Seminar
PROJECT REPORT

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FOOLPROOF way to create a design app for both iOS and Android.

PREFACE

This project report will include brief explanations about the UI elements and detailed explanation on the VIMM model and how I put it to use for this particular study. The report will then move on to present the results of the study and conclude by showcasing the best UI/UX element from all the four apps. This will give an insight into a foolproof way of app creation for the CMD students. This gives them insight into both the world of app creation and the VIMM model which is a unique way of measureing the UX of an app.

INDEX

Word Count - 4065

INTRODUCTION

The internet era has brought in countless number of websites and apps which have varied usage. These websites could cater to gaming enthusiasts, shopaholics, photographers, book lovers etc. These websites and apps should be designed with utmost clarity in order to communicate to the users appropriately. Interface designing is an emerging field of study which looks into the details of constructing websites and applications that help the user in achieving their online tasks and goals. This clarifies the fact that interface designing is for users who utilise it to achieve their set goals. Thus, user centric designing becomes a key quotient of user interface designing. This has lead to the emergence of detailed research on users and usability which makes studying user experience design imperative.

Building the information architecture and wireframe designing are essential components in interaction design. They determine the look and feel of the website which eventually formulates the user interaction pattern with the device. The fast evolving semantic web demands for an interactive platform that provides effective and efficient means of communication, in addition it also acts as a platform which bridges the gap between the user and the technology.

Designing the user experience indicates to the act of predicting how a person would feel about using a product, system or service. The users of an interface always apply their perception to the given product and thus, every user designs his/her own interaction. However, designing the experience involves intensive research about the target audience which gives out predictions about their experience. This in a way helps in generalisation of the target response which aids in designing interactive interfaces that are user friendly.

There exists different kinds of operating systems for mobile phones in particular. iOS, Android, Windows, Symbian, Blackberry etc. Each operating system has their own unique way of designing the user experience. This study looks at 4 mobile applications from iOs and Android and does a comparative study on the difference in their UI and UX. The UI is analyzed by observing the primary noun architecture, typography, colour Scheme and Iconography of these apps. The UX is measured by observing users based on the VIMM model. Overall this study gives out an accurate prediction on the difference between the usability of the 4 iOs applications Vs the Android ones.
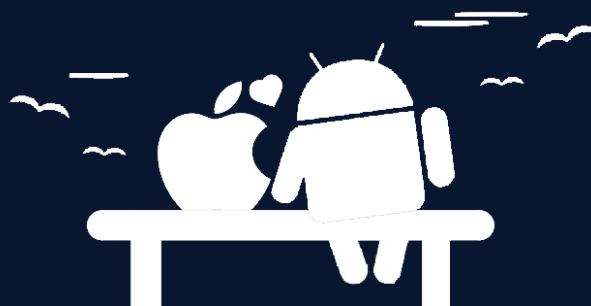
IOS

iOs stands for 'Apple Operating System' and it is owned by Apple.inc. The Apple operating system, iOs provides all the apps under their banner in the App Store. It contains more than 900,000 apps (as of June 2013) and remains one of the most competitive app markets. In addition, the App Store also lets users review their downloaded apps. (Khalid.H et all, 2015) Their user interface is very well recognised all around the world and is commonly appreciated for its usability, look and feel.

ANDROID

The Android operating system is owned by google and was introduced to the market in 2007. When they came into the market, they came in with a strategy called 'Open Handset Alliance' in which they formed alliance with handset manufacturing companies to develop features for the operating system. The early partners included LG, HTC, Motorola and Samsung. (BBC News, 2007) This made the operating system develop in a collaborative environment and it has come so far that it competes to be the best operating system with iOs.

RESEARCH QUESTION

What is the difference in the UI and UX of the selected android and IOs applications based on the **VIMM MODEL.**

METHODOLOGY

Qualitative analysis is a scientific research method which aims at analysing the quality of content. Data collection for qualitative research can rise from in depth interviews, focus group discussions and observations and through ethnography. The methods used for this study are qualitative in nature. It is appropriate to do a qualitative analysis for this study as it reads the content in the mobile applications keeping various design principles as the base theory to obtain results for the UI. It also takes an observational method to get results about the UX of the app. The UI analysis takes a four point perspective.

THE CLASSIFICATION IS AS FOLLOWS

Primary Noun Architecture

Typography

Iconography

Colour Scheme
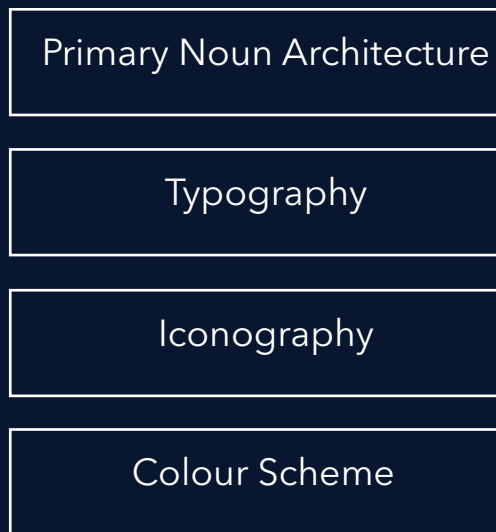
The UX analysis is conducted by observing users based on the VIMM model. Under this model, the users are assigned with 2 tasks that which they have to complete in order to indicate the respective VIMM loads. After assigning the task, the following would be observed in order to collect data on each element of the VIMM model

Visual
What does the first look of the app tell them
Intellectual
How do users think and do their task
Memory
Does design match the way users think, work and expect it to be?
Motor
Can users complete the key task easily and how many clicks does it take?

This template would be tested on 2 observants and this would give me accurate data about the UX of the apps. The observants are international students from HU who are photography and design enthusiast and who are first time users of these 4 apps. They are also users who are familiar with both iOs and Android phones. The phones used are Apple iPhone 6 plus and Xiaomi Red Mi Note 4G because they have similar screen resolutions.

APP SELECTION CRITERIA:

Flickr, 500px, Behance and Tumblr are the Apps selected for the analysis. These apps were selected based on their usability, users and popularity. All the 4 Apps are used for displaying photographs/designs and artworks. They also act as a community for exploring various artists, mutual idea sharing and art appreciation. These apps are used by many professional artists because of the features available, allowing for high resolution display of pictures and design. These apps are available both in the iOs and Android platforms which was a requirement for fulfilling the objective of the research.

FLICKR

Flickr is a photo sharing website/application created by Ludicorm in 2004 presently owned by yahoo. Flickr is famous for its niece user base who share their high resolution photographs. It is knows to have provided space for over 87 million members. They came out with their app around the year 2013. (Flickr, n.d.)

