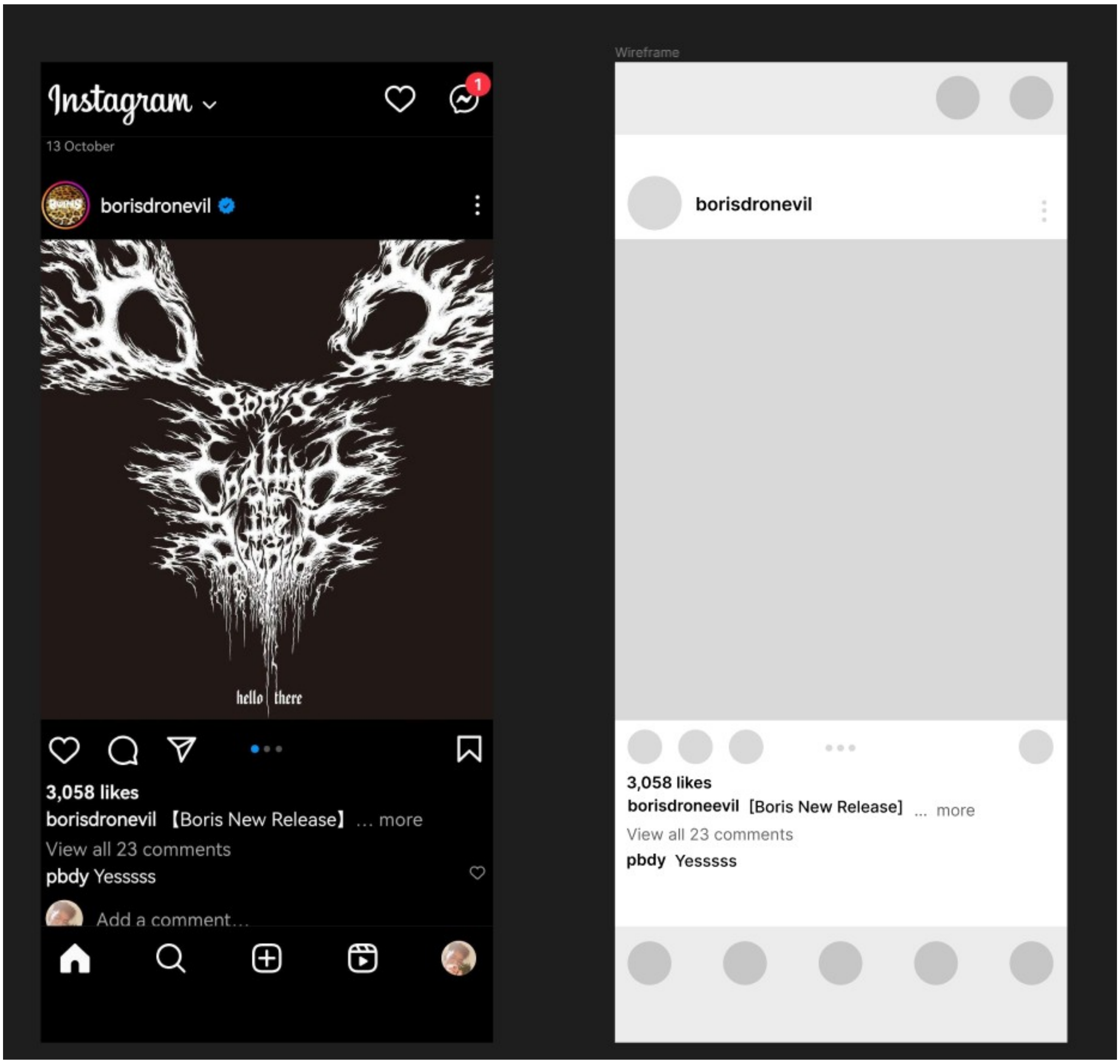

Instagram
13 October
borisdronevil
3,058 likes
borisdronevil 【Boris New Release】 ... more
View all 23 comments
pbdy Yesssss
Add a comment...

We begin to add elements in importance, creating the post box and the header and footer of the application firsthand.



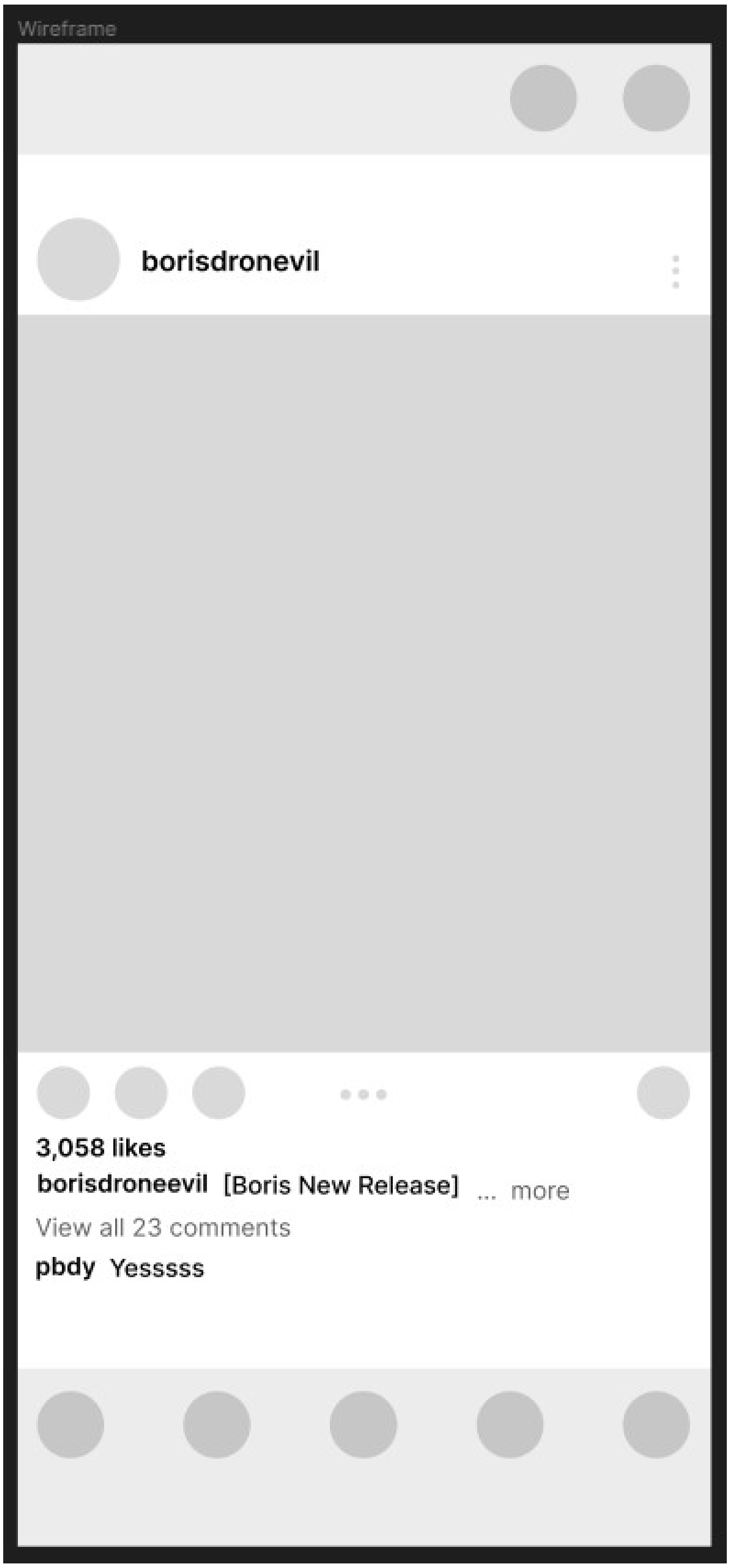
3,058 likes
borisdronevil 【Boris New Release】 ... more
View all 23 comments
pbdy Yesssss
Add a comment...

I've gone ahead and added all circular details to the wireframe. This is done by imposing a rectangle and then applying a strong corner radius to it.



Finally we have to add the text – We place it in the general correct position and properly apply colour and boldness to recreate the UI as best as we can.

From there we have completed our wireframe for the application. In the next page you can see the full wireframe.


Wireframe
borisdronevil
3,058 likes
borisdroneevil [Boris New Release] ... more
View all 23 comments
pbdy Yesssss

## Task 3

### Using an appropriate online tool create a wireflow for a Flutter App

We'll be using figma again for this as it comes with all the tools to create a wireflow. We'll also be sticking with Instagram since we already have the first wireframe for the flow.

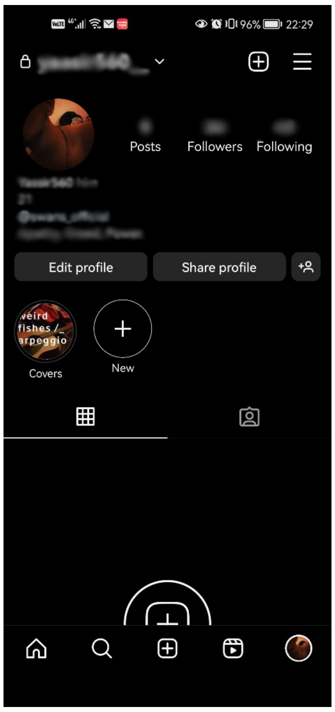
A wireflow helps us visualize design changes and transitions from one screen of the UI to another. For this we must create wireframes of the other elements of the flow.

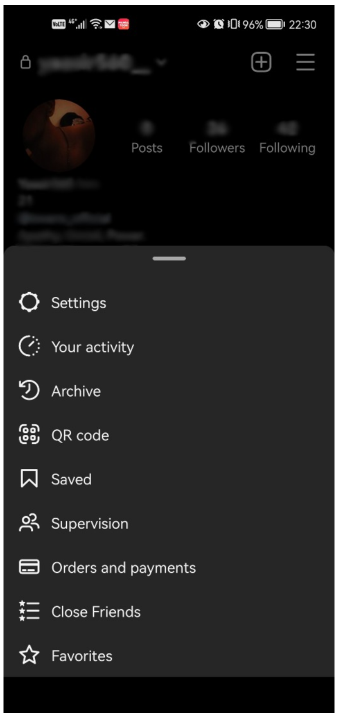
For most actions that an actor (user) would want to do, the flow is actually rather short on mobile applications. This has 2 rather convenient advantages.

