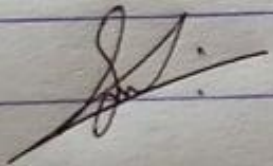


**Comp Sci : 1XD3**  
**Design Thinking**

**Final Exam**

# Certification of Authenticity

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04/21/2024

# *Question 1*

***Paper Prototype***

# Persona



**Demographics:** 17 y/o, Single, Male

**Education:** High School Graduate

*Hi, I'm Jason and I'd like to be a UI/UX designer in future.*



### **Behaviour:**

- Computer Nerd
- Has a passion in contributing to open source platforms like Github.
- Public Speaker and has good analytical ability.

### **Goals:**

- Join clubs when he enrolls in a college!
- Continue working on his existing UI project, and research topic areas for new projects.
- Learn a software framework
- Win a Hackathon for the first time ever!

### **Stresses:**

- Has a short temper, therefore fears the fact that he could offend people easily.
- His single mother recently lost her job, and is now indecisive on being able to afford son's college tuition fees.

# Interview Questions

...

1 What is your initial impression on the web IDE?

2 How far did you explore the web IDE?

3 Which are the most useful and annoying properties of the web IDE?

4 Does the current version of the web IDE live up to your expectation on collaboration?

5 Do you think the web IDE still needs a lot more work, or is it okay as it is?

6 Without any forms of bias, would you generally recommend this web IDE to a friend?

# Empathy Map





SAYS

Good first impression considering the IDE is relatively new.

Explored every nook and cranny of the IDE.

The shape creator is pretty handy, meanwhile the color creator is the worst.

It's a big no for me in terms of collaboration.

The IDE being in the partially developed stage definitely needs more work especially tweaking performance.

Sure, I would definitely suggest it to a friend.

Tries to reminisce the first time he tried using the IDE.

Makes a mind map on which parts of the IDE to describe first.

Thinks about the trouble he faced trying to create colors.

Traces back to the moment he tried to work with a friend but could not figure out good way to share code.

Figures out all the possibilities this IDE can be extended to.

Only focuses on the positive sides of the IDE.

THINKS

DOES

Raises hand to express interest in the subject matter.

Used hand gestures to illustrate the different parts of the IDE.

Turns serious describing the downsides.

Opens up the IDE and screen shares it to me.

Hesitates to speak about the flaws of the website.

Does not let his negatively biased brain criticize the IDE.

Excited having been interviewed for the first time.

Excitement level enhances as he keeps speaking.

Feels annoyed while describing the shape creator.

Face slightly turns red expressing frustration.

Feels pressurized while suggesting improvements.

Relieved that this was the last question.

FEELS

# Notes



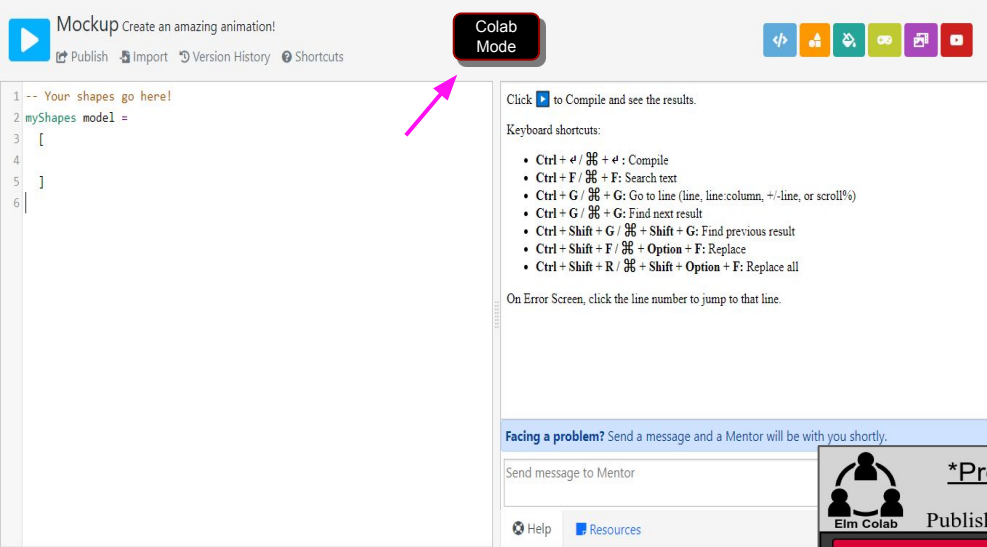
Although our fictitious persona radiated an overall positive impression on the web IDE, he was clearly not convinced by the absence of collaborative features.

My extension to the existing web IDE will solely focus on convincing Jason that 'cs1xd3.online' is indeed the best elm web IDE on Earth. Thus, I will try to develop a mockup that emulates most prominent features of a professional graded IDE, in terms of collaboration.

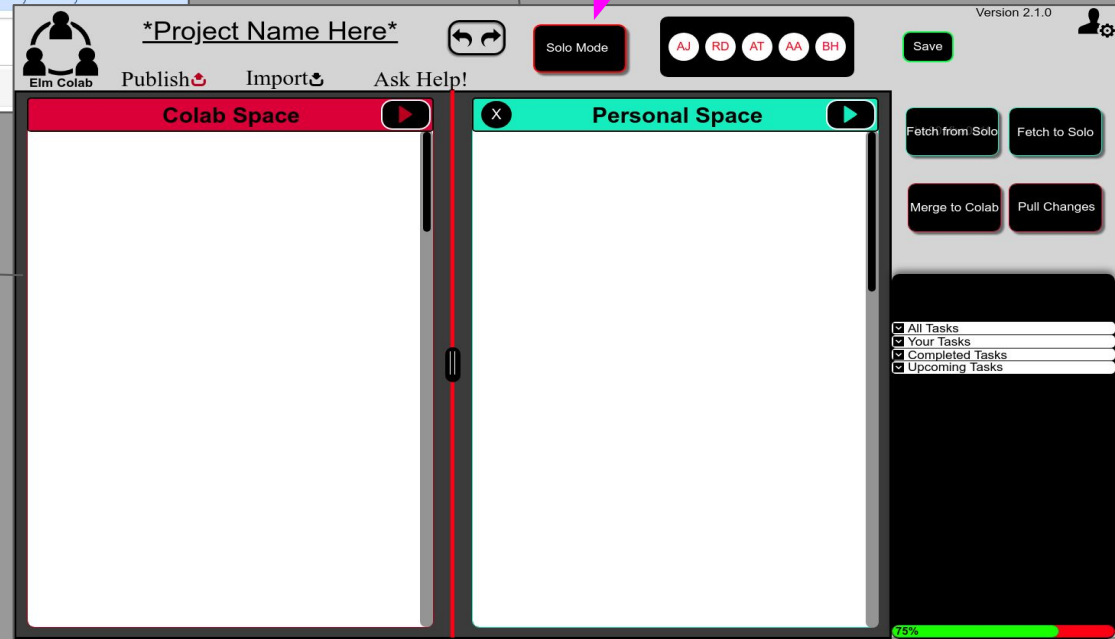
My extension will include features like - version control, live coding mode, task division and assignment, personal and collaborative coding modes, and a better administrative control over students, that the existing web IDE lacks.

# Prototype





Pressing on the 'Colab Mode' button takes you to the screen below, which is the landing screen.



Similarly, pressing on the 'Solo Mode' button takes you back you the cs1xd3.online interface.



Elm Colab

\*Project Name Here\*



Solo Mode

AJ

RD

AT

AA

BH

Save

Version 2.1.0



Publish 

Import 

Ask Help!