500PX

500px is a premier photography community created and owned by Oleg Gusto and Evgeny Tchebotarev. This website was launched in 2009 and they came out with the app in 2015. Known for its high capacity for holding and loading high resolution images, this website has over 6 million users. (500px, n.d.)

BEHANCE

Behance is a space for designers to create their online portfolio and a community to explore designs and share ideas. Bechance was acquired by adobe in 2012 and is now a renowned online space for showcasing designs. The app was launched during the end of the year 2013. (Behance, n.d.)

TUMBLR

Tumblr identifies themselves as a microblogging and social networking website which was found by David Karp in 2007. Tumblr was however taken over by yahoo in 2013. This website, differing slightly from bechance allows for users to create a blog with minimal content giving more importance to the design/photograph. Tumblr came out with its new version of the iOS app in 2012. (Tumblr, n.d.)

SUB QUESTIONS

WHAT ARE THE VARIOUS DESIGN RULES THAT ARE SET BY IOS AND ANDROID?

IOS

The apple developer has several set of rules dedicated for developing the Ui of a mobile application. These design rules make sure that the apps fit in the standards of the apple operating system thereby fitting in to their family of apps. Interactivity, readability, graphics and clarity are the main segregation under which they have provided the developer with various rules. Apart from these 4 categories, the apple operating system also gives importance to aesthetic integrity, consistency, direct manipulation, feedback, metaphors and user control. These topics cover every minute detail which shapes 50% of the app's look and feel. (Apple, n.d.)

ANDROID

The android design principles are categorised based on the values they want to enforce as a brand. Enchant me, Simplify my life, Make me amazing are the categories under which they explain their design principles. Unlike apple, the android OS doesn't specify specific gestures and sizes but they only speak about how the user should feel at the end of it. The perspective they they take to form these rules are from the users point of view. Since, android OS is customised by various mobile operators, it has less stringent rules than the iOs. (Android, n.d.)

HOW IS THE VIMM MODEL APPROPRIATE FOR MEASURING THE USER EXPERIENCE?

VIMM is a practical approach to determine usability. It is a concept introduced by Human Factors International. This model takes four angles in which one can understand if the information we provide is too hard for the users to understand. The aim is to identify the load and reduce it in these 4 key areas namely:

- Visual load
- Intellectual Load
- Memory Load
- Motor Load

Visual load talks about how a user feels when he/she looks at the app. If its too busy and has too many call to action icons and distorted pictures and text, it is going to give the user heavy visual load. Inconsistent site structure and navigation, bad copywriting, controls that don't function are few examples that give intellectual load. Confusing site hierarchy, lack of suggestions and complicated login options etc. can load the user with the memory quotient. Finally the motor load is increased by physical movements that are too difficult or too frequent, takes several clicks before the user reaches his goal etc. (Hanson Inc, 2012)

HOW DOES THE DIFFERENCE IN THE UI AND UX AFFECT A USER?

Designing the user experience indicates to the act of predicting how a person would feel about using a product, system or service. The users of an interface always apply their perception to the given product and thus, every user designs his/her own interaction. However, designing the experience involves intensive research about the target audience which gives out predictions about

their experience. This in a way helps in generalisation of the target response which aids in designing interactive interfaces that are user friendly. The imperative element in this is the scenario analysis which takes into account various situations that the user might encounter in the interface. This helps in identifying important tasks which will eventually lead to the designing of the organisation system for the interface. These scenarios also help in all the other facets of the building of information architecture which is the key component in UX UI designing. (Essentials of Usability, 2014)

With such intricacies involved in designing an app, it purely depends upon the designers vision and the results of the audience analysis which dictates the major part of designing. Thus a better UI and UX has a better impact on the audience whereas a poorer UI and UX might end up disappointing the users.

DISCUSSION AND CONCLUSSIONS

RESEARCH QUESTION

What is the difference in the UI and UX of the selected android and IOs applications based on the VIMM model. The following analysis section discusses the main points that have been encountered during the process of the research which are very imperative to this study.

UI ANALYSIS OF THE IOS APPS

FLICKR

Primary Noun Architecture of the Flickr iOs app identifies 'Profile' and 'Photos' as the primary noun. By identifying the primary nouns, it can be seen that all the primary tasks that a user has to do in the Flickr website can be provided using different combinations of options. Thus, the elaborate eight level organisation of the global navigation bar has been broken down to five swift options that allows the Flickr user to carry out the basic tasks in the app. Thus, the Flickr app is a Primitive mobile application interface that has options only to fulfil the primary objective of Flickr. The 8 level division has been cut down to 5 by cutting down on the sub categories and merging various categories. The word labels in the website has been revamped to icons that are placed in the mobile app. The 'Home' feed icon is ambiguous due to its unconventional representation. The global navigation is placed at the bottom of the app as per apple's standards.

Look and feel as it is in the website. However, the blue and pink theme is not well established.The accentuation of text varies from the website to fit into the app layout keeping the typeface constant. Extensive usage of icons in the application.

500PX

The 500px mobile application is a bit more advanced than the Flickr mobile application. The 8 level navigation system is represented as 5 footer icons in the mobile app. These icons are very conventional and easy to understand. The search system is merged with the 'Discover' tab thereby providing users with various filters for search in the mobile application. This makes the app a bit more advanced than the Flickr mobile application.

The theme and the colours palette of 500px is brought out better in mobile application due to the right amount of whitespace. Inclusion of new icons in the search section of the app improves the user experience.

BEHANCE

Very advanced mobile application. The 11 level navigation system is represented as 5 footer and 3 top section toolbar icons, in the mobile app. The icons are recognisable because of their usage in the website. 'Search' system and 'Discover' are represented separately just like the website and unlike any other app which makes the interface very sophisticated. The app leaves out only those options

that are redundant in the website.

TUMBLR

Very advanced mobile application that summarises 8 icons from the global navigation toolbar to 5 in the footer of the mobile application. The unconventional icons are adapted just as it is from the
website. The app has certain updated features like the option to upload 'GIF' and an inbuilt camera. The app merges the 'Search' and the 'Discov-er' tabs and provides with all the four category search that is available in the website. The app uses the 'Nested Doll' navigation pattern extensively to support the various sub classifications. The app also lets the user access their custom domain.
Differentiation in the colour of the toolbar from pitch black in the website to to deep grey in the app. The overall colours of the application have been toned down by using low contrast value. Only application that indicates the app name in all the pages.