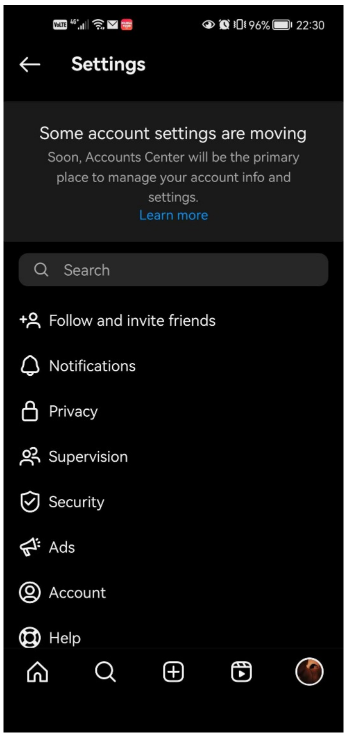
- The application is simpler to navigate. This makes the application easier to use, and as a result prevents users from having any confusion when using the application.

- Short flows mean less screens for the designers to make, less UI elements to implement and helps simplify the application's development in general. This might seem trivial if we're making an application once, but as the saying goes, everything that can be broken will be broken. Applications break all the time, and more elements means more complexity- so more that can go wrong. And for a constantly updating and changing application (which is the industry norm these days) Less is more.

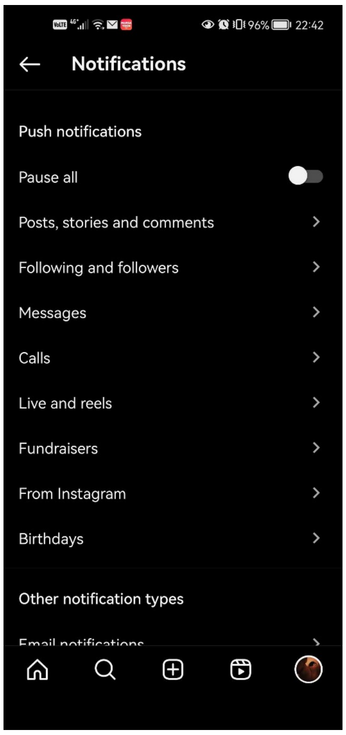
All that being said, I've decided to create a wireflow for a user wanting to pause the notifications from their instagram. Below are all the screens involved in this flow;

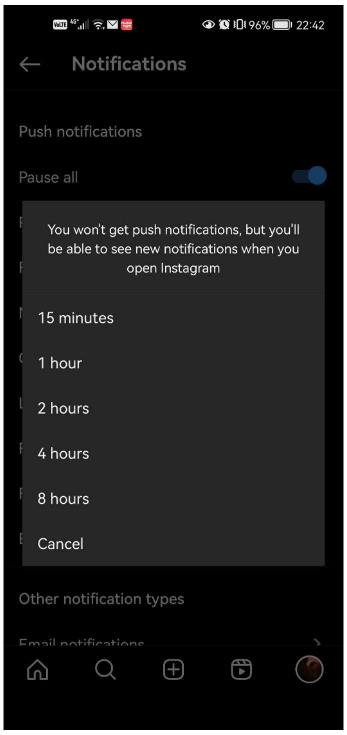






Some account settings are moving
Soon, Accounts Center will be the primary place to manage your account info and settings.
Learn more

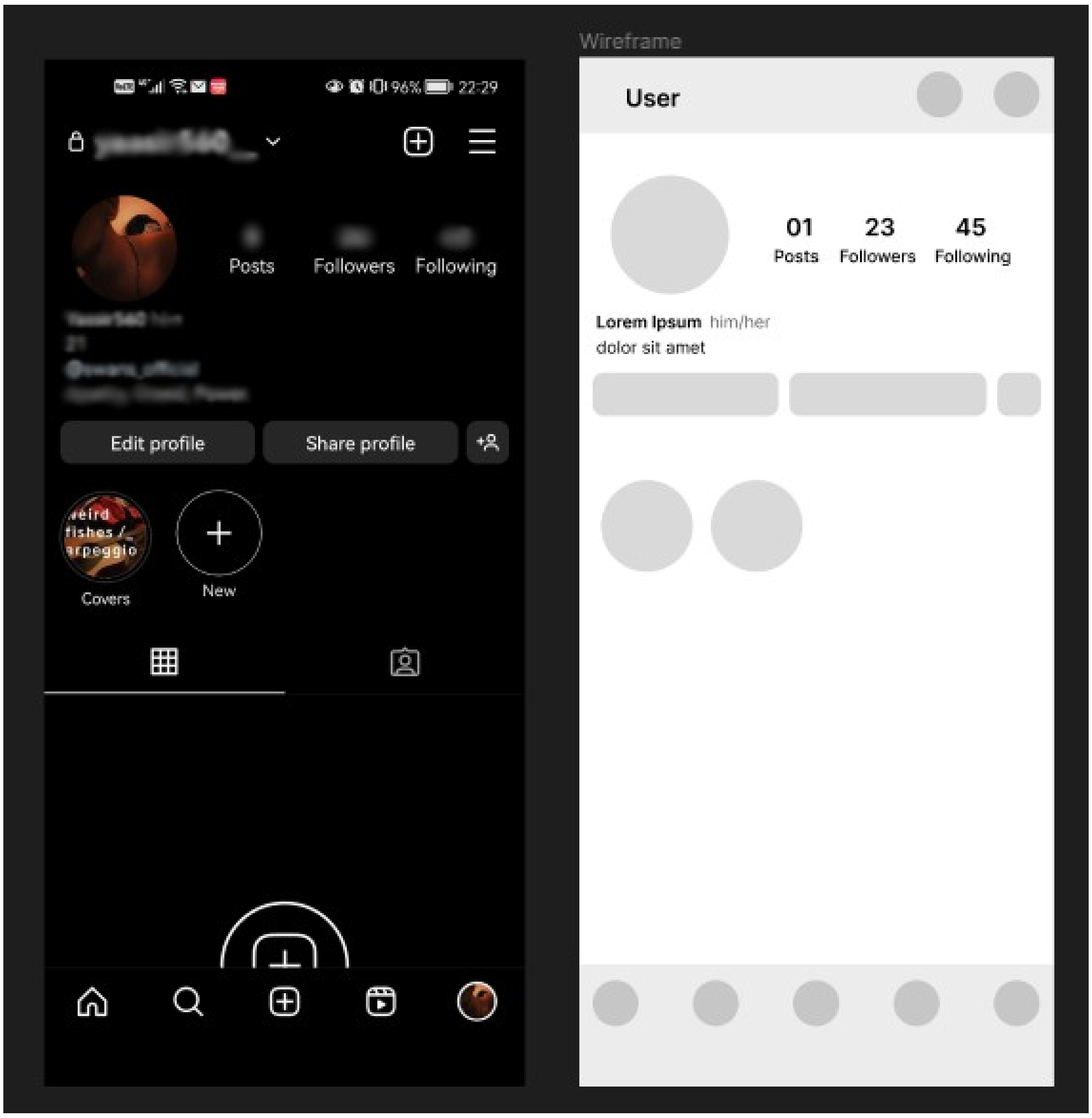




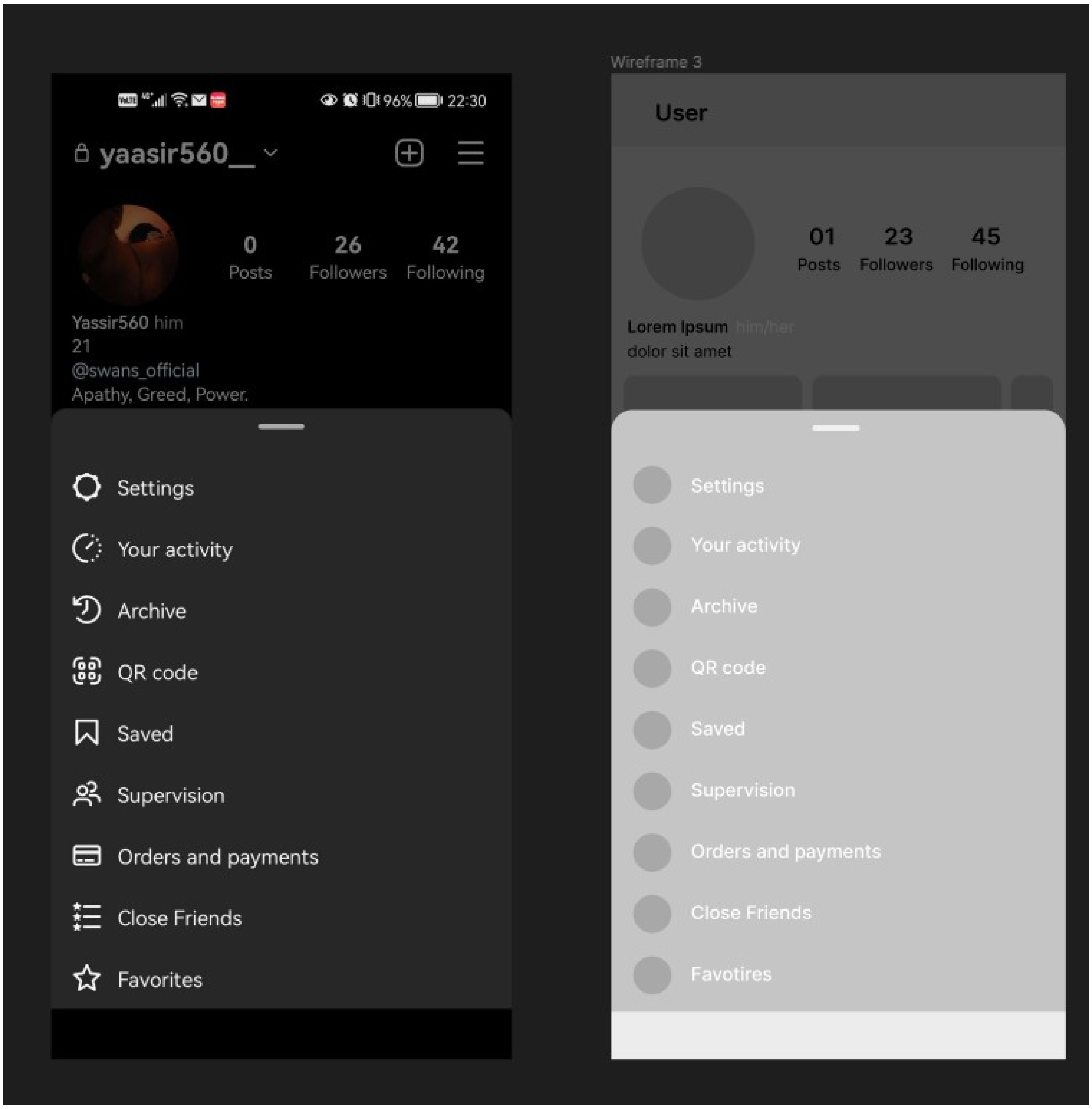
You won't get push notifications, but you'll be able to see new notifications when you open Instagram

To start, we'll create the wireframes for each screen. Some are rather similar to each other, luckily, so this won't take too long.