Top Panel

Colab Space



Personal Space



Fetch from Solo

Fetch to Solo

Merge to Colab

Pull Changes

- ☒ All Tasks
- ☒ Your Tasks
- ☒ Completed Tasks
- ☒ Upcoming Tasks

75%

Coding Space

Action Panel



The 'Top Panel' consists of the logo on the extreme left followed by the 'Project Name' and below it there are options for 'Publish', 'Import' and 'Ask Help!'.

The publish button only publish contents from the colab space, and Import button prompts the user before importing modules in the colab space and/or personal space.

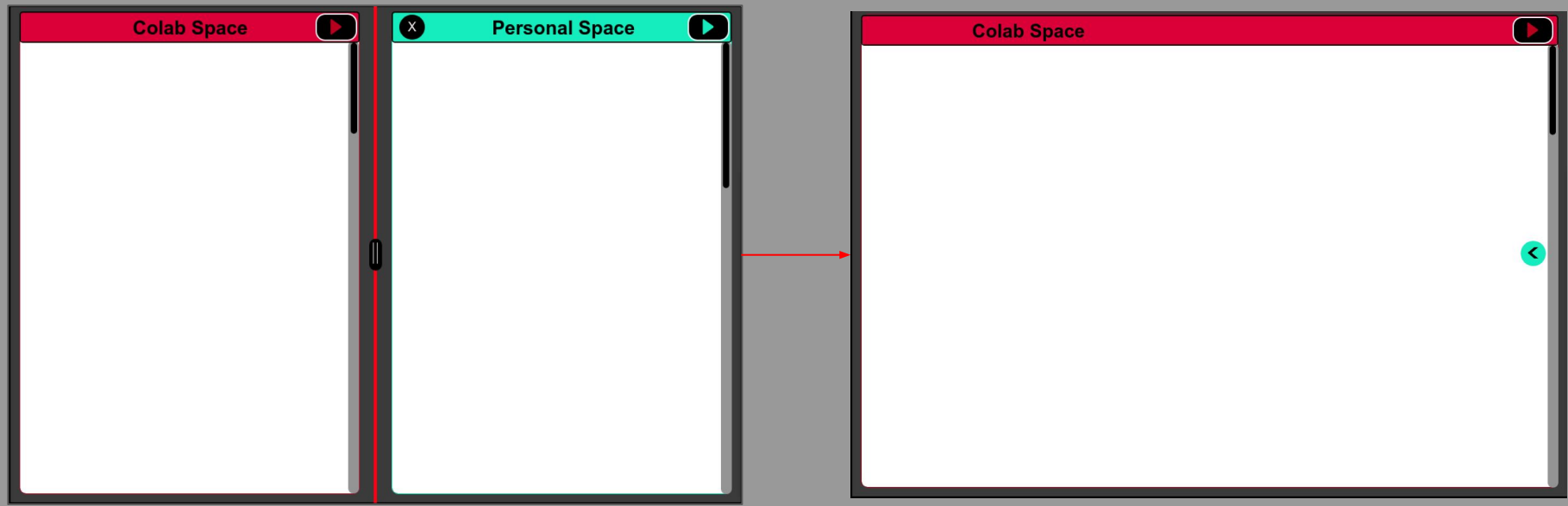
Users may reach out to the TAs of the course by pressing on the 'Ask Help!' button. The TA being one of the administrative entities will then be able to look into the issue by joining the colab space.

There are undo and redo buttons, along with the button to go back to the cs1xd3.online page.

Beside that is the teammate activity bar which will show if any teammate is currently active in the colab space. If active then their initials will pop up in the circle as shown above. The circle also fills up green based on how much of their assigned work they have completed.

Then there is a save button, users may wish to toggle autosave in the user settings which will autosave their work in both the colab and personal space in intervals of 30 seconds.

The version number tells you the current version of the source code the team is working on. Rollbacks are possible from the user settings.



The 'coding space' consists of the 'colab space' and the 'personal space'.

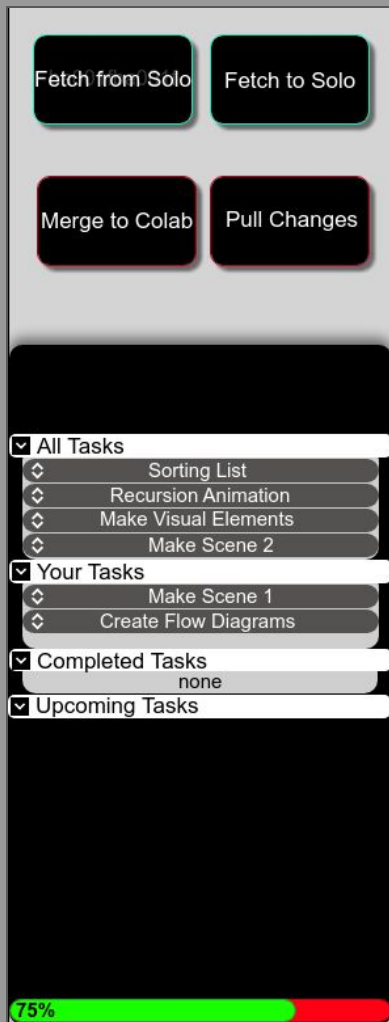
The 'personal space' is collapsible which gives the user a better range of view of the colab space.

The 'colab space' allows all active users to simultaneously make changes to same source code.

The 'personal space' maybe used by individual users to test their own section of code snippets before adding it to the 'colab space'. This may prevent fatal compilation errors from occuring in the 'colab space'.

The run button is available on the top right corner of every 'space'. Clicking on that, will open up a new window within the same webpage that shows the output of compilation.





The action panel forms the heart and soul of the extension.

The four buttons on top offers handy features to enhance UX.

Fetch from Solo - this button copies code from any opened module from cs1xd3.online and pastes it into the 'personal space'.

