

Govt. College of Arts, Science & Commerce,  
SANQUELIM- Goa

Computer Science Journal

CERTIFICATE

This is to certify that the record work done by Mr. Varad Gauthankar of T.Y.BSC Class, bearing CUIN No. 19S159 and of academic year 2021-22 and contained in this journal has been periodically examined and signed and the course of experimental work in COMPUTER SCIENCE PAPER-3 “HCI”, during prescribed by the Goa University has been satisfactory carried out.

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Teacher-in charge

Date: - 24-01-2022

PR NO.	PRACTICAL NAME	PG.NO
1	Design Principles	
2	Goal Action Model	
3	Contextual Inquiry	
4	Web Interface Design	
5	Paper Prototyping	
6	Heuristic Evaluation	
7	Storyboarding	

# Practical 1 - Design Principles

**Picture 1: TAP**



**VISIBILITY-** Exists.

**AFFORDANCE-** It is affordance because we can tell looking at the tap that it has to be turned. Either to the right side or to the left side.

**NATURAL MAPPING-** There is no indicator shown which can guide us to which side the tap Needs to be turned.

**CONSTRAINTS-** Overall constraints are good.

**CONCEPTUAL MODEL-** not good design as there is no sign in which direction the tap should be moved.

**FEEDBACK-** We could make it turn only in one direction rather than both Also, a proper indication is needed on the tap.

## **Picture 2: CHAIR**



**VISIBILITY-** Exists.

**AFFORDANCE-** There is affordance because by looking at it we know that it's meant for sitting.

**CONSTRAINTS-** Overall constraints are good.

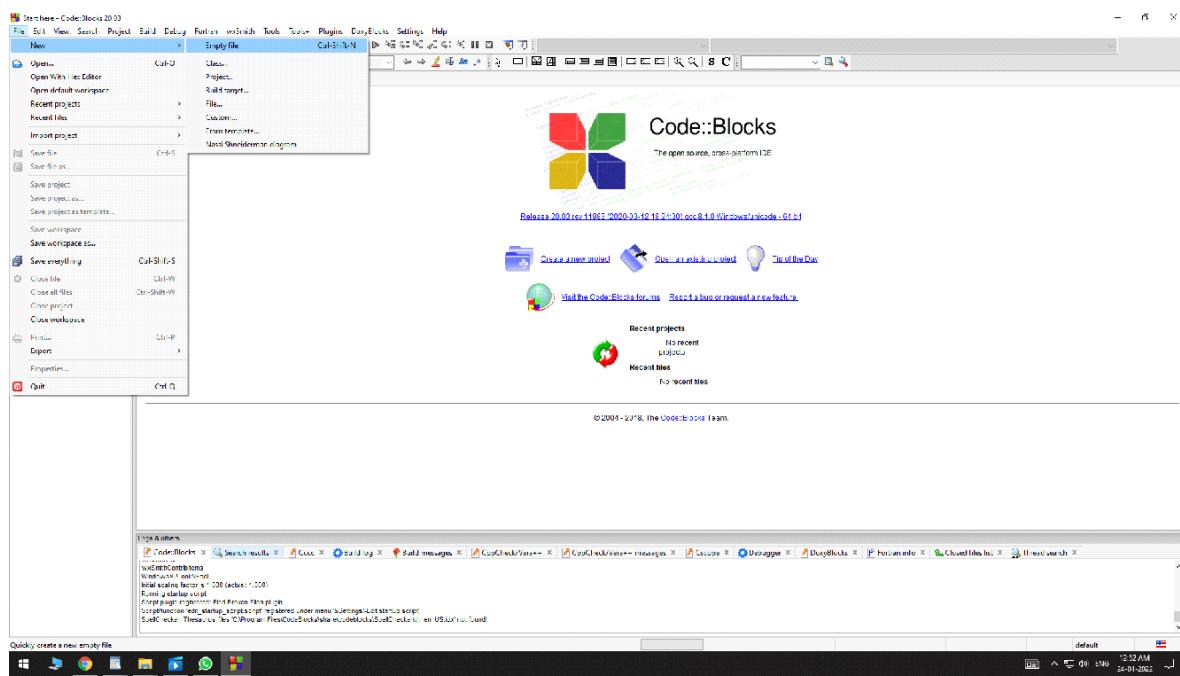
**CONCEPTUAL MODE-** Bad conceptual model because it is not comfortable or adjustable as per user's requirement.