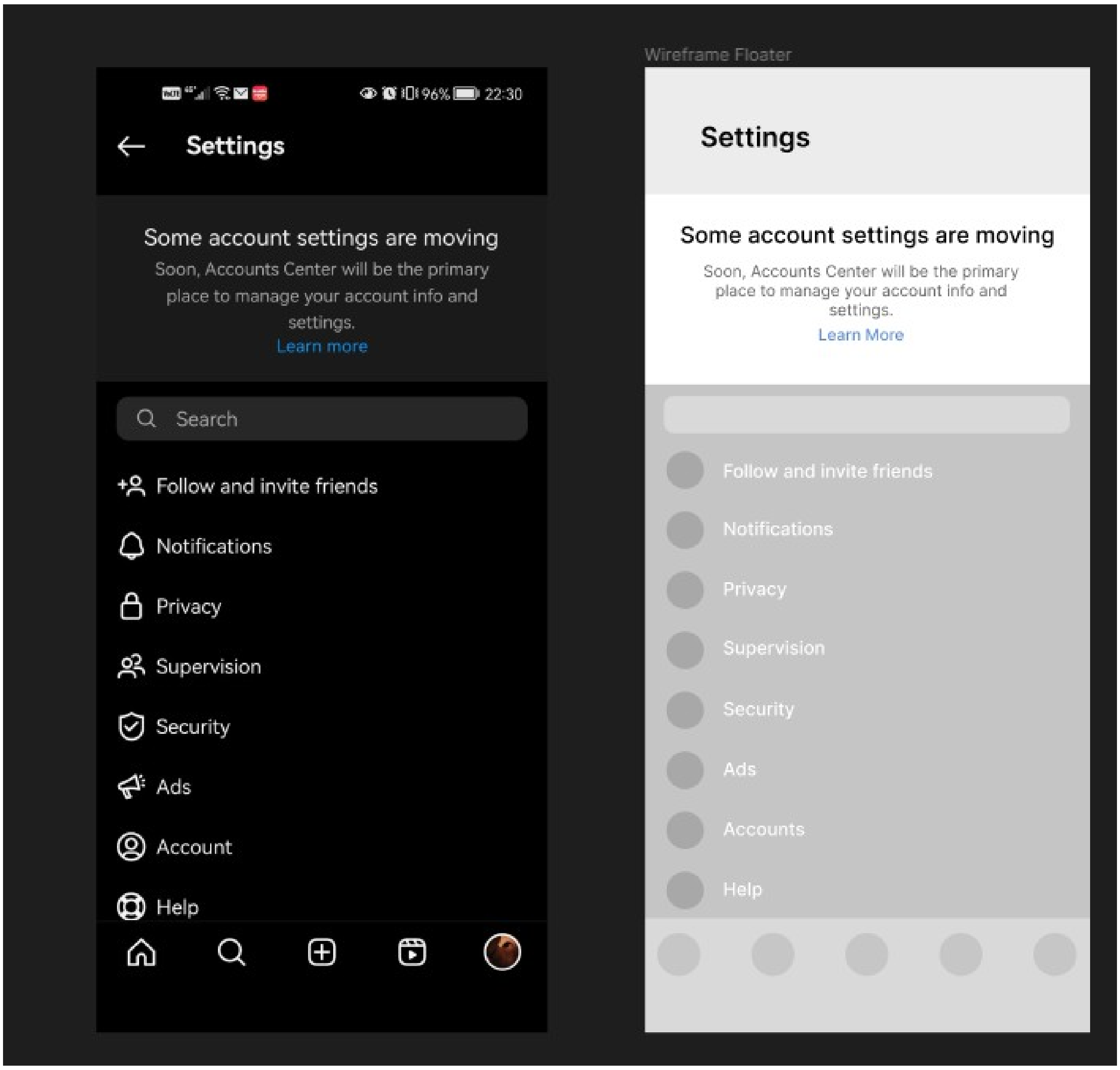
Here is the profile screen:



The floater dialogue:



The settings screen:


Wireframe Floater

Settings

Some account settings are moving

Soon, Accounts Center will be the primary place to manage your account info and settings.

Learn more

Search

Follow and invite friends

Notifications

Privacy

Supervision

Security

Ads

Account

Help

Settings

Some account settings are moving

Soon, Accounts Center will be the primary place to manage your account info and settings.

Learn More

Follow and invite friends

Notifications

Privacy

Supervision

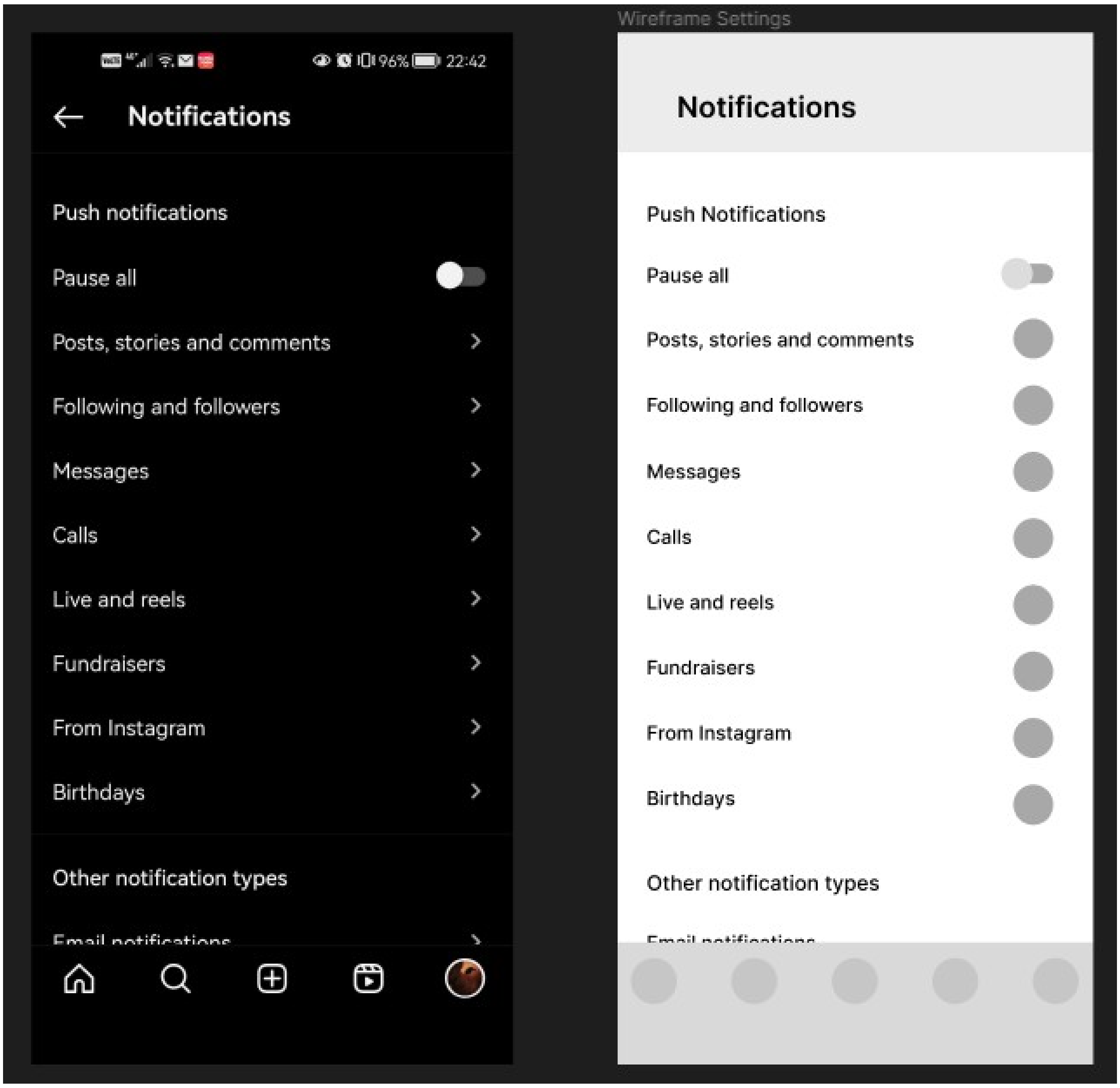
Security

Ads

Accounts

Help

The notification screen:


Wireframe Settings

22:42

Notifications

Push notifications

Pause all

Posts, stories and comments

Following and followers

Messages

Calls

Live and reels

Fundraisers

From Instagram

Birthdays

Other notification types

Notifications

Push Notifications

Pause all

Posts, stories and comments

Following and followers

Messages

Calls

Live and reels

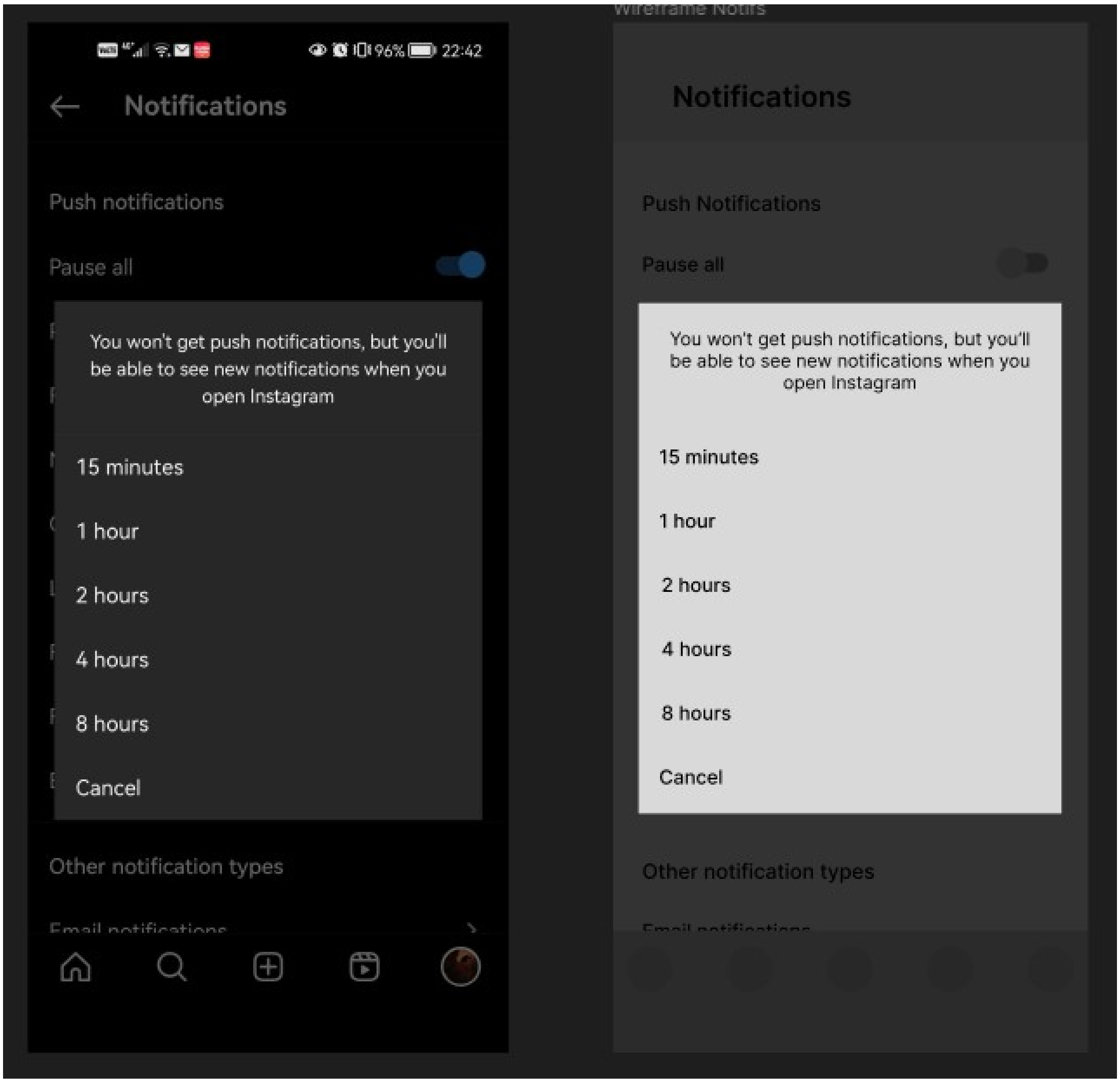
Fundraisers

From Instagram

Birthdays

Other notification types

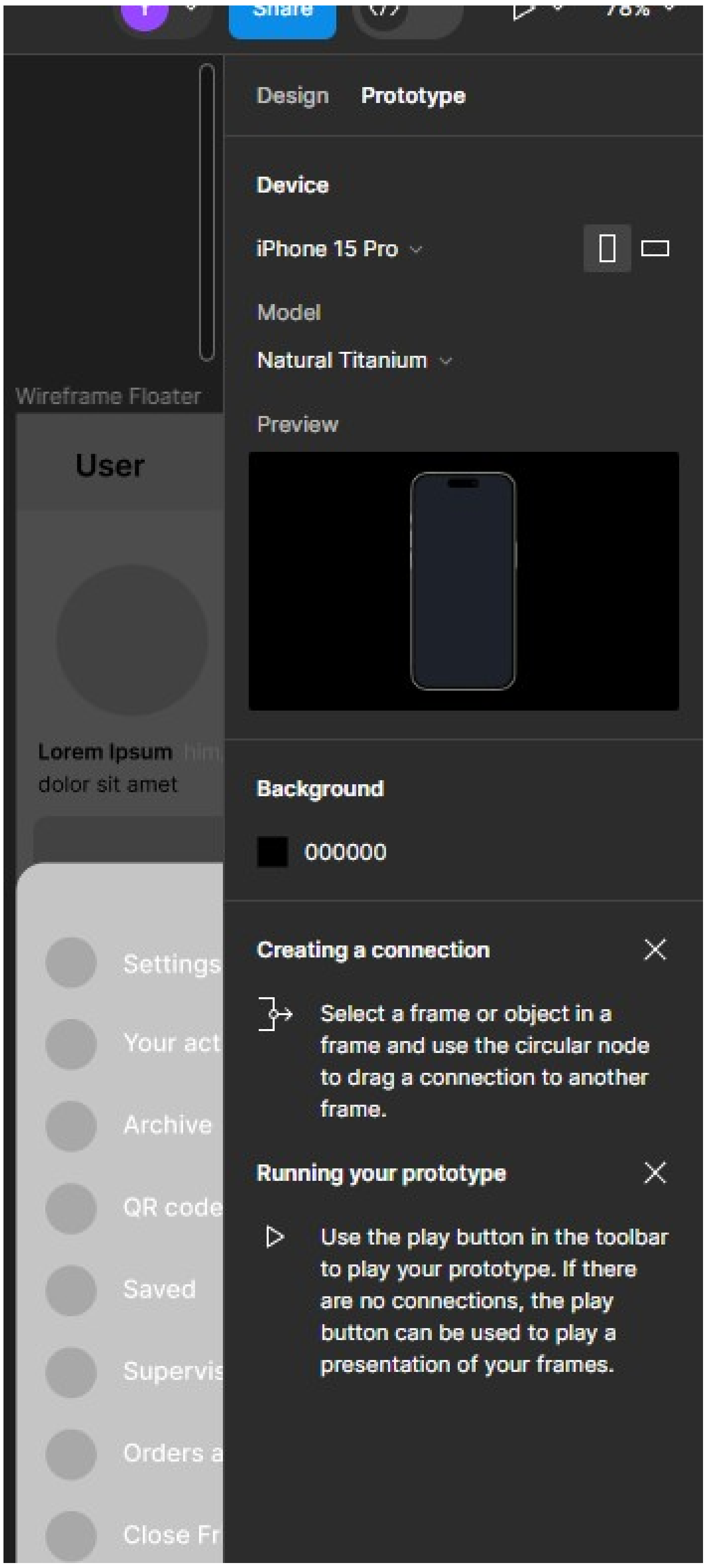
And finally the pause all screen:



You won't get push notifications, but you'll be able to see new notifications when you open Instagram

15 minutes
1 hour
2 hours
4 hours
8 hours
Cancel

To create our flow, we must enter the prototype section of figma, this is done via the righthand-side panel. From there, we can start creating our flow.



Design **Prototype**

**Device**

iPhone 15 Pro

Model

Natural Titanium

Preview

**Background**

000000

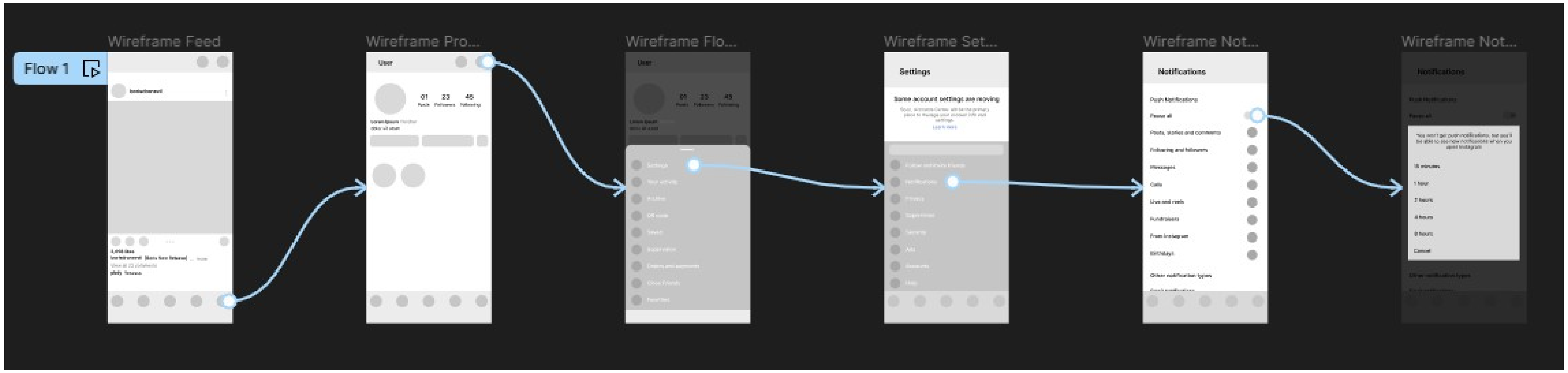
**Creating a connection**

Select a frame or object in a frame and use the circular node to drag a connection to another frame.

**Running your prototype**

Use the play button in the toolbar to play your prototype. If there are no connections, the play button can be used to play a presentation of your frames.

Here is the complete wireflow for our action; pausing notifications for the app;



I have linked the figma project to the lab 1 repository, so you'll be able to view the flow fully there.