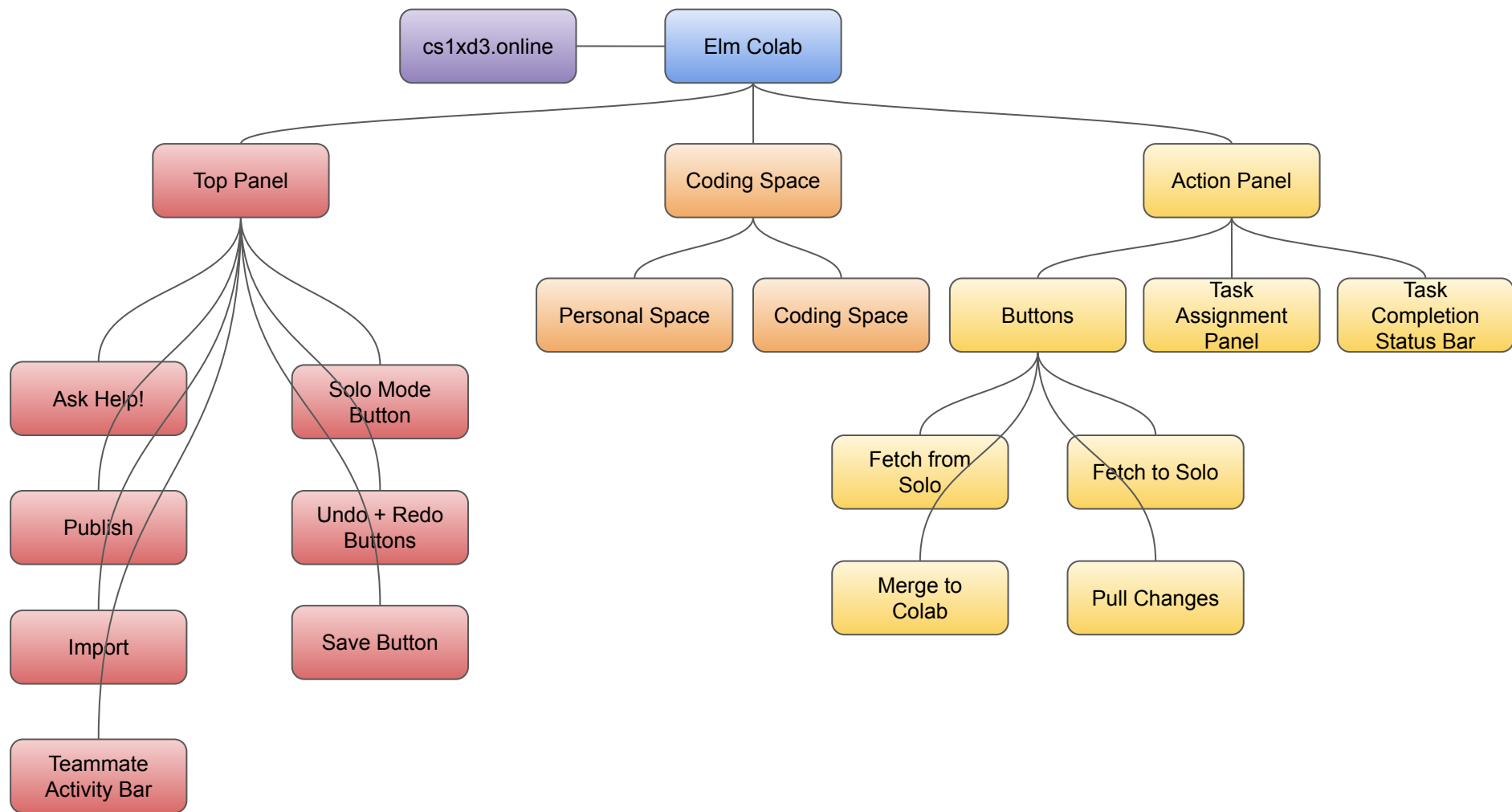
Fetch to Solo - comprehensively this button copies any code from the 'personal space' to any opened module in cd1xd3.online

Merge to Colab - this button pushes code from the 'personal space' into the 'colab space'. The code is pasted wherever the user's cursor is placed.

Pull Changes - this button compares the difference in code in the 'colab space' and the 'personal space' and only adds the necessary changes to the 'personal space'.

The Task assignment panel comes next; this consists of a list of 'All Tasks', 'Your Tasks', 'Completed Tasks', and 'Upcoming Tasks'. When the admin assigns a task to a group they appear under 'All Tasks'. The group members may then drag and drop the tasks from the 'All Tasks' panel to the 'Your Tasks' panel and vice versa. Once a task has been completed they appear under the 'Completed Tasks' panel. Future assignments may be available under 'Upcoming Tasks', if the admin wishes to make them visible.

There is also a task completion status bar at the bottom that shows how much task a group has done. This panel is visible to both, the group and the admins.



# Diagrams with **Justification**



# Visibility

The entire UI is neatly designed with simplicity in mind.

Immediately when users open the extension, they can figure out the coding space. The buttons have a large hitbox and are designed with a high contrast compared to other elements on the screen; this will aid the visually impaired students. The visual components on the screen are kept limited to serve the purpose of the course only, i.e. no unnecessary details. Utilities have been added that may fluster the user when they try to use the interface.

Since first-timers will frequently need help, the 'Ask Help' button has been tactfully placed on top so users can seek assistance with just a click of a button.

Also the 'Publish' and 'Import' button has been placed side by side in the same position as in the cs1xd3.online IDE to match user's expectation of button location.



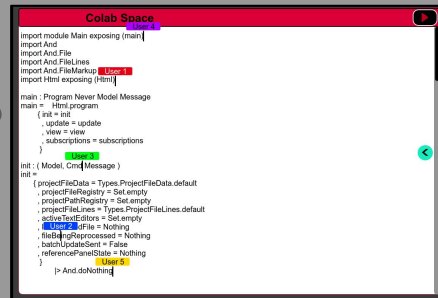
# Feedback

When the user presses on one of these 4 buttons they receive a confirmation message at the bottom of the screen that provides the user with the validation of a successful key press.

The 'colab space' has cursors colour coded and labeled with the appropriate usernames. They only appear when a certain user is making changes on the 'colab space'.

The status bar at the bottom of the screen has an action and reward. The bar turns green proportionately with how much of the total task has been completed.

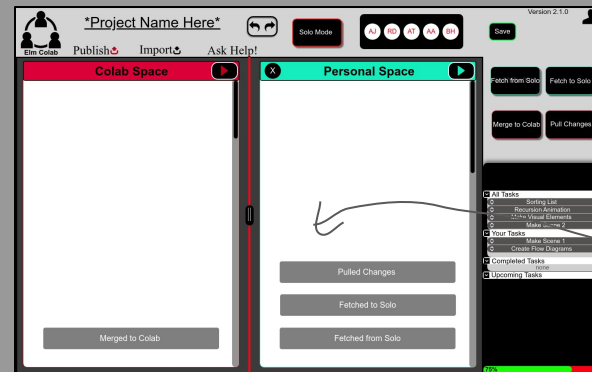
The buttons will also dip inwards when clicked on, this virtually emulates the feeling of a physical button.



```
Colab Space
import module Main exposing (main)
import And
import And.File
import And.FileLines
import And.FileMarkup
import Html exposing (Html)

main = Program Never Model Message
main =
  Html.program
  { init = init
  , update = update
  , view = view
  , subscriptions = subscriptions
  }

init = (Model, Cmd Message)
init =
  { projectFileData = Types.ProjectFileData.default
  , projectFileRegistry = Set.empty
  , projectPathRegistry = Set.empty
  , projectFileLines = Types.ProjectFileLines.default
  , activeFileEditors = Set.empty
  , activeFileProcessors = Nothing
  , batchUpdateSent = False
  , referencePanelTitle = Nothing
  }
  > And.doNothing
```



# Affordance

Since the extension is designed with the expectation of a standard UI, the users can use their muscle memory to appropriately navigate through the interface.

Everything on the screen is labelled, this ensures users don't misinterpret which button does what.

The buttons are separately coloured and shaped from other components which helps the user differentiate buttons from other things which are not buttons.

The coding space is placed on the bottom left, with the navigation panel on the top, and the task assignment panel is on the right side that helps user with immediate understanding of where to find things when necessary.

There are also two 'run' buttons for each of the two 'spaces', colour coded accordingly. The user can simply find out which button is responsible for compilation in which space.