**FEEDBACK-** Not good design because there are no side handles.

## Practical 2 - GOAL ACTION MODEL

Q. Using the seven stages of GOAL ACTION MODEL, describe how a programmer is able to use

- Code blocks IDE to write, edit and compile a code.  
State the design principles that are useful in this Stages.



- **ESTABLISH A GOAL:** To write and compile a C program using Code Blocks IDE.
- **FORMING AN INTENTION:** Either to use Code Blocks IDE, Developers C++ or an Online Compiler.

- **SPECIFY THE ACTION SEQUENCE:** Open Code Blocks File new Empty File
- **EXECUTING THE ACTION:** Writing of the C Program
- **PERCEIVING THE SYSTEM STATE:** Compiling of program is being written.
- **INTERPRETING THE SYSTEM STATE:** To see for errors, if there are any errors then edit the program and again compile it. If there are no error then get the output.
- **EVALUATION OF THE SYSTEM STATE:** Correct output is achieved.

## **Practical 3 – Contextual Inquiry (Questionnaire)**

Design a questionnaire for contextual inquiry for your application.

### **Novice Users**

- What do you think is the purpose of the app?
- Can you give feedback on the looks and layout (UI) of this app?
- Do you find it hard to navigate through the app?
- Is this app useful in your daily life?
- Do you think the app should've tutorial or user guide when newly installed?
- Do you miss any features in this app?
- Did you find the app to be slow and laggy?
- Would you like to have different themes for this app such as dark or light mode etc.?
- What features did you enjoy about this product? Would you suggest this app to your friends and family?
- How much ratings from 1-10 will you give for this app?

## **Advance Beginners**

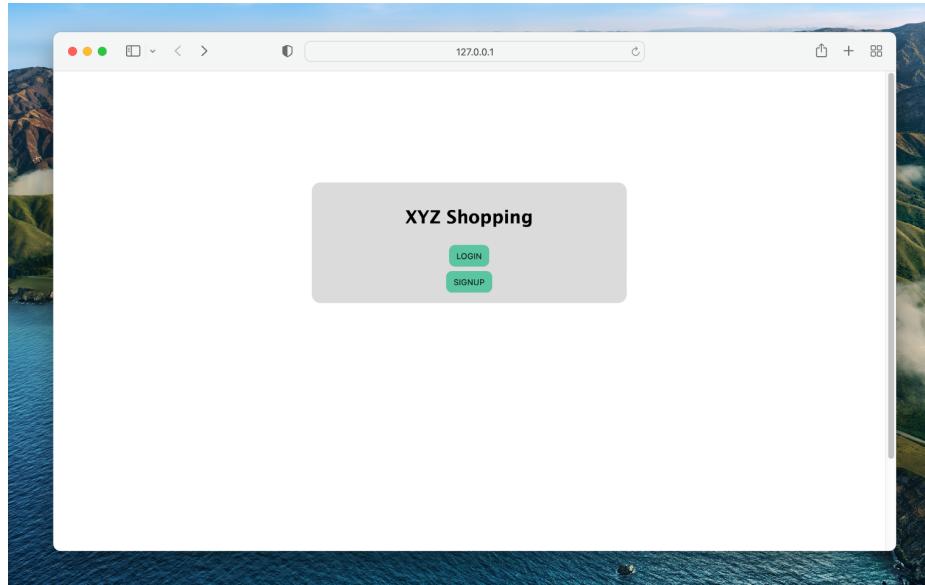
- What is your feedback on the user interface of the app?
- Do you find this app easy to interact with or is it complicated?
- Do you find this app is secure to use or face any bugs/issues while using it?
- What is your feedback on the functionality of this app?
- Did you face any stability/animation/loading issues while using this app?
- Would you like to have a tutorial or user guide for the app on fresh installation?
- How will you use this app in your day-to-day life?
- Would you like to add any feature that you find missing in this app?
- How do you like the overall HCI/detailing of this app?
- How much ratings you like give for this app?