## Task 4

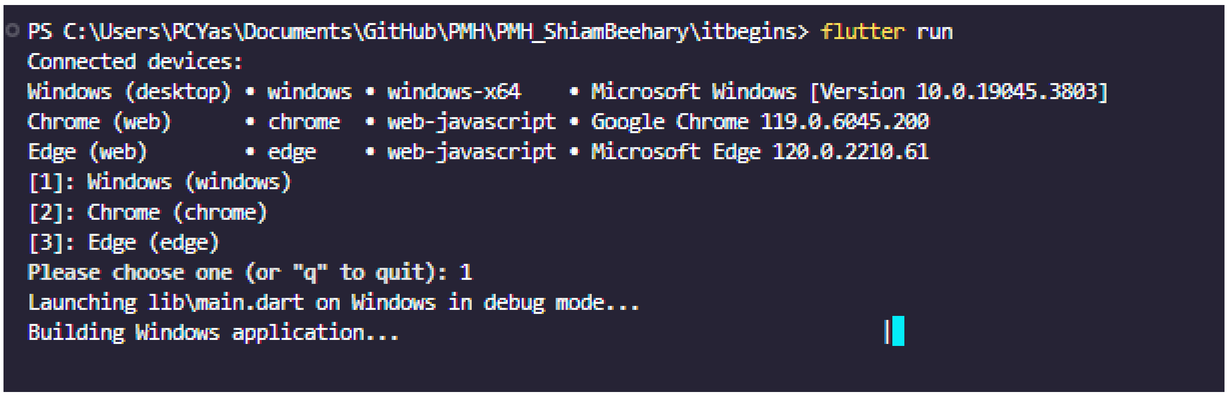
### Using an appropriate online tool create a prototype for a Flutter App

Figma simplifies our work for this ask, as we can simply use the present option to prototype our application, you can try this out by opening the figma project link found in the GitHub repository.

## Task 5

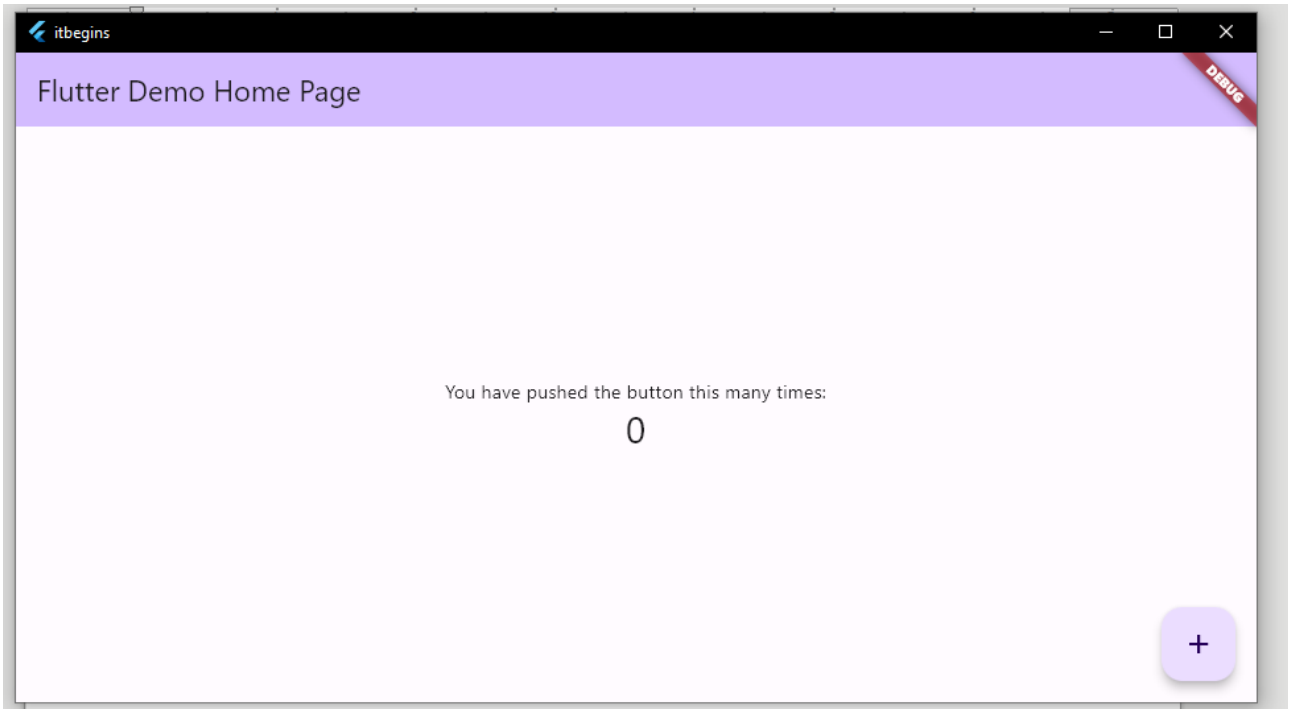
### Create your first Flutter App in VSCode or Android Studio

Creating our first flutter app is a rather straightforward task. To achieve this we can simply deploy the flutter app in VSCode and run the application using the flutter run command.



```
PS C:\Users\PCYas\Documents\GitHub\PMH\PMH_ShiamBeehary\itbegins> flutter run
Connected devices:
Windows (desktop) • windows • windows-x64    • Microsoft Windows [Version 10.0.19045.3803]
Chrome (web)      • chrome  • web-javascript • Google Chrome 119.0.6045.200
Edge (web)        • edge    • web-javascript • Microsoft Edge 120.0.2210.61
[1]: Windows (windows)
[2]: Chrome (chrome)
[3]: Edge (edge)
Please choose one (or "q" to quit): 1
Launching lib\main.dart on Windows in debug mode...
Building Windows application...
```

For my first execution of the program I've decided to run it as a windows application.



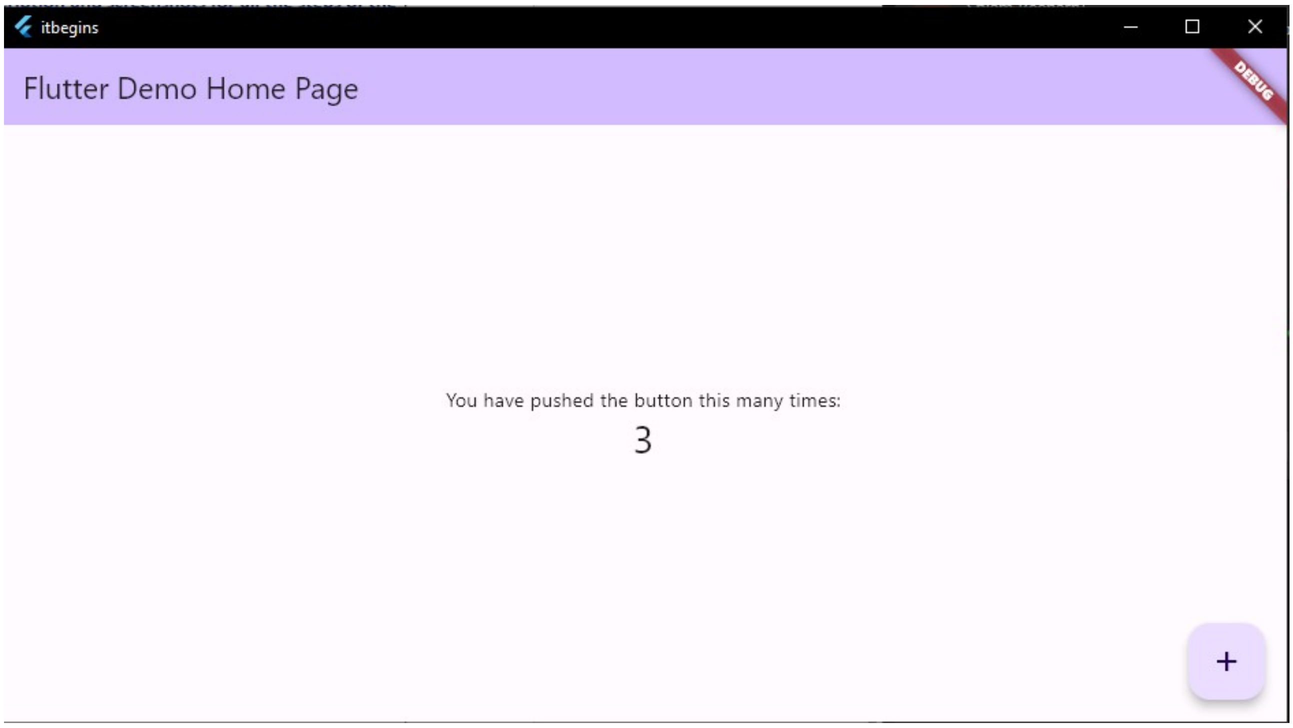
itbegins

Flutter Demo Home Page

You have pushed the button this many times:

0

As we can see the application runs successfully and works as intended (pressing the button brings about an update to the interface, showcasing the functionality of all components of



You have pushed the button this many times:

3

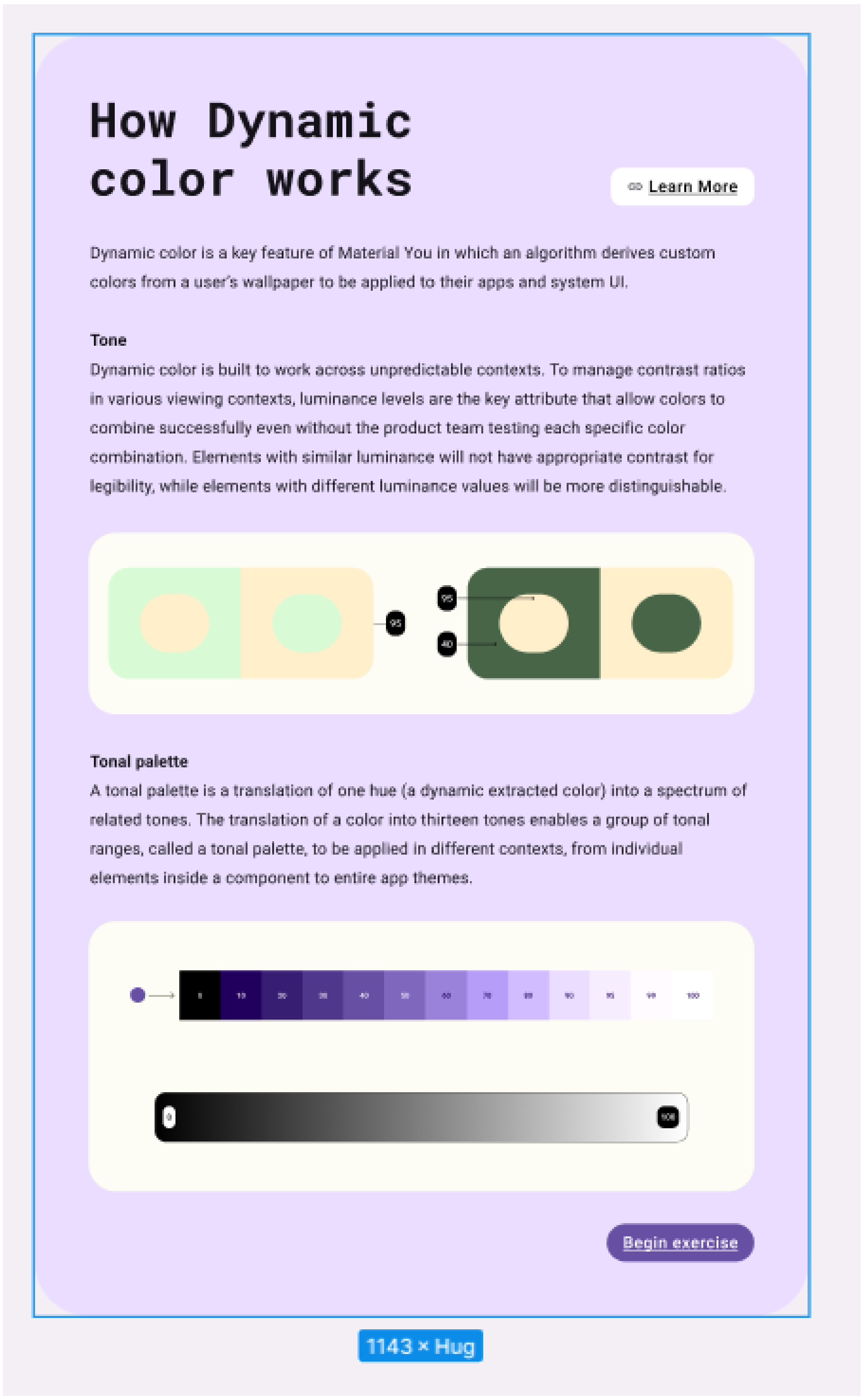
the application.

## Task 6

### Visualizing Dynamic Color in App Using Codelab

In this task we'll be trying out a codelab to get dynamic colours into our application.

The codelab happens to use figma;



How Dynamic color works

Learn More

Dynamic color is a key feature of Material You in which an algorithm derives custom colors from a user's wallpaper to be applied to their apps and system UI.

**Tone**

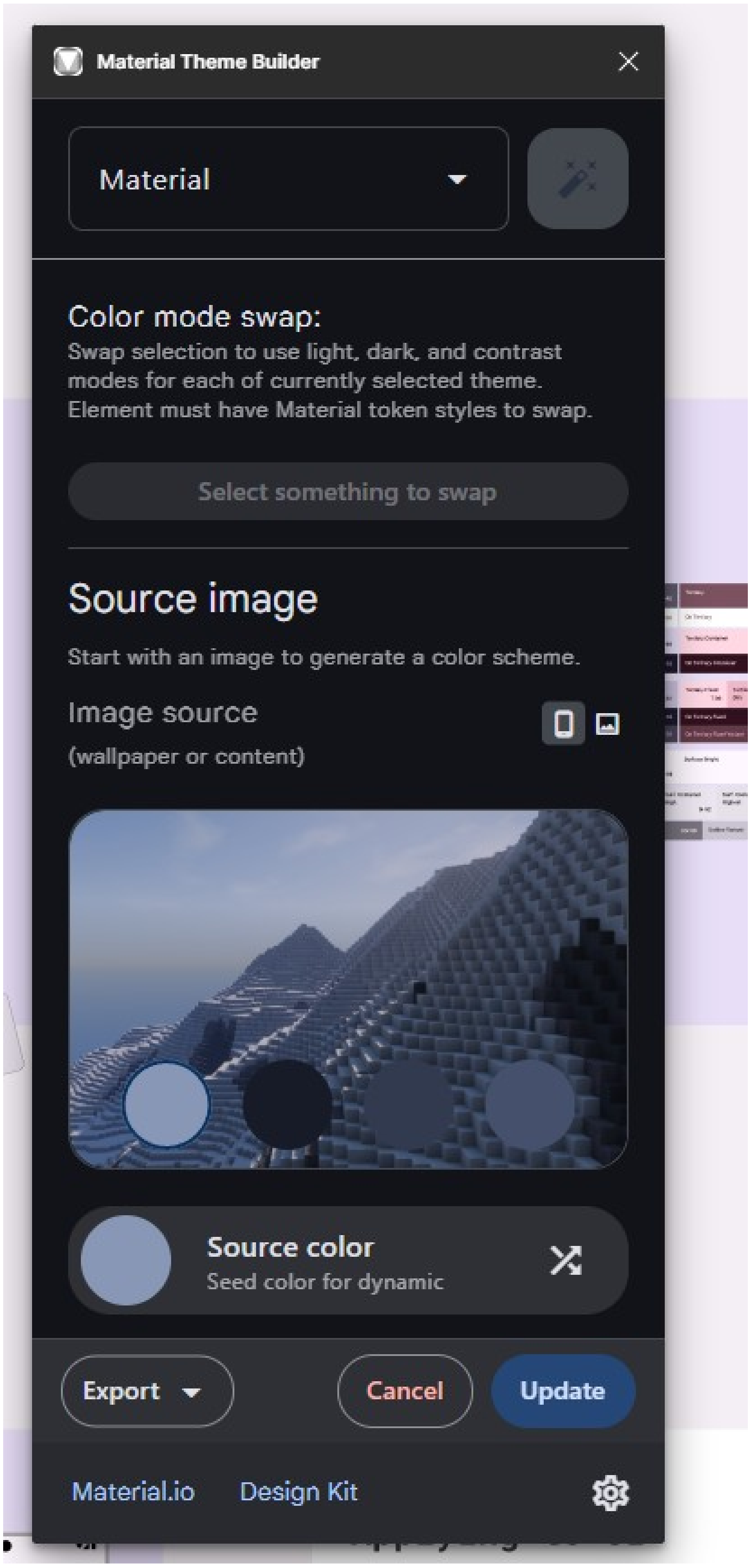
Dynamic color is built to work across unpredictable contexts. To manage contrast ratios in various viewing contexts, luminance levels are the key attribute that allow colors to combine successfully even without the product team testing each specific color combination. Elements with similar luminance will not have appropriate contrast for legibility, while elements with different luminance values will be more distinguishable.

**Tonal palette**

A tonal palette is a translation of one hue (a dynamic extracted color) into a spectrum of related tones. The translation of a color into thirteen tones enables a group of tonal ranges, called a tonal palette, to be applied in different contexts, from individual elements inside a component to entire app themes.

Begin exercise

1143 × Hug


Material Theme Builder

Material

Color mode swap:
Swap selection to use light, dark, and contrast modes for each of currently selected theme. Element must have Material token styles to swap.

Select something to swap

Source image

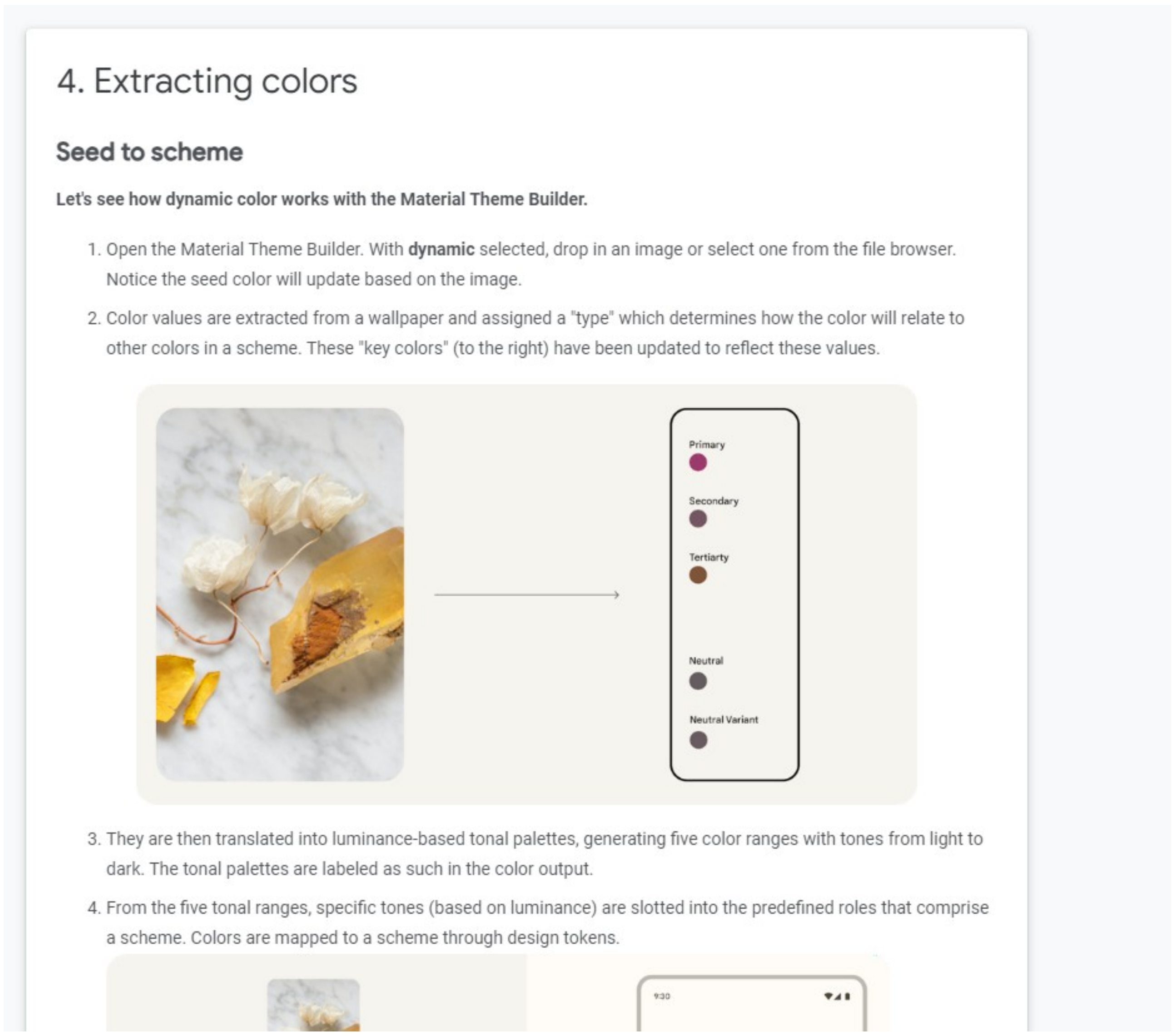
Start with an image to generate a color scheme.