UI ANALYSIS OF THE ANDROID APPS

FLICKR

The primary noun architecture of the android Flickr app happens to be the same as the iOS app. the 8 level menu has been broken down to 5 levels. However, the global navigation in the android flickr app is on top and it disappear as the user scrolls down the news feed. The pages can be navigated by just swiping on the right where as in the iOs app the user has to click on the icon at the bottom to be able to go to the next menu. The global navigation system also has a change from the iOs application. The position of the 'Profile' icon and the 'Camera' icon have been switched. The android app as well stands to be very primitive as compared to the website, it provides the user with very limited number of options to work with. The colours of the app is very similar to the iOs version. The 'Labels of the Notification and Search bar' in the iOs app has been eliminated in the Android version as the global navigation bar itself is at the top of the screen which helps in cutting down redundancy. While viewing the picture in the android app, the icons at the bottom of the picture for liking sharing etc are cramped up unlike the iOs app.

500PX

The 500Ps android app's primary noun architecture remains the same as the iOs app. The global navigation system is also placed at the bottom which is very unlikely of an android interface because generally the tabs are kept at the top like in the Flickr android app. The iconography in the global navigation system is very similar to the iOs app however, the other icons in the app sticks to the android style. For instance; the 'Share' icon is the 3 connected dots as in all the android apps. The search system is very exactly the same as in the iOs app. The over all look of the app feels little more bigger in the android screen.

BEHANCE

The behance Android app is as advanced as the iOs app. However, the interface has gone through a complete change over. The concept of global navigation bar as in the iOs app has been taken down and instead the options are given in the slide in menu on the left hand side. The top bar has 3 constant icons that is visible in all the pages of the app. These are the 'Side slide in menu icon,' ' The notifications icon,' and the Search icon. The search system is as extensive as it is in the iOs app with extra filters that allows the user to select the time and the country in which they want to conduct the search. The colour of the global navigation bar of the iOs app happens to be black therefore there is extensive usage of black in the iOS app. For instance, 'The Search' page has a black background in the iOS app. However, it is not the case in the android app. Overall, the side slide in menu makes a lot of difference in the android version of the app.

TRUMBLR

The Tumblr android app has the exact same primary noun architecture as the iOs app. The global navigation bar however is on the top instead of it being at the bottom. The android app has only 4 icons in the global navigation bar whereas the iOS has 5 icons. The 'Compose new post' option is made available only in the 'Home' page and the 'Profile' page. When the user is in the search tab or the messages tab, they cannot compose a post. The iconography has absolutely no difference from the android and iOS apps. Unlike the other 3 apps which customised its icons and colours to the operating systems, tumbler's colours and icons remain the same in both the Android and iOs apps.
[Detailed Analysis in Appendix]

UX ANALYSIS OF THE ANDROID AND IOS APPS

OBSERVER 1: Nayan Anand

COUNTRY: India

AGE: 22

OCCUPATION: Student / Freelance Artist

INTEREST: Artist

OBSERVER 2: Gorka Gomez

COUNTRY: Spain

AGE: 20

**OCCUPATION:** Student / Photographer

INTEREST: Photography

TASK 1: OPEN THE APP AND UPLOAD A PHOTOGRAPH

🟩 Android
🟧 iOS

Flickr

Android - The camera icon is on the side so it took time for them to find out. They said they were used to Instagram having the upload button in the Centre.

iOs - The task was completed faster than that android. The camera icon was right in the centre like the observant expected. One of the observant likes the way flickr looks because it looks exactly like google plus.

Visual load   Intellectual load   Memory load   Motor load
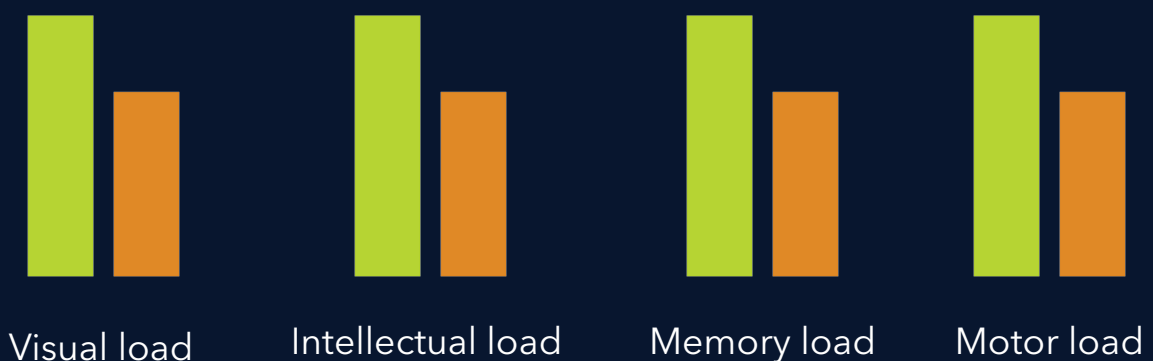
500Px

Android - Even though the camera icon was in the center, the observant was irritated by the number of clicks that had to be done to reach the photograph that is to be uploaded. Because, The gallery option wasn't available. Instead, it took the observant through the storage options to find out where the photographs was stored instead of taking the observant right away to the gallery.
iOs - Definitely easier than Android. The camera icon took the observant directly to the camera roll and it was very easy to upload.

Visual load   Intellectual load   Memory load   Motor load
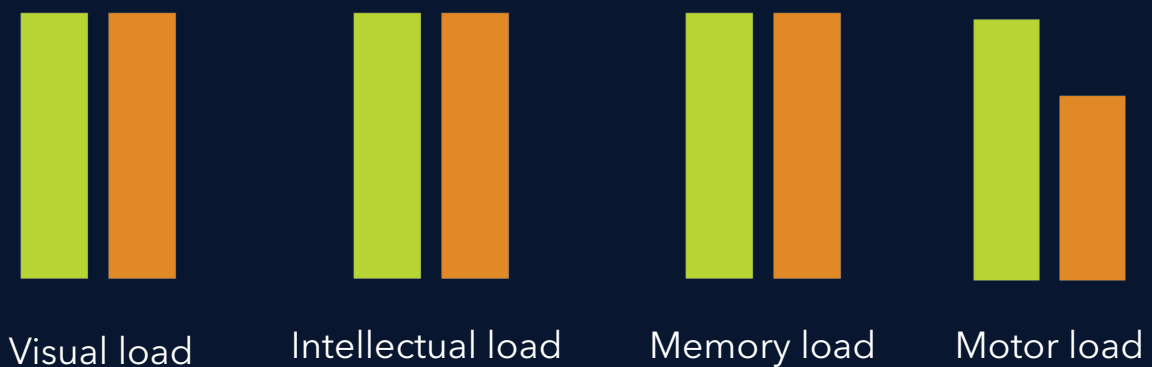
Behance

Android - Found it really hard to upload the picture immediately. Not finding the upload option in the homepage was frustrating. Even after opening the side slide in window, the observant couldn't understand what was for uploading because Behance refers to upload as 'Add Project' which is very unconventional. Couldn't understand the icons. 'Add project' label seemed too complicated for uploading just one file.
iOs: The observant found it really easy to upload because the icon was placed right in the middle and in the homepage of the app which was very intuitive. Behance homepage looks a lot like Pinterest.