## **Experts**

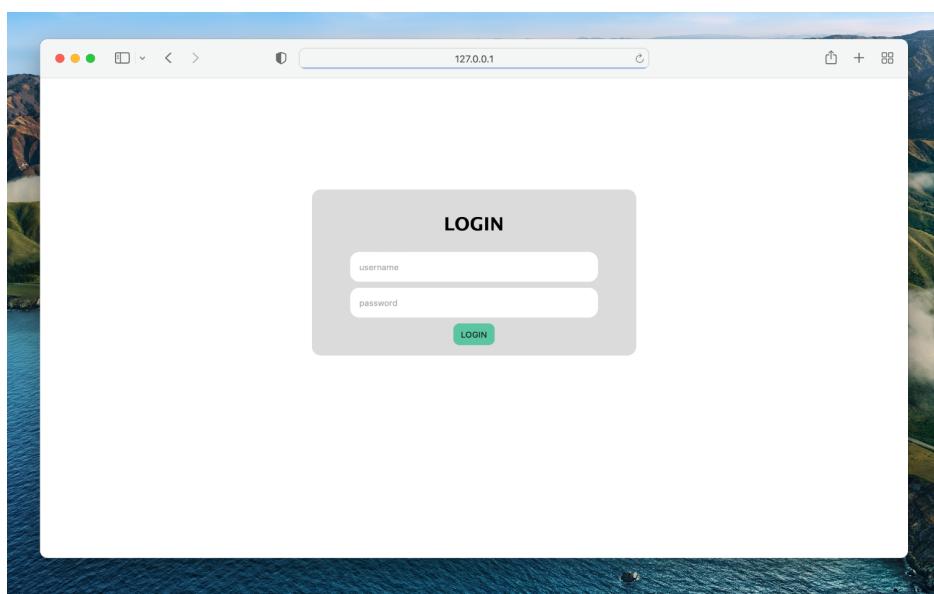
- Would you like to have an advanced UI design for this app?
- Do you find the functionality of this app simple?
- Do you find this app secure? And did you faced any bugs while using it?
- What advanced features would you like to have in this app that you find missing?
- Do you think this app gives users freedom to access each and every feature?
- Do you want the app to provide updates frequently or monthly?
- Do you find this app lightweight or heavy?
- What do you like the most about the overall app?
- Do you think the app should've different free and paid versions based on the functionality?
- How much ratings will you give for this app?