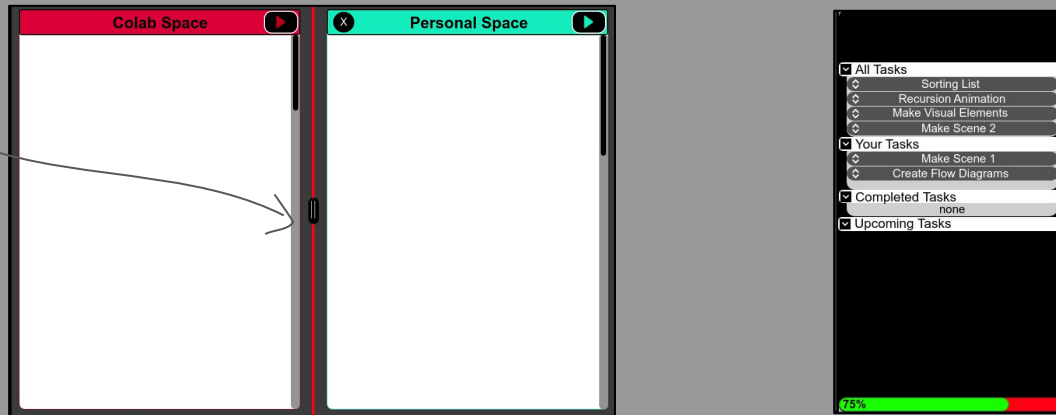
# Mapping

The bar slides in the coding space when dragged on by the tab in the middle.

The task assignment bars on the side has a little arrow pointing downward, when pressed on the tasks open up like a drop down.

The tasks are also draggable, which means that the user may with to add more tasks and/or remove existing tasks from their own tasks.

When the compile button is pressed on, a different screen will pop up on the same browser tab that will display the results of compilation. This matches the user's expectation of control and effect.



# Constraints

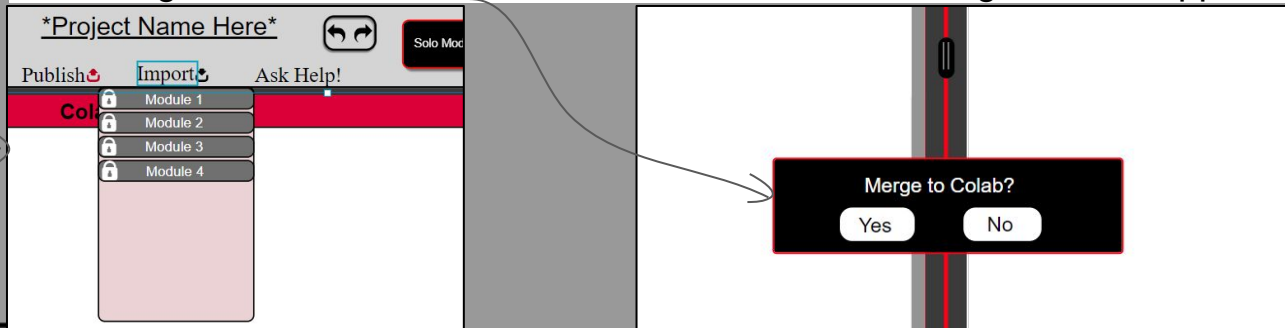
Only the admin is responsible for assigning tasks making upcoming tasks visible on the user's screen.

People from other groups cannot enter the colab space of some other group. The maximum number of people (except the admins) are restricted to 5 people at a time only.

Since the only way to enter the colab mode is through their own home screen, any student will always be redirected to their own group's colab space only and always!

The publish button publishes modules in a private space within the cs1xd3.online server. This ensures other groups don't make use of the modules made by some different groups. Good feature that limits plagiarism.

The 'merge to colab' button will warn the user before adding a code snippet to the colab space.





# **Consistency**

The buttons are all the same color, shape and size.

Identical screen appears across all the users in the course.

The task assignment panel has the tasks that appear in contiguous order.

The teammate activity bar will have the user profile pop up the in exact same location as before, every single time the user comes online.

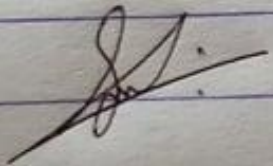
The colour schematic of the interface is grey-scale which applies to the background. The darker components of the screen is consistently a part of the foreground.

# *Question 2a*

***Coercive Control Analysis***

# Certification of Authenticity

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04/21/2024



**Pinterest**



## introduction

Pinterest is a popular social media platform for visual creators who focus on uploading high quality creative digital content. People may share - pictures, GIFs and videos on their profile, by the means of adding 'pins' (uploads). That's where the name comes from : pin per your interest = Pinterest.

It was created back in 2009, by the joint collaboration of Ben Silbermann, Paul Sciarra and Evan Sharp.

Unlike Instagram, Pinterest allows its users to share external links in the form of 'Original Content' on their profile.

The platform also allows categorization your content, on your profile, in the form of 'Boards'.

# Journey Map of a Normal User



<b><i>Phase 1</i></b>	<b><i>Phase 2</i></b>	<b><i>Phase 3</i></b>	<b><i>Phase 4</i></b>
<ul style="list-style-type: none"> <li>• User finds out about Pinterest from their friends and decided to give it a shot.</li> <li>• User enters Pinterest and finds out they can't view any content unless they have an account. They feels hesitant.</li> <li>• User immediately breathes a sigh of relief being able to create an account using their Google account with just one click of a button.</li> <li>• Users gets their account created and signs in.</li> </ul>	<ul style="list-style-type: none"> <li>• Users starts scrolling and becomes intrigued by the sheer creativity other people has put into their content.</li> <li>• The endless feed of photos and videos traps the user in an endless cycle of scrolling.</li> <li>• User begins to save publicly available contents.</li> <li>• User also downloads some photos to show them to their friends.</li> <li>• Having an adblocker extension means user does not get irritated by unwanted ads.</li> </ul>	<ul style="list-style-type: none"> <li>• User feels excited to share their 1st 'pin' which is a photo they are really proud of.</li> <li>• User feels unconfident doing so, because their friends have amazing content which may make the user's photo look silly.</li> <li>• User seeks for validation from their friends and receives an affirmative response.</li> <li>• User finally <u>pins</u> their first photo in a <u>secret board</u>, and only grants the permission to their friends to view it.</li> </ul>	<ul style="list-style-type: none"> <li>• After a couple months of hard work, the user creates a digital portfolio website of their digital arts.</li> <li>• User starts to pin those digital arts from their website by pinning those external links.</li> <li>• User finally reaches a level that they can flaunt off to others and starts to share their pinterest photos on other social media platforms in the form of ads.</li> <li>• User sees an opportunity of a new business, as clients starts sending orders for digital art.</li> </ul>

The

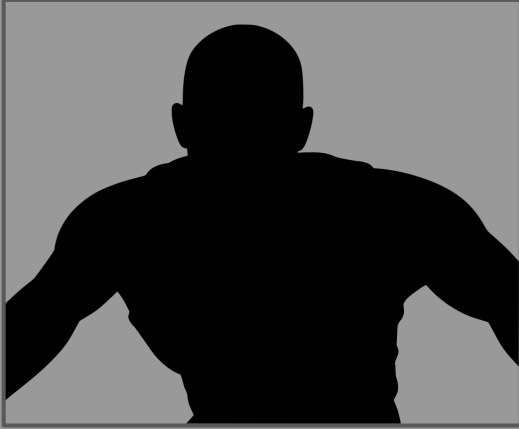
Bad

Guy





## Persona: Negative Actor



*"I never received the money she promised me during the divorce, I want it **RIGHT NOW!**"*

- **B. Jarrito**



**Demographics:** 29 y/o, Divorced, Male.

**Education/Employment:** Works part-time at McDonalds on a minimum wage

### Behaviour:

- Kleptomaniac
- Cyber-stalker
- Likes to play mind games
- Survives on cheap sources of dopamine - sugary drinks, fast food, social media
- Suffers from ADHD

### Goals:

- Pestering ex partner to pay him alimony, which she never agreed on.
- Threatening to send an explicit photo, which she once posted on Instagram but deleted later, to her religious parents.

### Stresses:

- Ex partner's father is a retired police officer.
- Recently got out of jail, and any further assault may cause him to be sentenced for lifetime in prison.
- Has short term memory loss, which makes it hard to him to keep track of his crime in logical order.