Image source
(wallpaper or content)

Source color
Seed color for dynamic

Export
Cancel
Update

Material.io
Design Kit



## 4. Extracting colors

### Seed to scheme

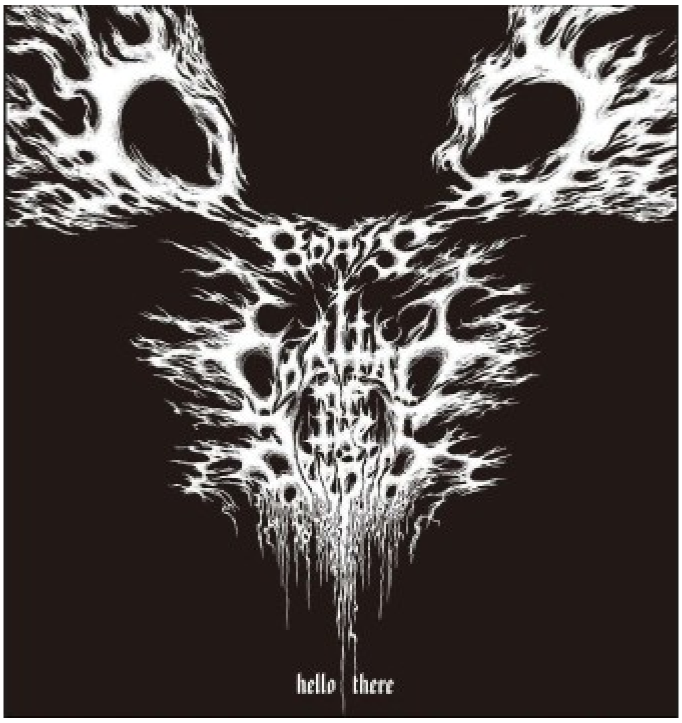
**Let's see how dynamic color works with the Material Theme Builder.**

1. Open the Material Theme Builder. With **dynamic** selected, drop in an image or select one from the file browser. Notice the seed color will update based on the image.
2. Color values are extracted from a wallpaper and assigned a "type" which determines how the color will relate to other colors in a scheme. These "key colors" (to the right) have been updated to reflect these values.

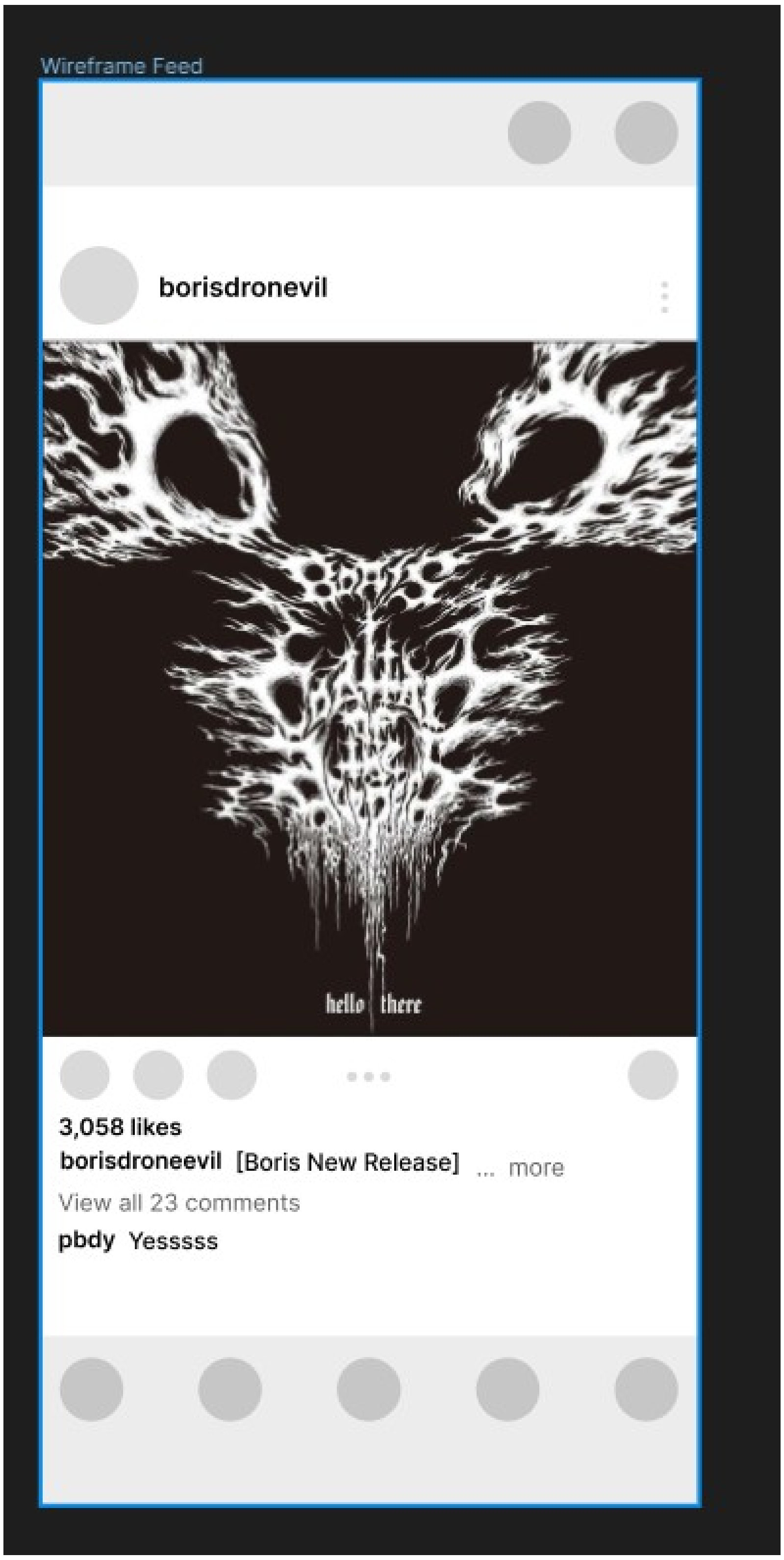
3. They are then translated into luminance-based tonal palettes, generating five color ranges with tones from light to dark. The tonal palettes are labeled as such in the color output.
4. From the five tonal ranges, specific tones (based on luminance) are slotted into the predefined roles that comprise a scheme. Colors are mapped to a scheme through design tokens.

We'll now be trying out some of these concepts onto our instagram UI prototype that we made earlier on figma, we'll be sticking to the lighter theme of the application for this.

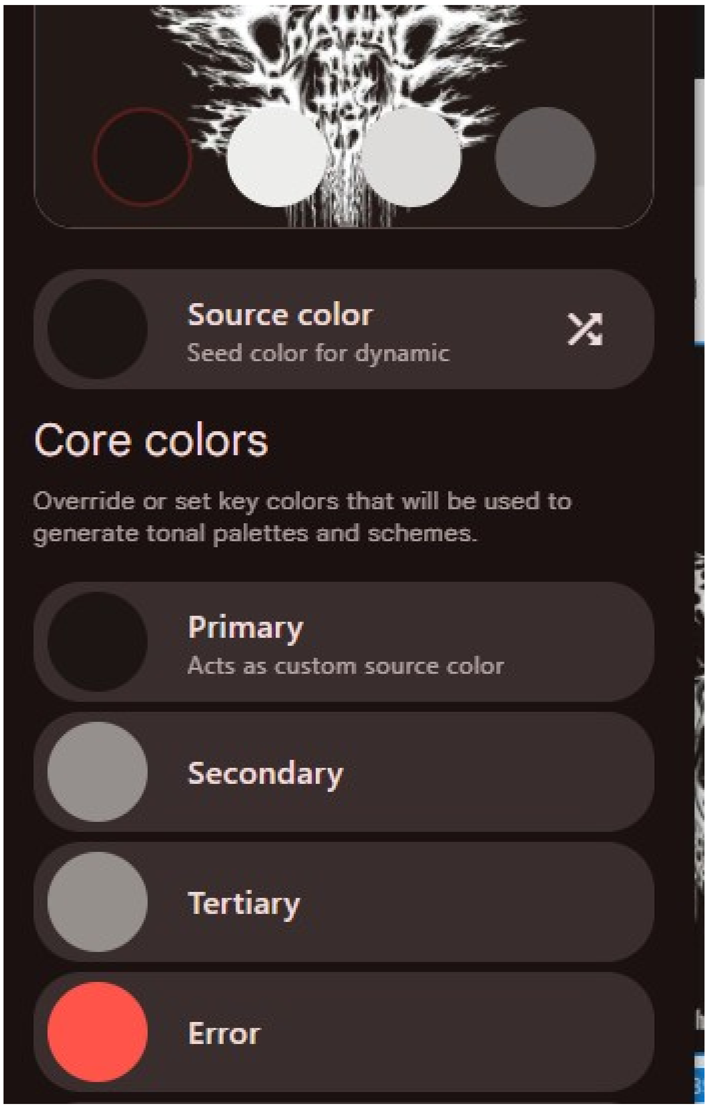
We will be using the image in our post for the palette.