# Practical 4 – Web Interface Design

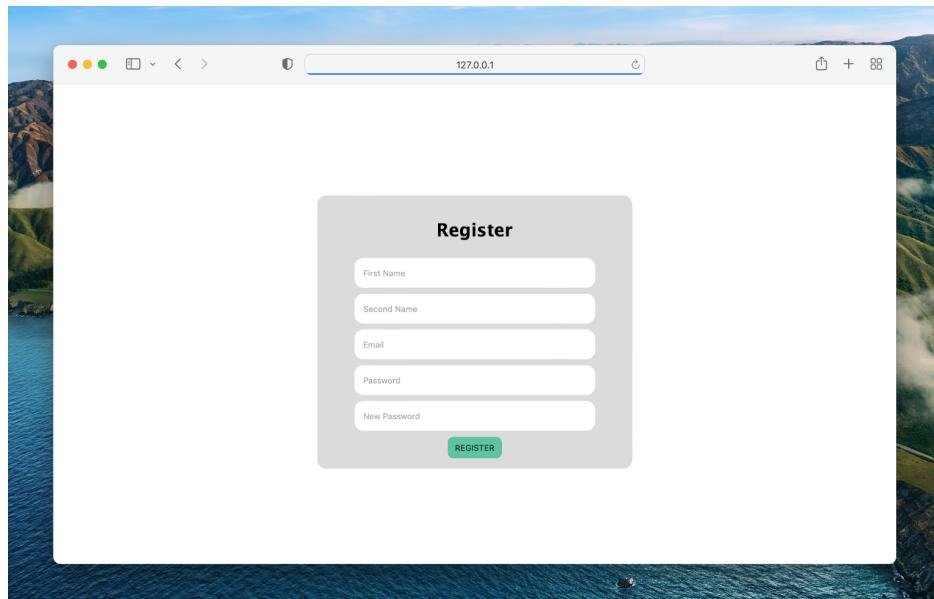
## HOME PAGE



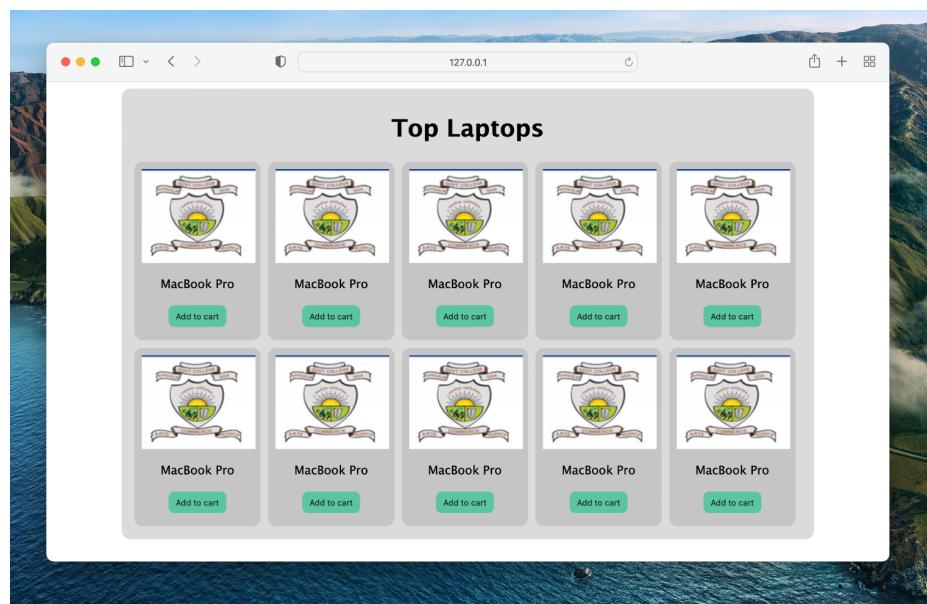
## LOGIN PAGE



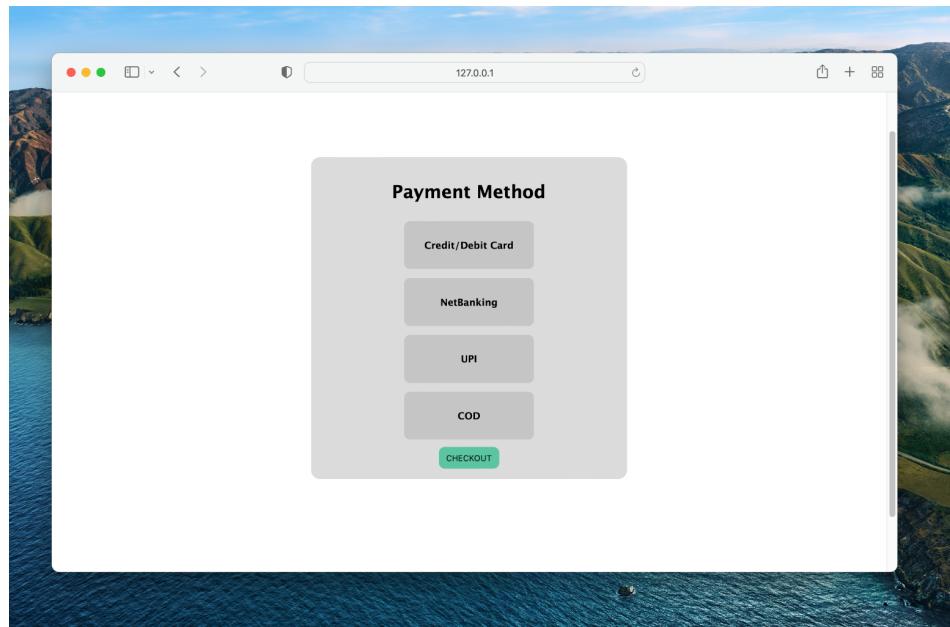
## REGISTER PAGE



## PRODUCTS PAGE



## PAYMENT PAGE



## Code:

Index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width,
initial-scale=1.0" />
    <link rel="stylesheet" href="styles/styles.css" />
    <title>Document</title>
  </head>
  <body>
    <div class="wrapper">
      <div class="container">
        <h2>XYZ Shopping</h2>
        <a href="login_page.html"><button
class="button">LOGIN</button></a>
        <a href="register_page.html"><button
class="button">SIGNUP</button></a>
      </div>
    </div>
  </body>
</html>
```

Login\_page.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="styles/styles.css" />

    <title>Login</title>
  </head>
  <body>

    <div class="container">
      <h2>LOGIN</h2>
      <input placeholder="username" class="input" type="text" />
      <input placeholder="password" class="input" type="text" />

      <button class="button">LOGIN</button></a>
    </div>

  </body>
</html>
```

## Register\_page.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />

    <link rel="stylesheet" href="styles/styles.css" />
    <title>Register</title>
  </head>
  <body>
    <div class="container">
      <h2>Register</h2>
      <input placeholder="First Name" class="input" type="text" />
      <input placeholder="Second Name" class="input" type="text" />
      <input placeholder="Email" class="input" type="text" />
      <input placeholder="Password" class="input" type="text" />
      <input placeholder="New Password" class="input" type="text" />