## How negative actor squeeze through the cracks

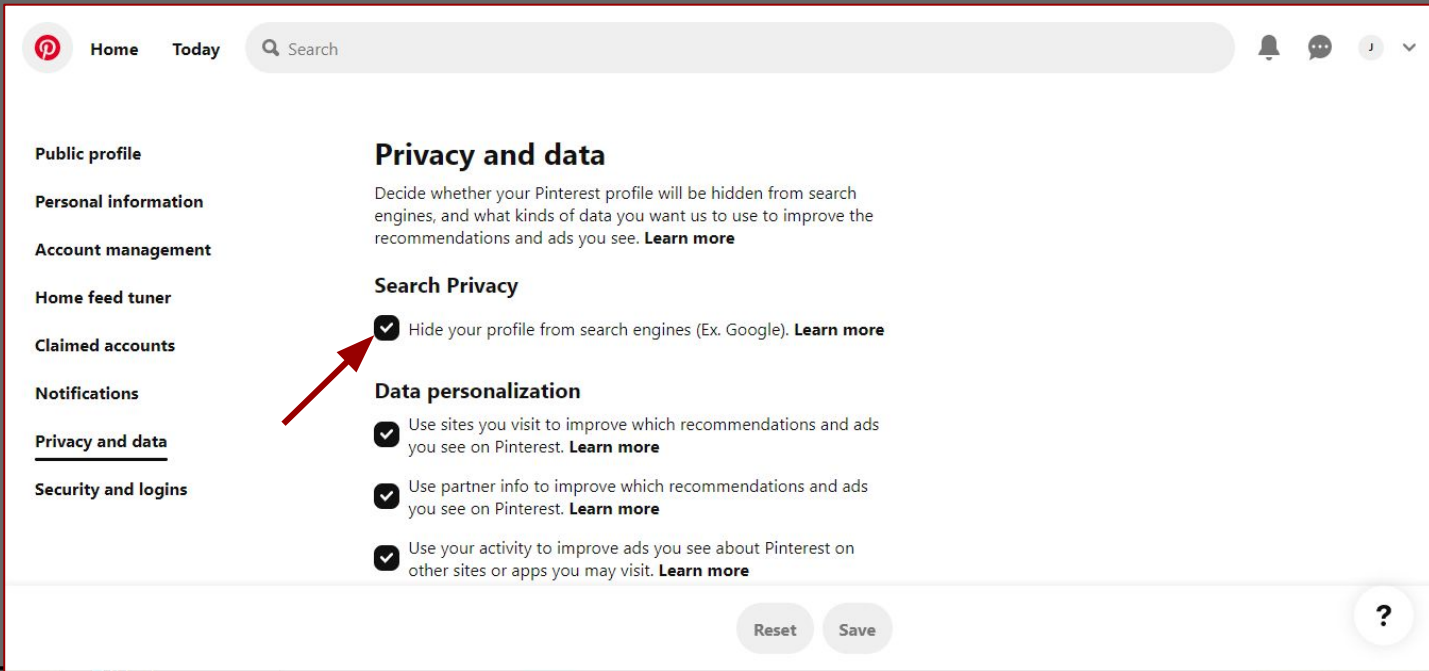
One day, while aimlessly scrolling through Pinterest, Jarrito sees a suggested picture a woman who looked similar to her ex partner. He immediately clicks on that photo and finds out it was in-fact her, and she now owns a bakery close to his house. Jarrito gets excited being able to find her physical location but also starts to envy her success. Without wasting any time he instantly followed her profile from his fake account knowing she wouldn't be able to find out. He carries out further research on her activities because she makes her posts publicly. Jarrito knew his ex-wife overshares her life on social media, and he made perfect use of this fact to stalk her day and night. By this time, Jarrito got hold of her bakery's location and phone number by visiting the linked website on Pinterest. So one day, just before the closing hour, he visits her store in a different attire and quietly waits for her to exit the store. Jarrito secretly trails her, to her home and hides in a bush just to realise that her dad was home. Coward Jarrito falls back from his mission and heads back home with the intention to try again later. Meanwhile, Jarrito also collects all her social media handles which he once forgot due to his mental illness.

Now that Jarrito has a in-depth anonymous access to his ex-wife's daily life, this exposes her to limitless potential threats.

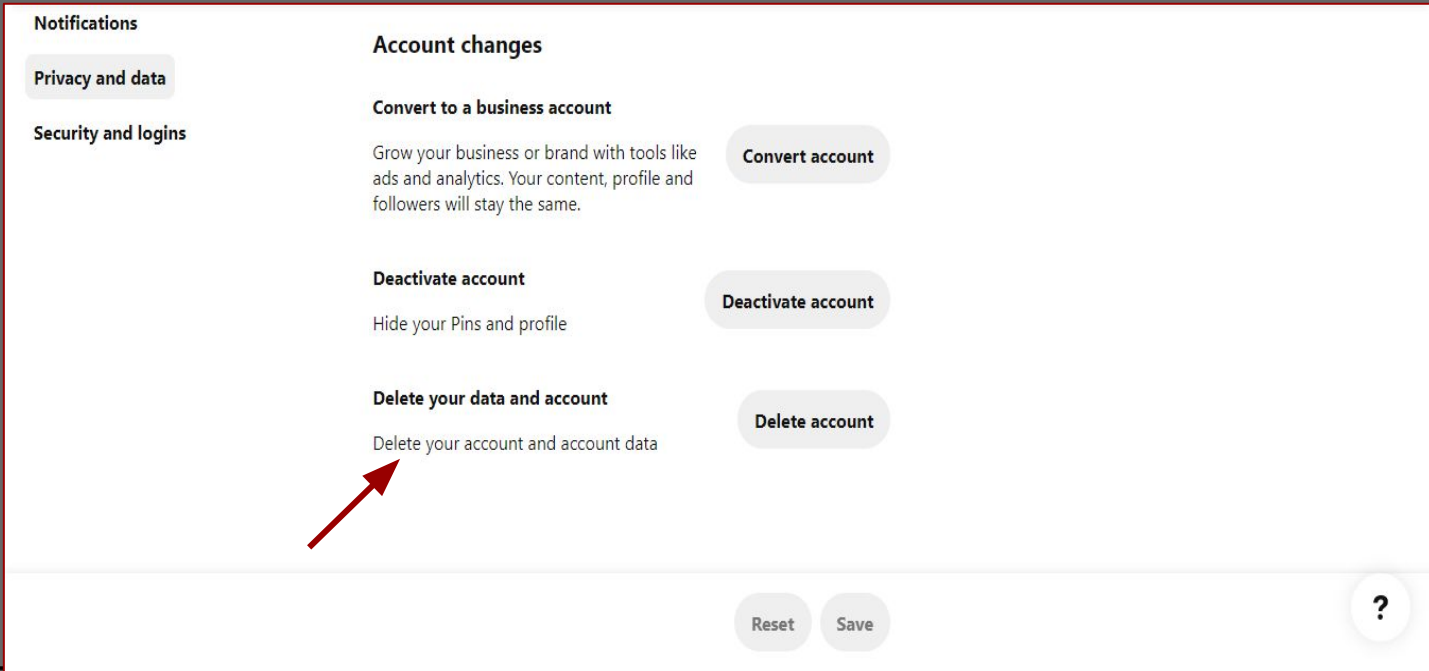
# Features to prevent **Coercive Control**