Visual load   Intellectual load   Memory load   Motor load
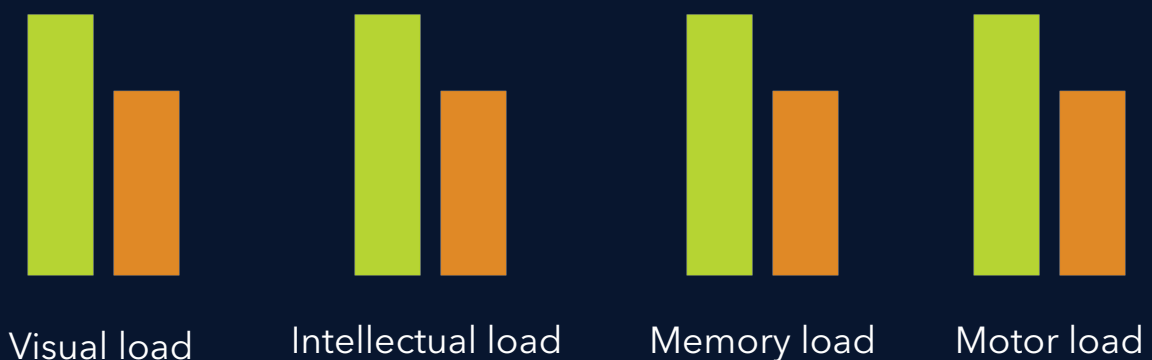
Tumblr

Android: The observant commented that it was very easy to upload because the upload icon is place in the right bottom which is the case in a lot of Android applications. They also collectively felt that it should have been a part of the global navigation system.

iOs: It was very easy. As soon as the observant logged in, the pen mark which means upload or write was spotted. The observant commented that the eye goes first to the middle of the app where the upload photograph option is which is very convenient. The 5 circle pop up thing wont be forgotten because it is very unconventional.

| Visual load | Intellectual load | Memory load | Motor load |

TASK 2: USE SEARCH TOOL TO FIND OUT TRAVEL PHOTOGRAPHY / DESIGN FROM INDIA

Flickr

Android: Easy to search. The observant felt the lack of search suggestions which was little less helpful. The additional search tabs weren't even noticed by the observants.

iOs: Easy to find no difference from Android.

| Visual load | Intellectual load | Memory load | Motor load |

500Px

Android: The observant concluded that the 500px app provided with no results due to the absence of loading icon.
iOs: Easy to find. The observant was annoyed because 500Px showed up no results for the search. Since the loading sign was at the bottom of the app, it wasn't noticed by the observant and they were frustrated.

Visual load   Intellectual load   Memory load   Motor load
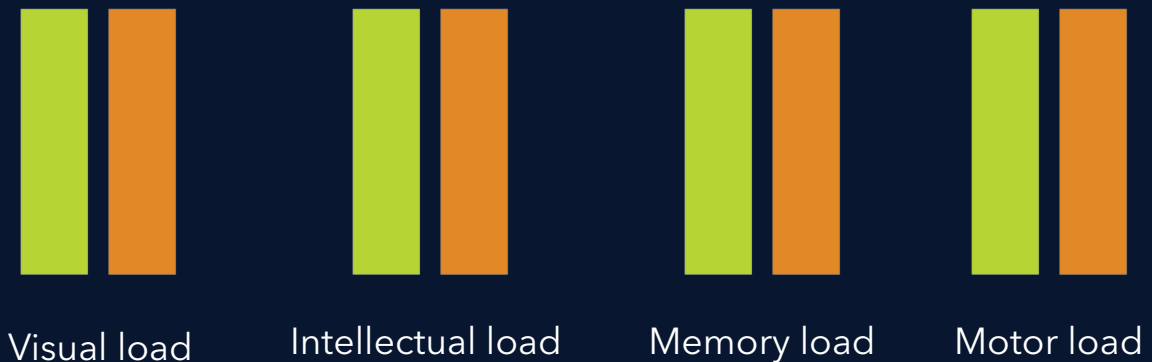
Behance

Android: The search system even though has a 'Refine' option, the observant couldn't exactly find what they wanted. One of the observant wanted a night time travel photo from india and the search did not provide the expected results. The categories that the observant wanted were missing in the search system.
iOs: The keypad prediction is off in the search system which was annoying for the observant. The background colour change in the search tab was noticed by one of the observant and was not really bothered about it. The observant had to click 2 buttons to start the search process where as in android it happened with one click.

Visual load   Intellectual load   Memory load   Motor load
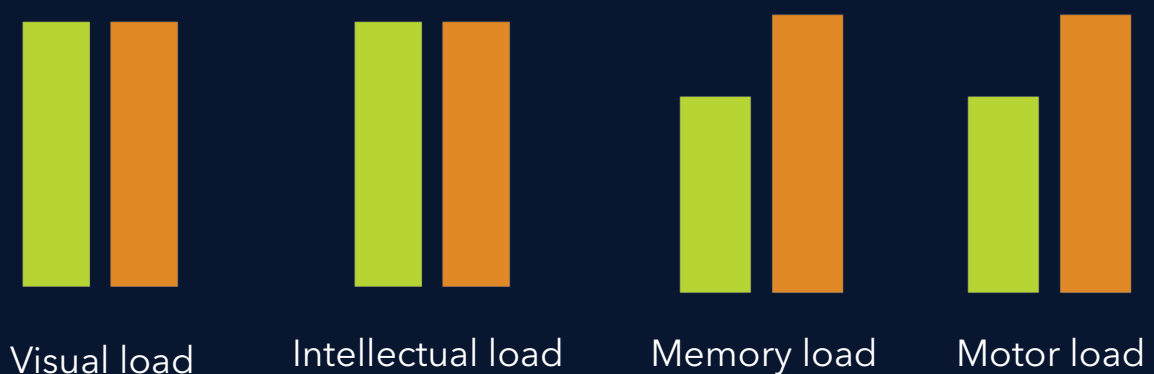
Tumblr

Android: The observant commented that the search was very easy. The pre-diction was brilliant. The tags are in different colours unlike the 500px which makes it readable. Overall the observant stated that the search system is best in Tumblr.
iOs: The search system is the same. It looks much smaller in size. The word prediction is on unlike the behance search system.