      <a href="products_page.html"><button class="button">REGISTER</button></a>
    </div>
  </body>
</html>
```

## Products\_page.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="styles/styles.css" />
    <title>Products</title>
  </head>

  <body>
    <div class="products">
      <h1>Top Laptops</h1>

      <div class="row">
        <div class="image">
          
          <p>MacBook Pro</p>
          <a href="#"><button class="button">Add to cart</button></a>
        </div>

        <div class="image">
          
          <p>MacBook Pro</p>
          <a href="#"><button class="button">Add to cart</button></a>
        </div>
    
```

```
<div class="image">
  
  <p>MacBook Pro</p>
  <a href="#"><button class="button">Add to
cart</button></a>
</div>

<div class="image">
  
  <p>MacBook Pro</p>
  <a href="#"><button class="button">Add to
cart</button></a>
</div>

<div class="image">
  
  <p>MacBook Pro</p>
  <a href="#"><button class="button">Add to
cart</button></a>
</div>
</div>

<div class="row">
  <div class="image">
    
    <p>MacBook Pro</p>
    <a href="#"><button class="button">Add to
cart</button></a>
  </div>
  <div class="image">
    
```

```
<p>MacBook Pro</p>
<a href="#"><button class="button">Add to
cart</button></a>
</div>

<div class="image">
  
  <p>MacBook Pro</p>
  <a href="#"><button class="button">Add to
cart</button></a>
</div>

<div class="image">
  
  <p>MacBook Pro</p>
  <a href="#"><button class="button">Add to
cart</button></a>
</div>

<div class="image">
  
  <p>MacBook Pro</p>
  <a href="#"><button class="button">Add to
cart</button></a>
</div>
</div>
</div>
</body>
</html>
```