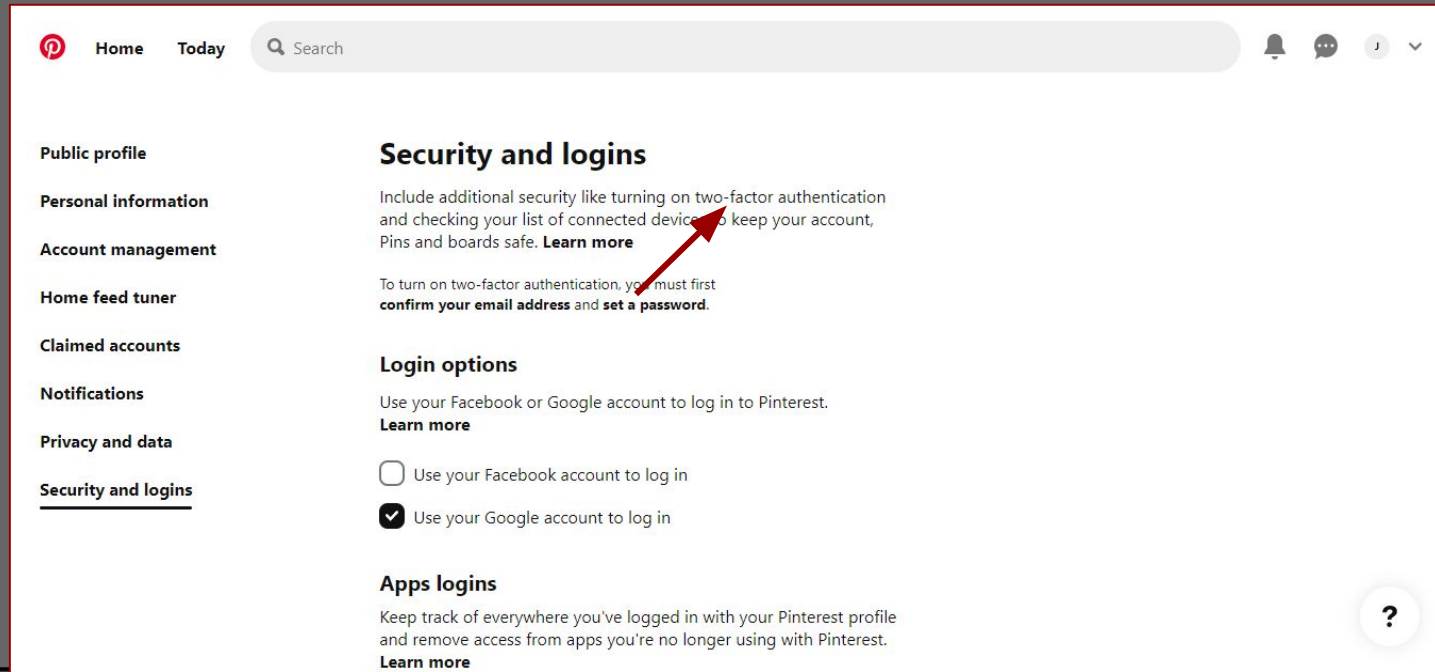
This feature hides user's Pinterest content from popping up in search engines. This makes it nearly impossible for someone with partial data/no data about a user to find the Pinterest contents on search engines.



User who need to permanently exit Pinterest has the option to delete all data off the app. This ensures all contents (whether public/private) being removed from the server to ensure user safety, as this wipes out the digital footprint of the user from the app.



This simple, yet effective method of two-factor authentication means that a hacker cannot have access to the account even if they have the password, because they need an OTP which is only available to the actual owner of the account in a mobile device, and is generated at the time of login.



# Conclusion

In a nutshell, Pinterest not only serves its purpose of helping individual creators to grow, it also cares about its users by providing them with a good range of security options. Unless someone deliberately tries to avoid reinforcing their account, they will never miss those security settings in plain sight.

Pinterest has an amazing community that caters to everyone's interest. It's guaranteed to quench the thirst of your creative side.

Bonus: Pinterest also has a mobile app that has the same buttery smooth experience as the desktop site, all while ensuring user safety to the highest standard.



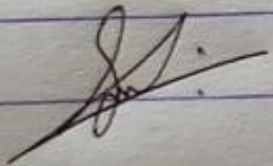
# *Question 2b*

***Norman Principles***



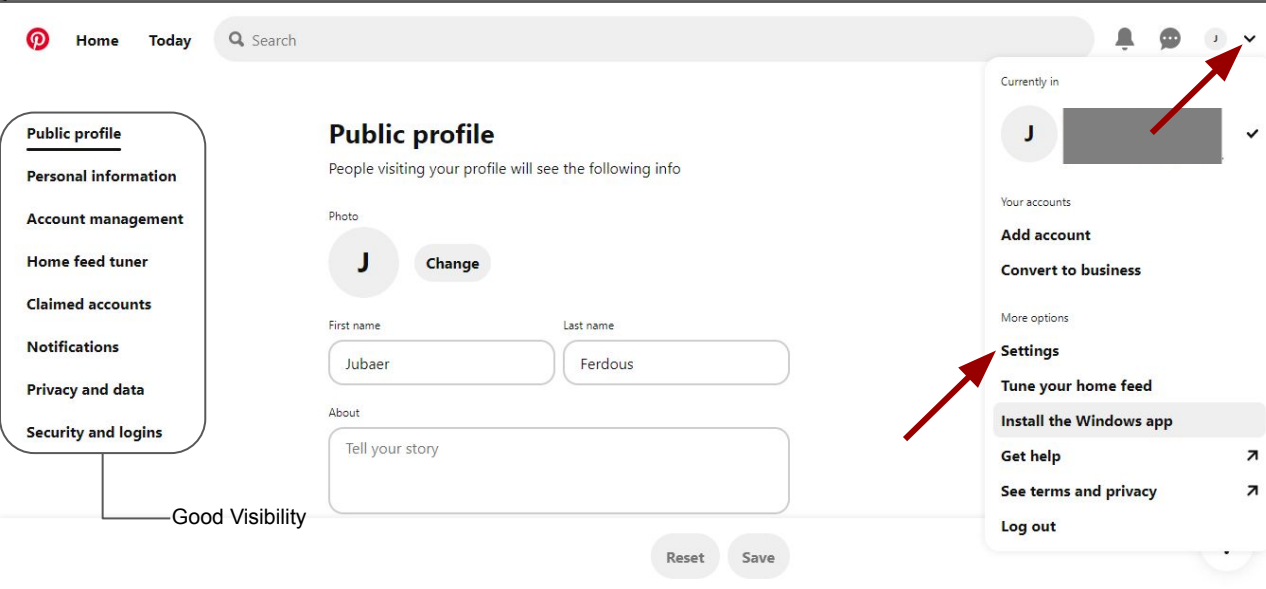
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04/21/2024