Visual load	Intellectual load	Memory load	Motor load
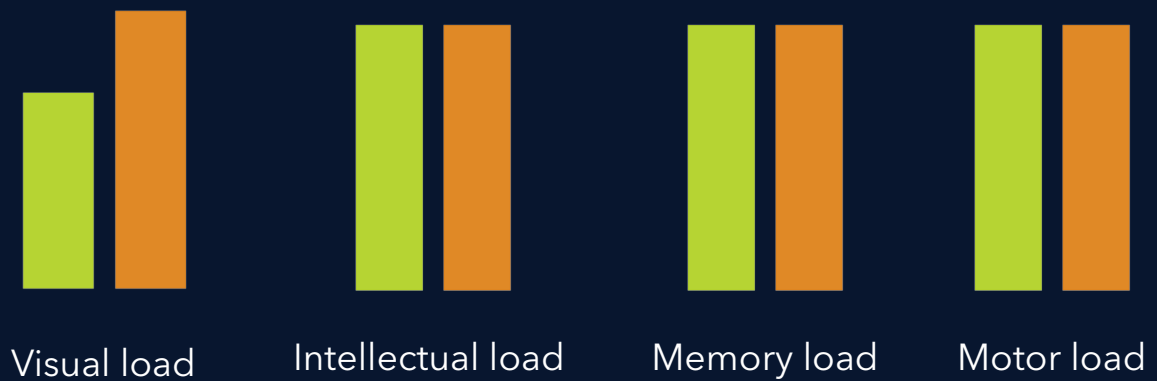
RESEARCH
JUDGEMENT

The strength of this research is that it takes to a multi layered analysis where, the analysis is on the UI and the UX. The UX has also been analysed with 2 observants who represent an universal viewpoint as they are from 2 different countries. However, the research has scope to be a lot more intensive. For instance, more number of observants might have added a lot more different perspective to the study.

Having summarised the study process, the result of the study tend to show-case that there exists difference in the android and iOS versions of the apps. The main reason behind these differences is because the apps cater to a regular android or an iOs user. Therefore, in order to make it intuitive to the users, they stick to option that might be familiar for the user from their previously used applications. However, with popularity in apps like Instagram and Facebook which also lets users upload pictures, they expect a universal app interface. The answer to the research raises another interesting quest which is on how to balance intuitiveness and innovation in app creation. This can be the further scope in this particular study.
<Fool proof App design Framework attached in appendix>

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APPENDIX

Primary noun Architecture:

Primary Noun Architecture helps you to build the navigation of the system. (Human Factors International, 2014) It is the phenomenon of identifying the primary nouns in an elaborate navigation model and abridging it into smaller categories. It is mainly used in mobile applications where the space is limited in comparison with the websites. The organisation system is altered according to the task by identifying things that could be clubbed together into one main category. An elaborate organisation model is helpful in a website for easy navigation. However, the same when adapted to a mobile application, gets complicated because of the layout change and the usage pattern. Thus, by identifying the primary noun based on the tasks and creating a primary noun architecture is mostly done for mobile apps. This analysis will look into the primary noun architecture of the mobile applications. This will also help in identifying the adaptation pattern while comparing the 4 applications

UI Analysis of the iOs and Android apps in detail:

Flickr
The adaptation of the Flickr app from the Flickr website is by identifying the primary nouns in the information architecture and building the application. Primary nouns indicate to things in a website on which a user can take action on. By identifying the primary noun, the user can put out a basic frame work and define tasks to each of these primary nouns. This will also help in repetition of few options using multiple navigation models which is the case in the website. It is good to have multiple options
for navigation in a website however, it becomes necessary to cut down the number of alternative options in a mobile application. This is due to the availability of space in both website and application. Thus, identifying the primary noun will allow the designer to prioritise task and help in condensing the information architecture for a mobile interface. Mobile applications thus demands revamping of the information architecture when adapted from a website interface. Flickr in order to adapt its website content to the mobile application, has cut down from an elaborate interface to a simple one which allows the user to maintain the Flickr profile from the mobile device. The global navigation bar in the website consists of several options that pertain to actions that can be taken upon two main primary nouns; Profile and Photos. By identifying the primary nouns, it can be seen that all the primary tasks that a user has to do in the Flickr website can be provided using different combinations of options. Thus, the elaborate eight level organisation of the global navi-

gation bar has been broken down to five swift options that allows the Flickr user to carry out the basic tasks. The global navigation bar for the app is at the bottom of the app which has the five tabs 'You,' 'Explore,' 'Upload,' 'Notifications' and 'Search.' The 'You' tab consists of four main primary navigations 'Camera Roll,' 'Public,' 'Albums,' and 'Groups.' where as in the website, the primary navigation of the 'You' tab is further divided into three more main category tabs which is also accompanied by a supplementary drop down menu that has more options for the use to explore. The app allows the user to view the photographs uploaded in a chronological order (according to the date of upload) in the 'Camera Roll' option just like the website. The 'Public' tab is nothing but the 'Photostream' option of the website which gives an overview of how the user's profile looks for people who visit their Flickr profile. 'Albums' and 'Groups' contains the same data as the website. The 'Explore' tab in the global navigation system of the mobile application also provides for the same set of operations as the website with absolutely no change in the interface or interaction. The 'Upload' option comes with an additional option of an inbuilt app camera which allows the user to take pictures then and there and share it on their Flickr profile. This is an option that is exclusive for the mobile app as there is no option to take pictures using the Flickr website. Apart from this, the upload option also allows the user to upload pictures from the mobile albums and camera rolls. The 'Notifications' tab is devoid of the 'Flickr Mail' option which is present in the website version. The 'Search' tab in the mobile application allows for a very primitive search and has three filters under which the user can conduct the search namely, 'Photos,' 'People' and 'Group.' The advanced search option which is present in the website is not available in the mobile application. Several other options like 'Flickr VR,' ' Flickr Mail,' 'Flickr Blog,' ' The Commons' etc are missing in the mobile application. The labelling system does not differ drastically from the website however, most of the labels have been converted into icons which denote the meaning in a crisp manner. Due to the space constraints, the webpage labels are cut down into short labels or icons. For instance, the entire global navigation bar from the website is represented in the form of icons in the mobile application. Similarly, the 'Photostream' label from the website has been converted to 'Public' in order to be able to fit it in within the space available. The other options that are placed next to the 'Public' option are also six lettered words which helps in maintaining the uniformity of the interface. 'Photostream' was a unique way of calling a webpage which displayed the photographs uploaded to the public however, the label 'Public' conveys the meaning. This difference in label does not stand to be much of a hindrance in terms of the user experience because, if the user is familiar with the Photostream's looks, he/she will identify and associate the 'public' tab instantaneously. The navigation system follows the 'Tabbed View' which is nothing but a collection of options or sections tied together by a toolbar menu. Since the app displays all the available options right when the user triggers the app, it provides the user with the ability to quickly scan through and understand the complete functionality of the app. This view also helps in multi-tasking and allows for a combination of navigation patterns.