## Payment\_page.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge"
  />
    <meta name="viewport" content="width=device-width,
initial-scale=1.0" />
    <link rel="stylesheet" href="styles/styles.css" />
    <title>Payment method</title>
  </head>
  <body>
    <div class="wrapper">
      <div class="container">
        <h2>Payment Method</h2>
        <div class="box"><h5>Credit/Debit Card</h5></div>
        <div class="box"><h5>NetBanking</h5></div>
        <div class="box"><h5>UPI</h5></div>
        <div class="box"><h5>COD</h5></div>
        <a href="#"><button
class="button">CHECKOUT</button></a>
      </div>
    </div>
  </body>
</html>
```

## Styles.css

```
body {  
    font-family: "Lucida Sans", "Lucida Sans Regular",  
    "Lucida Grande",  
    "Lucida Sans Unicode", Geneva, Verdana, sans-serif;  
  
    margin: 0;  
    padding: 0;  
}  
  
.wrapper {  
    height: 100vh;  
}  
  
.container {  
    padding: 12px;  
    margin: auto;  
    margin-top: 150px;  
    background-color: #dbdbdb;  
    border-radius: 12px;  
    text-align: center;  
    max-width: 400px;  
    display: flex;  
    flex-direction: column;  
    align-items: center;  
}  
  
.button {  
    background-color: rgb(92, 196, 161);  
    border-radius: 8px;  
    border: none;  
}
```

```
padding: 8px 10px;
margin-top: 4px;
cursor: pointer;
}

.button:hover {
background-color: rgb(57, 145, 115);
}

.input {
margin: 4px;
border-radius: 12px;
border: none;
height: 40px;
width: 300px;
padding: 0 12px;
}

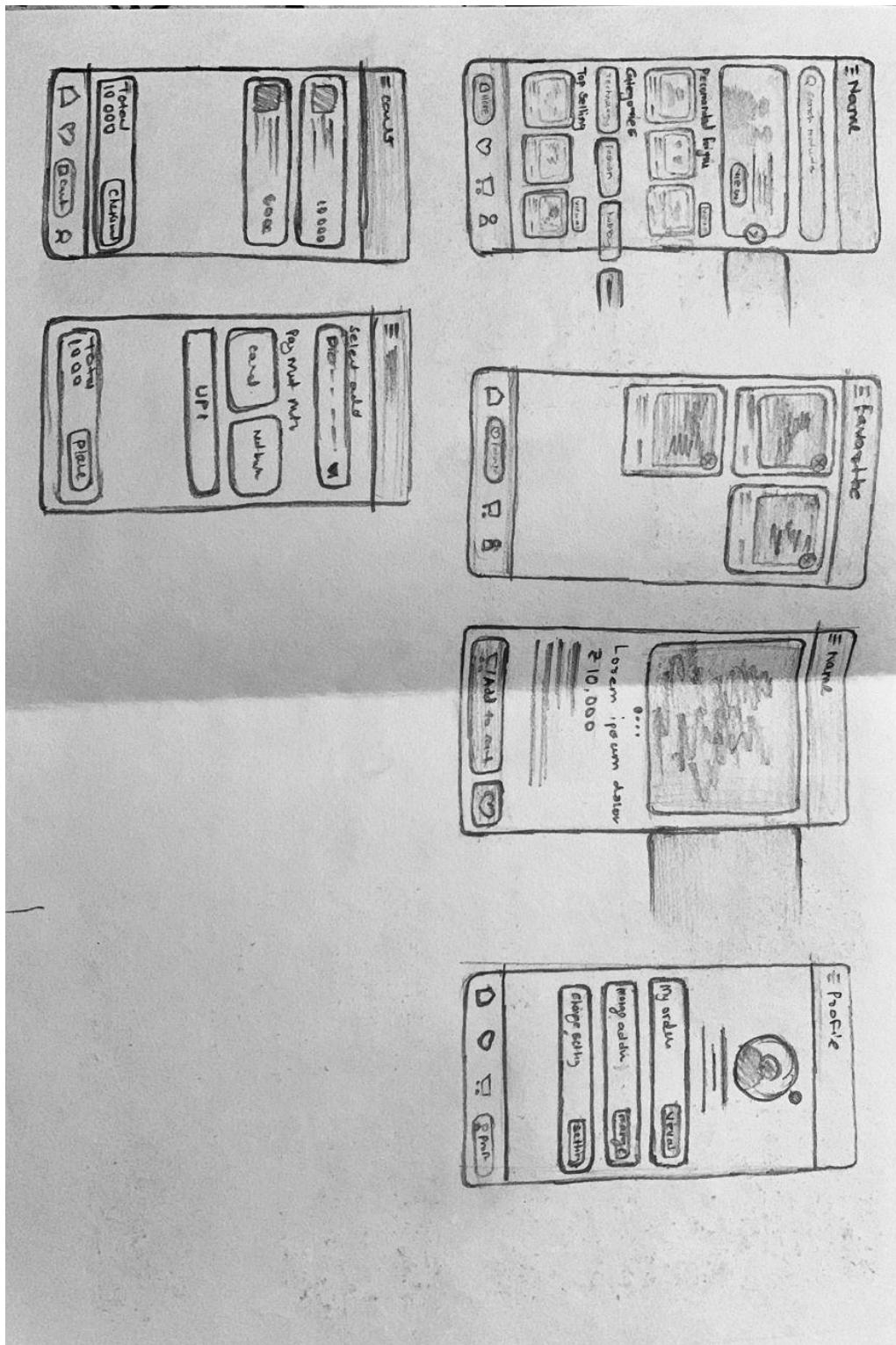
.image {
height: 220px;
width: 150px;
background-color: #c5c5c5;
border-radius: 12px;
padding: 10px;
margin: 5px;
}