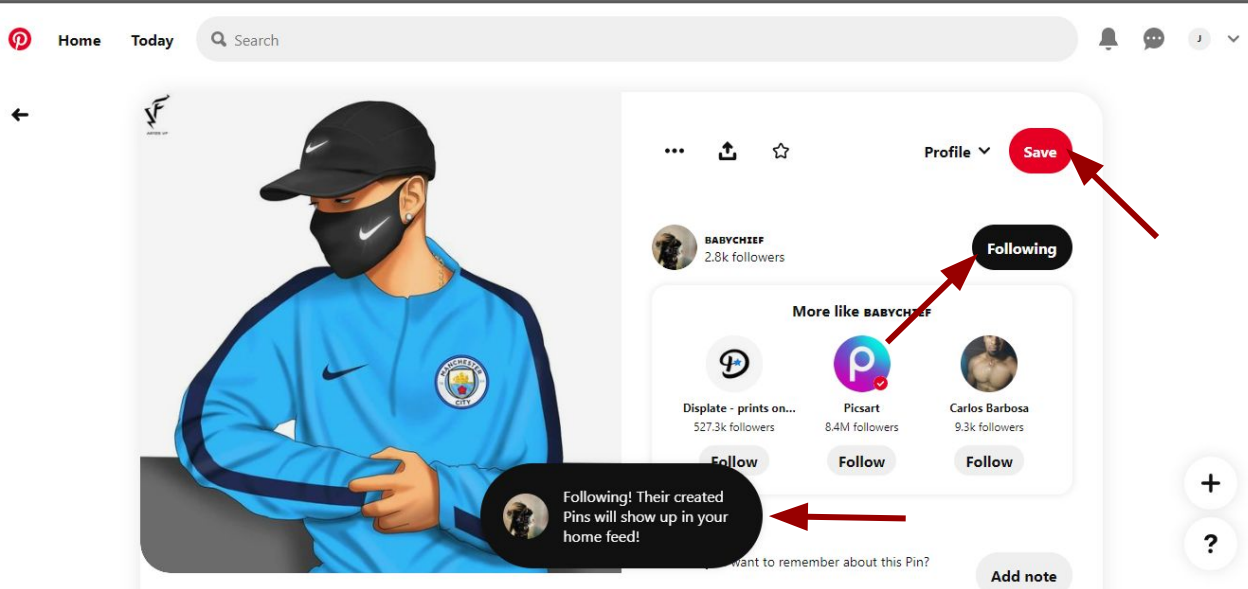
# Visibility - Good Application



The user can easily access the settings by pressing on the downward pointing arrow (top right corner) and then pressing on the 'Settings' option.

In settings on the middle-left corner we can find all the necessary settings/preferences for our app without having to navigate through multiple screens. The design factor also makes all the settings visible at a glance.

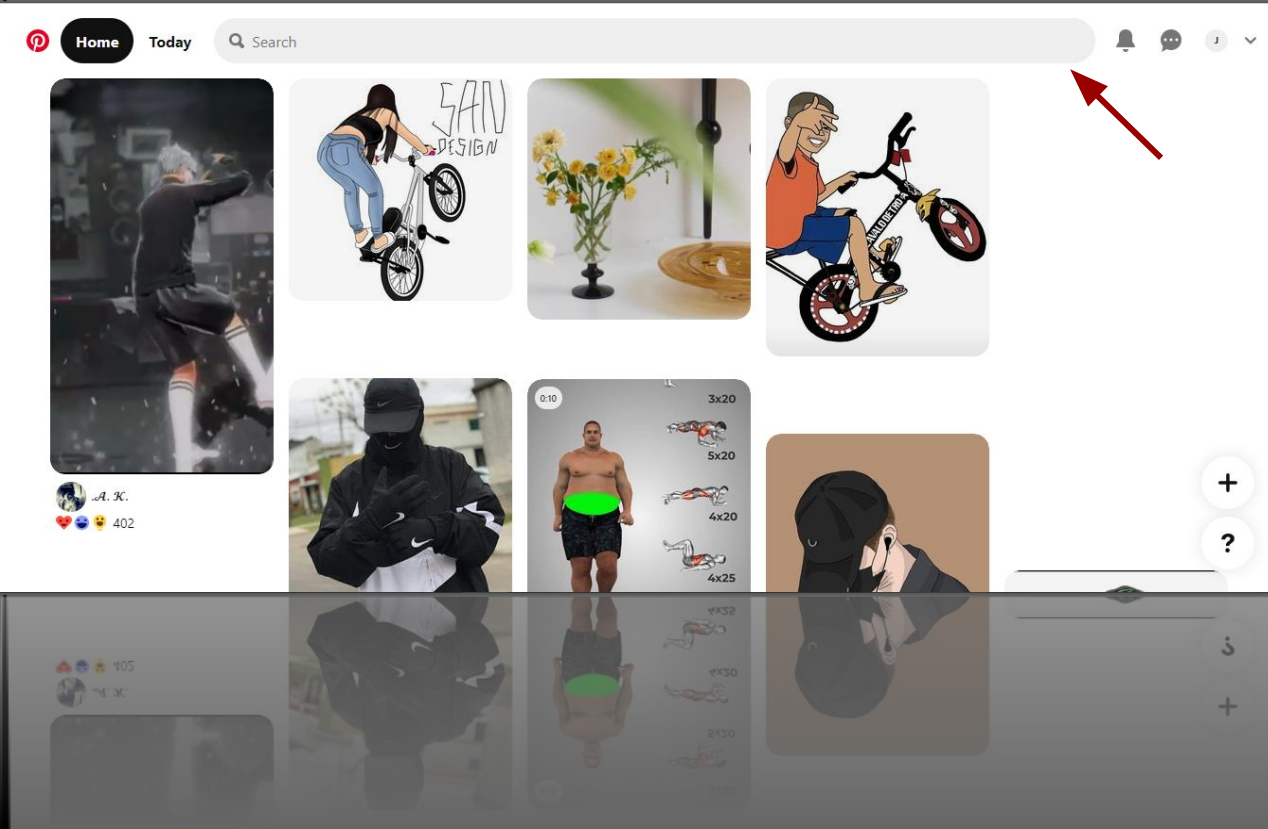
# Feedback - Good Application



The user receives a visual feedback at the bottom of the screen when they follow someone and the 'Follow' button then says 'Following'.

Similarly the 'Save' button shows a notification when pressed on. Once saved, the button then says 'Saved'.

# Affordance - Good Application



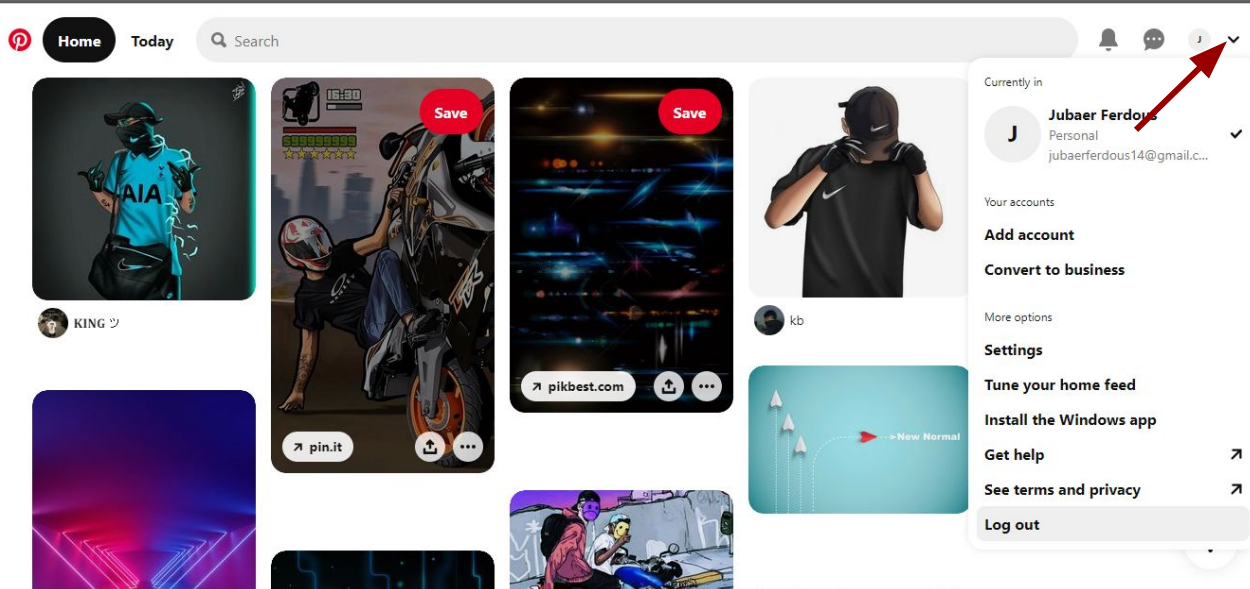
The home page is really comprehensive and free of distractions. Even a novice user can identify the search bar at top.