This is a very simple structure which has been adapted by Flickr to provide a user friendly app. The Flickr app also uses the 'Dashboard' navigation pattern when the user is scrolling through the 'Search' tab. This allows for the user to quickly maximise and exit a photograph in the feed. The photograph when clicked opens in a separate secondary supplementary window and it carries few action icons which allows you to like/comment/share the content. This also carries the close button which gives an easy exiting option. The primary noun architecture of the android Flickr app happens to be the same as the iOS app. the 8 level menu has been broken down to 5 levels. However, the global navigation in the android flickr app is on top and it disappear as the user scrolls down the news feed. The pages can be navigated by just swiping on the right where as in the iOs app the user has to click on the icon at the bottom to be able to go to the next menu. The global navigation system also has a change from the iOs application. The position of the 'Profile' icon and the 'Camera' icon have been switched. The android app as well stands to be very primitive as compared to the website, it provides the user with very limited number of options to work with. The 'Share' icon differs from that of the iOs app and the Global navigation icons as well differ from the iOs version. It is custom made to fit the android interface. There is an option to swipe to get to the next segment in the global navigation system in the Android app unlike the iOs app. The content in the Android app overflows from the screen and the user has to scroll it horizontally to be able to check the menu completely in the 'Profile' tab. This is against the design principles of apple therefore in the iOs app, the menus fit into the mobile framework perfectly.

500px:
The primary noun of the 500px app is very similar to that of the Flickr app and it consists of 'Home,' 'Search,' 'Upload,' 'Notification' and 'Profile.' The Global navigation toolbar in 500px website consists of more options which further segregate the categories that are present in the mobile app. For instance, the 'Search' option in the mobile app merges the 'Discover' and the 'Search' options present in the website. Even though the website has varied interface for 'Discover' and 'Search' in a way both the options leads to the exploration process which has been provided in a summarised manner in the mobile application. The 'home' feed is no different from the website as the feed features works uploaded by the user who is being followed. The commands on the pictures in the home feed uses secondary supplementary windows in order to aid the user complete the task. These supplementary windows are either same or similar to that which is present in the website. This increases the app efficiency because a user who is familiar with the website can easily get a hang of the app. In addition to this is the 'Popup information' that appears every time the user launches the application. The popup window provides information which persuades the user to indulge in some activities. For instance, the interface can ask the user to upload a picture or it might even send indicative messages about a new 'Photo Quest.' The global navigation toolbar in the website has the 'Photo Quest' option which is not available in the mobile application

therefore 500px lets the user explore the photo quests through the activity tab by sending them notification about running photo quests. By clicking on one of the notifications, the user is taken to the 'Photo Quest' explore window which is similar to that of the website where a user gets to explore older contests and also participate in the ones that are open and running. The search toolbar in the 500px mobile app is way more advanced than the search system in the Flickr mobile app. In Flickr, the app ignores the 'Advanced Search' option completely and provides only superlative search options Whereas the 500px app incorporates the 'Discover' tab and the advanced search options in its mobile application. The interface has been completely re-modified to suit the application and the vast presence of categories and sub categories have been masterfully arranged and interwoven with the mobile navigation system which makes the search system in the mobile app very effective and efficient.

The search system thus combines the 'Discover' and 'Search' and therefore the landing page of the search icon has three main segregation 'Photos,' 'Galleries' and 'People.' There are the three things that a user can search for in the 500px app. The search is further provided with filters from the 'Discover' tab such as 'Editor's choice,' 'Upcoming,' 'Fresh,' etc. When scrolled down, the categories expands to a larger segregation which is arranged in an alphabetical order. When the user enters into one of the categories, he/she is taken to a sub category panel which allows the user to further filter down the search. For instance, by clicking on Abstract from the categories section, the user is taken to a page where he/she can choose to see pictures under the tag 'Abstract' under 'Popular,' 'Fresh' or 'Upcoming' photographs. Thus, the multi-layered search system efficiently provides the same search experience as the website, unlike the Flickr app. The notification icon in the 500px mobile app is called the 'Activity' tab which shows notification about the followers activities on the user's profile as well as notifications about photo quests, new offers, new features etc. The 'My Profile' tab opens up a page which has two divisions, unlike the website which has four divisions. Even the label under the user name which indicates the number of followers, number of people who are being followed, Affection and Photo views are cut down to two. Thus, the 'My Profile' tab provides with 'Photos' and 'Galleries' and does not feature the 'Groups' and 'About' option. A brief 'About' section is however present on the same page and it can be found using the information or the 'i' icon.

The navigation is primarily made up of the 'Tabbed View' just like the Flickr mobile app. However, the interface uses a combination of systems in order to aid the user in sailing around the app easily. Navigation systems like 'Nested Doll' and 'Dashboard' have been used in several areas in the app. In a Nested Doll navigation system, the user has to be inside a certain tab to be able to get to the next one, i.e., it is sequential. The navigation is linear in nature and thus it keeps narrowing down the content to extensive details. The user can choose to move forward or backward during the process of navigation. This navigation is mostly used when there are several sub sections to be represented. For instance; the 500px mobile app search system extensively uses

the 'Nested Doll' model of navigation and thus provides with several sub categories for search. Similarly, the usage of the 'Dashboard' navigation system can be seen when the user clicks on any picture from the search, home page or the profile. It opens in a new window which allows the user to easily close and open the photographs for a quick scanning.

The 'Upload' icon which is also the camera icon in the app, just like Flickr's mobile app has its own inbuilt camera features which include shifting the setting from normal to manual camera which allows the user to adjust the depth and brightness on the spot. It allows the user to adjust the depth and the field of focus along with brightness adjustment which is nor present in the Flick camera app in its mobile application.

Behance:

The Behance mobile app at the first glance looks a little more filled than the previously analysed mobile apps. The mobile interface when compared to the previous two mobile apps, has several layers and thus the information architecture rom the website has been maintained at a large extent. The organisation and labelling of certain elements of the website may vary in the mobile application however, Behance has tried to incorporate all the options using different navigation techniques which makes the mobile app intriguing. The mobile app has a fixed footer menu that consists of the same options that are available in the global navigation bar of the Behance website. While the global navigation had eleven commands, the app's footer menu has five that are constantly visible from all parts of the app. In addition to this, the Behance mobile app also consists of three other commands from the global navigation system, as constant elements present in all the pages, on the top section of the mobile app. Using the primary nouns, Behance has cut down on the number of sections available for the user to browse under. The home page or the 'Activity' tab as Behance calls it is the same as the website. The user follows the same protocol to browse through this page. The works displayed can be previewed by clicking on it just like the website. When the user clicks, it opens up to a new window and it also provides options that allow the user to take certain actions on the art work. All the information that is provided in a secondary window in the website are provided under various icons in the app. Options like information about the artwork, adding to the collections, sharing on other social media platforms, follow the artist etc are all present in the form of icons or action buttons in the picture display window in the Behance mobile app. The 'Jobs' tab in the global navigation system of the Behance website is accompanied by an action button called 'Post a Job.' These two options have been merged into one icon in the mobile application which is present in the footer section of the app. The Jobs tab has a feed called 'Creative Jobs' which indicates the on going job requests. The user can post his/her job requirement using the 'Upload' icon placed right in the middle of the footer menu in the Behance mobile application.