.products {
padding: 12px;
margin: auto;
```

```
margin-top: 10px;  
background-color: #dbdbdb;  
border-radius: 12px;  
text-align: center;  
max-width: 80%;  
}  
  
.row {  
display: flex;  
}  
  
.box {  
background-color: #c5c5c5;  
padding: 2px 12px;  
width: 150px;  
margin: 6px auto;  
border-radius: 8px;  
}
```

## Pr. No. 5 (Paper prototyping)

Q. Perform a paper prototyping.



## **Practical 6 – Heuristic Evaluation**

### Heuristic Evaluation of Goa University Website

- **Visibility of system status:** The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.
  - Its visible and quite interactive and up-to-date website.
- **Match between system and real world:** The system should speak the user's language, with words, phrases & concepts familiar to the users, rather than system-oriented terms, follow real world convention, making info appear in a natural & logical order.
  - Section with latest news regarding university is clearly shown on home page
  - Important information is shown on the home page
- **User control and freedom:** Users often choose system function by mistake & will need a clearly marked “Emergency Exit” to leave the unwanted state without having to go through an executed dialogue. It also supports undo & redo.
  - The website is quite responsive, quick links are provided on the menu to access some pages quickly.
- **Consistency and standard:** Users should not have to wonder whether different words, situations, or actions mean the same thing.
  - Website is quite consistent with the design, the same color and theme is followed throughout the website.

- **Error Prevention:** Even better than a good error message is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the actions.
  - dropdowns are provided for menu options.
  - Search bar is provided
- **Recognition than recall:** Minimize the user's memory load by making objects, actions and options visible. The user should not have to remember the information from one part of the dialogue to another. Instructions for use of the systems should be visible or easily retrievable whenever appropriate.
  - Yes, the website is pretty simple and basic, all the things required are on the home, users do not have to remember anything.
- **Flexibility and efficiency:** Accelerator-unseen by the novice user may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.
  - It's quite good on the desktop, but it can be improved on the phone

- **Aesthetic and minimalist design:** Dialogues should not contain information which is irrelevant or rarely needed. Every extra exit of information in a dialogue completes within the relevant units of information and diminishes their relative visibility.
  - It's not the best looking website, but the design is pretty simple and easy to use.
- **Recovery:** Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.
  - This criterion is met as you can recover your id and password if forgotten.
- **Help and documentation:** Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.
  - As per help they've provided the about us option but has so many unnecessary options in it which is not much useful as a student. Also, no tutorial or help option to new user on the website

## Practical 7 - Story boarding