The Photos and Videos appear in tiles that prompts the user to click on them.

These two features serves the primary purpose of using pinterest.

Also the other icon shaped buttons on the sides give information on what they do.

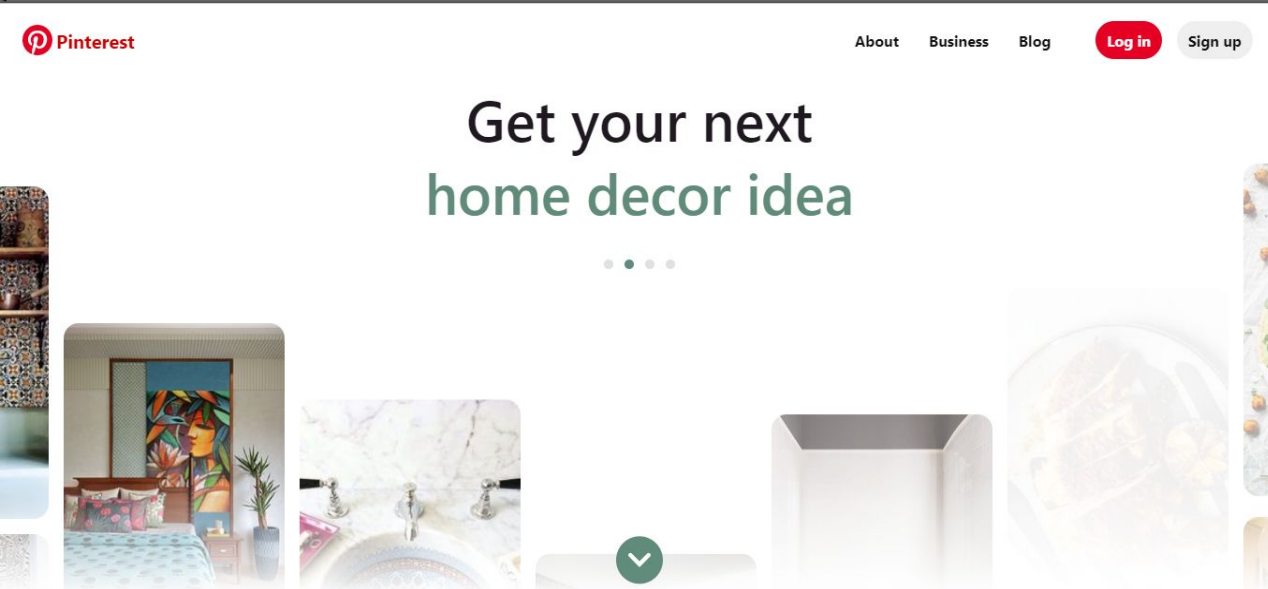
# Mapping - Good Application



The downward arrow instantly makes it look like a drop-down menu. When a user click on that, a list actually drops down. This meets the user's subconscious expectation of good mapping. Which means the control resembled the effect.



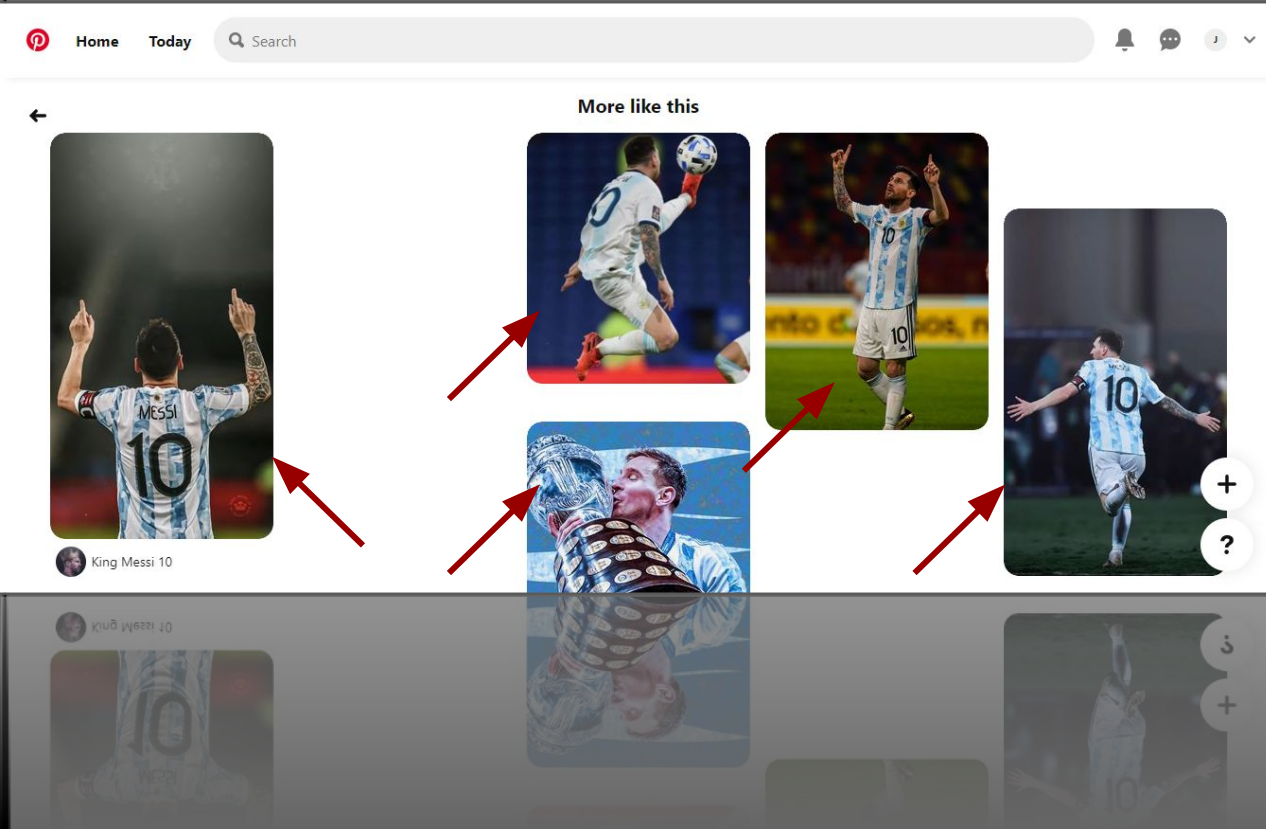
# Constraints - Good Application



If the user is not logged in and/or does not have an account they cannot access the contents of Pinterest.

This restricts unknown users from illegally downloading images/videos from Pinterest without having to leave a digital footprint in the app.

# Consistency - Good Application



When a user clicks of a picture, the 'More Like this' panel suggest them similar images that are consistent with the user's initial choice.

This applies for every kinds of image/videos.

In my case the picture of 'Lionel Messi' appears all over the screen when I clicked on one of his photos.