The 'Discover' tab unlike the Flickr and some what similar to 500px app is very detailed and almost has all the filters that the website provides the user for search. The 'Discover' and the 'Search' tools are separate in the mobile app just like the website and the subcategories are all incorporated in the form of supplementary dropdown menus. The 'Discover' tab also provides with the list of all the creative fields available for exploration which is also just as it is presented in the website.The search system in the Behance mobile application is as advanced as it is in the web portal, thereby providing user with an easy interface that they are familiar with through the Behance website. The search optimisation has categories that are presented to them in the form of categories and subcategories which are well connected and easy to understand. While the 'Discover' and the 'Search' tabs are merged in the website, the app provides a clean segregation of commands in both the options. The 'Search' system is categorised based on five labels; 'Projects,' 'People,' 'Collection,' 'Teams' and 'Jobs.' This segregation stands to have much more clarity than the divisions in the Behance website. When the user is on the 'Search' window in the mobile app, the footer navigation bar disappears and the typing pad appears for the user to type in the keywords. This also stands to enhance the user experience of the mobile application. One more added feature in the 'Search System' of the mobile app is that it provides image search. The search system has an option for the user to upload an image and search for similar looking imagery. This is an advanced search option which is present exclusively in the Behance app alone.

The 'Add work' option is no different from the website and the interface provides step by step guidance on how to upload the work. An additional feature in the 'Add Work' icon of the mobile application is the option to take pictures with the inbuilt Behance app camera. This option however is similar to the one is Flickr and 500px. This provides an option for uploading pictures taken in the mobile phone directly to the Behance feed. 'Notifications' and 'Messages' are two icons placed adjacent to each other in the website and the app. There is no significant difference in the interface of these two options in comparison to the website. By clicking at the 'Profile' icon, the user is taken to the 'My Profile' window which displays all the work uploaded by the user. This window also has a dropdown menu which has other account related options like 'Stats,' 'Connections' and 'Settings.' Information about the user which include; 'Location,' 'Project Views,' 'Followers,' etc. are all presented using a button called 'More Info' in the 'My Profile' window. The website however, has a separate section for these options on the left hand side of the website. The 'My team page' and 'My adobe portfolio' options are not available in the mobile application. The Adobe Portfolio option takes the user to a different website which is probably the reason behind its absence in the mobile application. It is generally not possible to open a new website which requires launching a browser outside of the app. Therefore, there can't be another website incorporated within the app. It will require triggering of a browser which would support the website and its content.

The labelling system of the app has been cut down and made crips and mostly converted into icons which represent the label. These icons are quite straight forward and easy to understand. Because of the transfer of words to pictorial representation, there is a slight reduction in the conversational aspect of the interface. The website seems to be more conversational and it in turn increa es the user participation andconnection with the website. The app however constantly gives the feeling of getting things done quickly or for quick usage. If looked at that way, the labels in the iconic form are more than enough for the objective of the mobile app. Considering the user to be familiar with the website which has had conversations before with the user, the app will eventually make them imagine those commands due to the familiarity in design and structuring. The navigation tools in the Behance mobile application is extensive and uses a combination of 'Tabbed, Dashboard and Nested Doll' views. The availability of multi layered search and exploring option and the presence of art works which requires preview, the navigation tool extensively uses Nested Doll and Dashboard. The Tabbed View however is the main navigation system that holds the interface together. The app when launched opens up in a 'Tabbed' view which is then segregated by various options that are aided by s navigation system that uses a mix of Dashboard and Nested Doll view.

Tumblr:
Tabbed view navigation being the constant amongst all the three apps, Tumblr is no different. The app's homepage looks very similar to the other three apps however, the categorisation varies. The iconic representation of the various options in the global navigation toolbar of the website aids the user in identifying the options as the same icons have been used in the app as well. Thus, the similarity in the labelling system is very high which makes the app very easily understandable. The Tumblr website provides two ways in which the homepage could be accessed, where as, the app narrows it down to one home icon. Similarly, the search and the discover tabs have been merged into a single search system. 'Message,' 'Chat' and 'Notification' tabs have been merged into a single system which is under the messaging icon. Apart from this, the app consists of the 'Make a post' icon and the user profile icon. Thus, these are the main components of the Tumblr mobile app. The homepage or the 'Dashboard' is no different from the website and it carries all the options that can be taken over posts that are displayed just like it is in the website. The search system is merged with the 'Discover' tab however, the the app stands to provide all the search filters that are available in the website. There is a change in the organisation of the search options and a one time navigation through the search icon in the app would clear out the unsureness about the interface. By just clicking on the search icon, the user enters a window which contains two main options, 'Trending now' and 'Recommended Tumblrs.' These two options are present in the discover tab of the Tumblr website. The user can scroll down to find out the necessary posts. This section is also aided by a search toolbar which when used turns the window into the search win-

dow that is similar to that of the Tumblr website. One click on the search tool-bar opens up a categories list that is arranged in alphabetical order. The user either chooses from those categories or just simply enters a keyword which is also assisted by suggestions from Tumblr. Once the user enters the key words, he/she can further refine the search by choosing the type of post. The 'Refine Search' option available on the right hand side of the search toolbar opens up a supplementary popup window which aids the user in choosing the type of post that they want to see. The types of post include; 'Audio,' 'Video,' 'Photos,' 'Text,' 'Links,' etc. Thus, the three main categories of search that is present in the Tumblr website is incorporated in the app as well. Recommended and Trending, Posts based on categories like Animals, Black and white, cars etc, Posts based on the type; Text, photos, GIFs, Quote etc. Tumblr merges the 'Message,' 'Chat' and 'Activity' options into one icon which has all the options. Message and Chat combined into a single icon makes sense however, the 'Activity' option which indicates notification to the user could have been incorporated in the 'Profile' icon. Having the notifications displayed under the messaging icon is not intuitive in nature and the user might feel ambiguous about finding notification inside the messaging icon. This is also because the notifications are not just purely on the messages, the 'Activity' tab in general notifies about all the other things that a user needs to know as well Therefore it is little unclear for the user to find the 'Activity' option inside the message icon. The message icon thus allows the user to have a quick chat with fellow Tumblr users, draft a personal message and check the various notifications left for the user. The 'Make a post' icon is one and the same as the website. The manner in which the icons pop out is circular in nature where as it is in a straight horizontal line in the website. It has been made circular because of the space constraint. The latest version of the app also includes 'GIF' as an additional option for upload along with the seven other traditional upload options present in the Tumblr website. The other functionalities of the options under the 'Make a Post' tab is same as the website. The added feature just like the other three apps is the camera option. Tumblr allows the user to take a picture and upload then and there. While Flickr, Tumblr and Behance had their own tweaks in the camera option, Tumblr directly uses the phone's camera app and has no changes in it. The 'GIF' option also opens up videos in the phone cameraroll and crops it into tiny parts which can be made into GIFs and uploaded to the feed. These two options are exclusive for the Tumblr app. The 'Profile' icon is the same as the website except that it does not have a few options which are presented in a different manner in the mobile app interface. The labelling system has no changes as the Tumblr website uses more of icons than word labels. Thus, the uniform usage of icons in both the website and app has made the labelling system strong and efficient. The navigation system is again a mix of 'Tabbed, Dashboard and Nested Doll.' Just like the Behance interface, The Nested doll navigation system has been extensively used in the Tumblr mobile application. Thus, these are the various facets of the information architecture as observed in the four website and their respective mobile application.