First we'll add the image to our prototype



For the components that we'll be changing the colour of I have landed on 3, the sliding dots, the bottom island and masthead of the application, We'll be using 2 colours from google's pastel material theme for this.


Source color
Seed color for dynamic

Core colors

Override or set key colors that will be used to generate tonal palettes and schemes.

Primary
Acts as custom source color

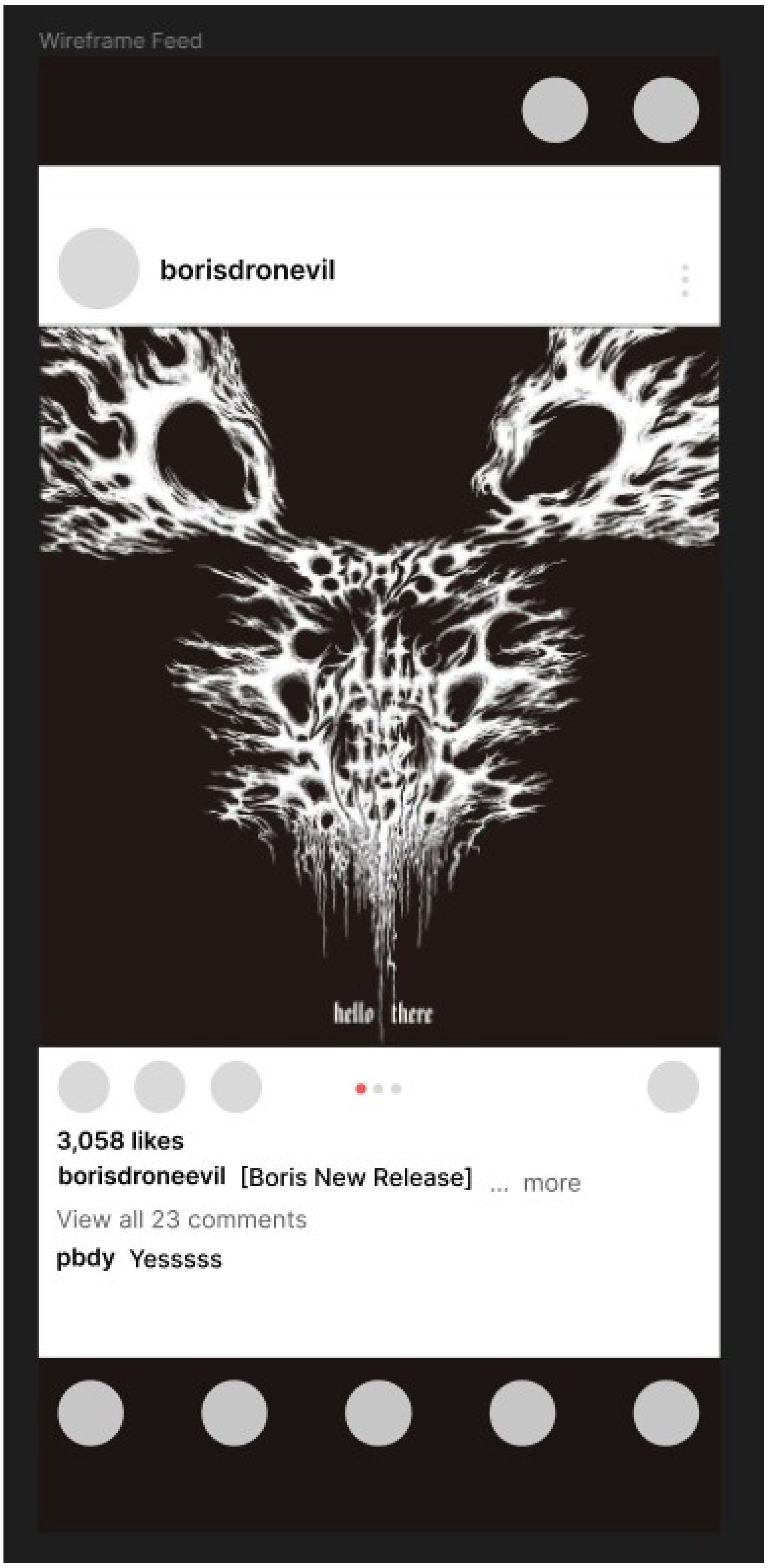
Secondary

Tertiary

Error

We've obtained 3 main colours from this, I will be using the Primary and Error colours.

Here is what the UI looks like after implementing these colour changes



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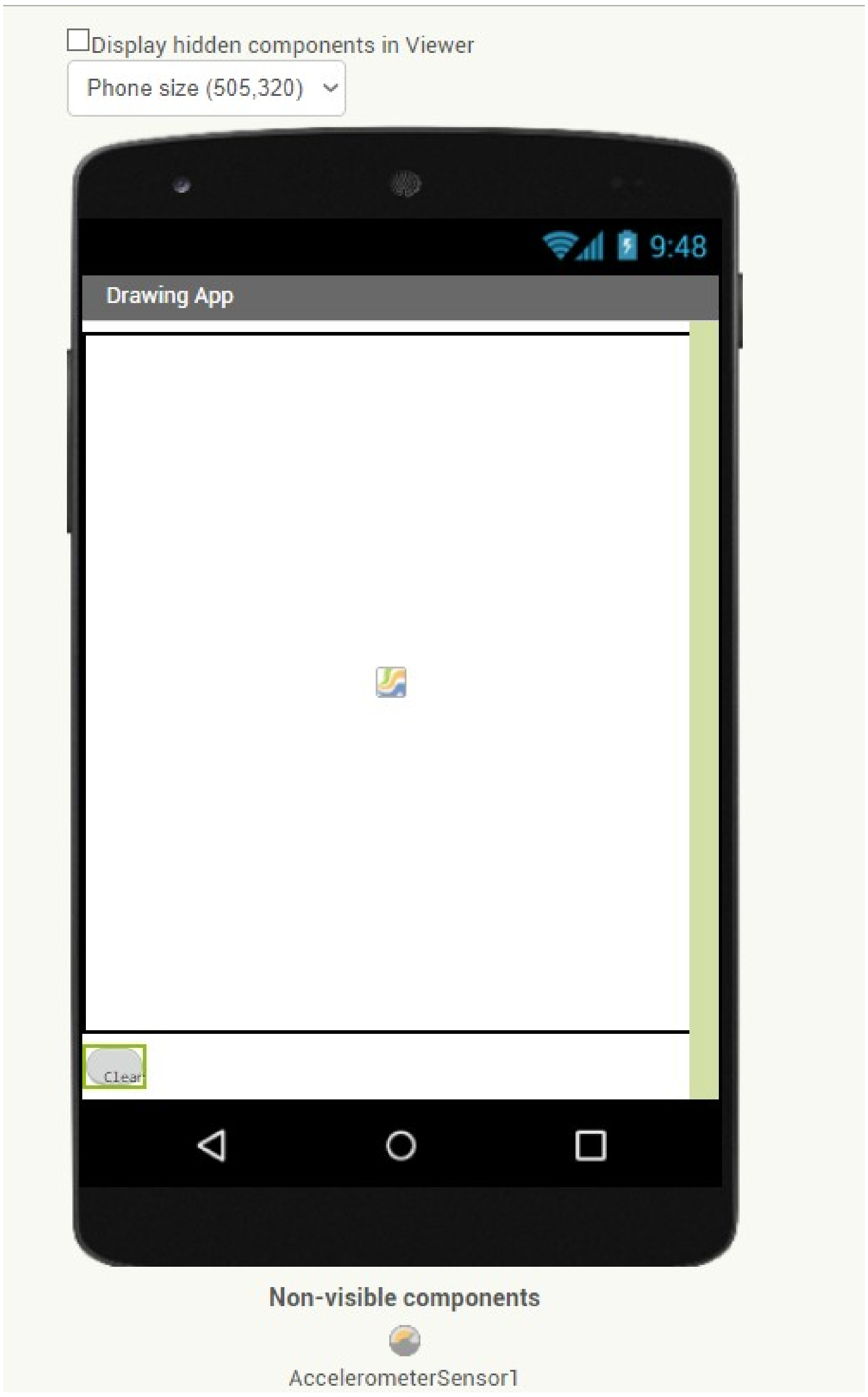
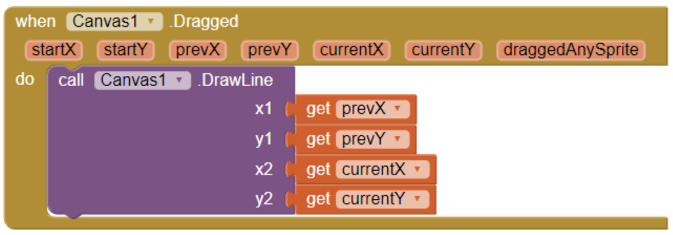
## Task 7

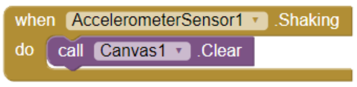
### Create your first App using MIT AppInventor

For my first MIT Appinventor app I decided to make something simple. This app is a basic paint application that lets you draw on the screen. It is inspired by an etch-a-sketch toy, where upon shaking the screen the screen the drawing disappears. Including a clear button.

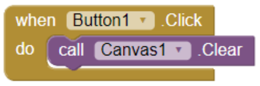




```
when Canvas1 .Dragged
  startX  startY  prevX  prevY  currentX  currentY  draggedAnySprite
do call Canvas1 .DrawLine
                     x1  get prevX
                     y1  get prevY
                     x2  get currentX
                     y2  get currentY
```



```
when AccelerometerSensor1 .Shaking
do call Canvas1 .Clear
```



```
when Button1 .Click
do call Canvas1 .Clear
```

Here are the blocks that make sure the application works as intended

The first block on the right has to do with drawing. When the screen (Canvas1) is dragged we can draw on it, provided that we use the appropriate coordinates whilst using the DrawLine method.

The right topmost block implements the shaking mechanism that we discussed; where shaking the screen causes the canvas to be cleared. This uses the AccelerometerSensor component

And finally we have the clear button, which simply does the same call as the accelerometer sensor shaking. The apk of the application is included in the github repository of the project.