FOOLPROOF FRAMEWORK

USER INTERFACE

ORGANISATION SYSTEM: Task based system by identifying compact primary nouns. 5 footer icon and 3 icons on top is optimum.

LABELLING SYSTEM: Usage of unorthodox yet familiar icons makes for the success. This can be done by using the iconic representation in website along with word labels. The word labels should make use of prefixes like 'You' and 'My' which makes the interface interactive.

NAVIGATION SYSTEM: Tabbed footer navigation along with supplementary dropdown windows for the icons on the top area. 'Nested doll' navigation for reaching the sub category options.

SEARCHING SYSTEM: Searching system can be combined with the 'Explore' or 'Discover' tabs. However, this should be aided with iconic representation for each filter in order to provide user with the sense of direction.

WIREFRAME: The tabbed view layout along with a toolbar on top of the mobile application reduces the viewing space of the art work; however, the presence of both top and bottom section acts as a power jacket in providing the user with all the other required options that makes the application highly interactive. The top section can also be utilised for displaying the application name which

USER EXPERIENCE

VIMM MODEL:

VISUAL LOAD: Keeping the home feed as the default page leads to visual load. Avoiding too many word labels, usage of iconography and leaving out whitespace in between feeds are advisable.

INTELLECTUAL LOAD: Displaying the application name in the top area along with 'Nested Doll' navigation which allows for easy escape reduces the intellectual load. The preview options that takes away the footer toolbar from the users vision should carry a close button for easy escape.

MEMORY LOAD: Using the same icons that are used in the website increases the recognition value which reduces the memory load. Therefore, the websites should incorporate iconic representations along with word labels which later aids the mobile apps.
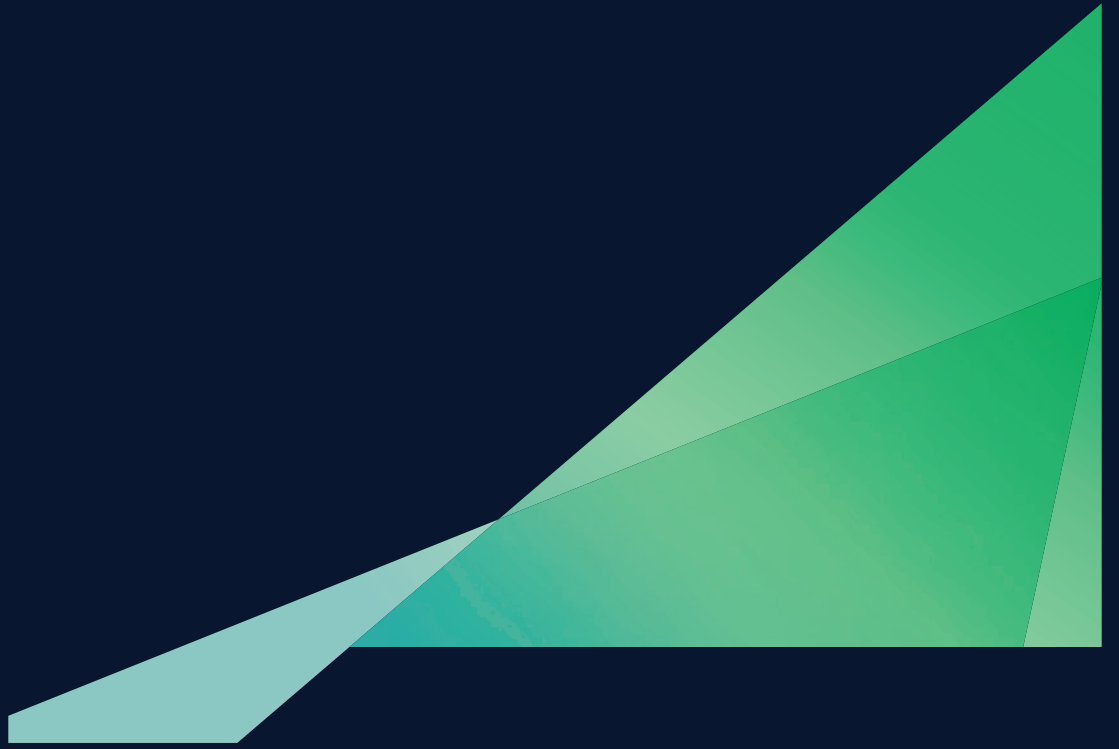
MOTOR LOAD: The subcategories should be narrowed down in order to provide short navigation distance as the user tends to get loaded with inhibitions about how to get back to where they came from.

will increase the recall value of the app.

COLOUR SCHEME: Usage of White, blue and grey with toned down contrast makes the application suitable for
displaying artworks. In addition to this, colours which connote creativity and trust like pink and green can be put to minimal usage. These colours are used in Flickr, 500px and Behance; however, Tumblr uses a darker colour pallet. Keeping this aside, most of the custom domains that the user gets to create using Tumblr have white as their base colour. This substantiates for the first argument for using a colour pallet that consists of White, Blue and Grey as their primary colours.

TYPOGRAPHY: Usage of 'Sans Serif ' font with minimal amount of letter spacing. Capitalisation for headings looks jarring.

ICONOGRAPHY: Innovative icons which have direct representational quality. For instance; having a minimalistic representation of a school for the label 'Organisations and School' as it is in Behance, is innovative yet not ambiguous. Icons that come in between a task should be conventional in order to reduce the intellectual load. For instance; buttons like exit, share etc. The main logo should represent what the app stands for in a minimalistic manner. It can use the influence of its parent body to enhance the authenticity. This can be seen in Behance which uses the Adobe style of icon representation.

THE END