Software Engineering

6. Prototyping-GUI

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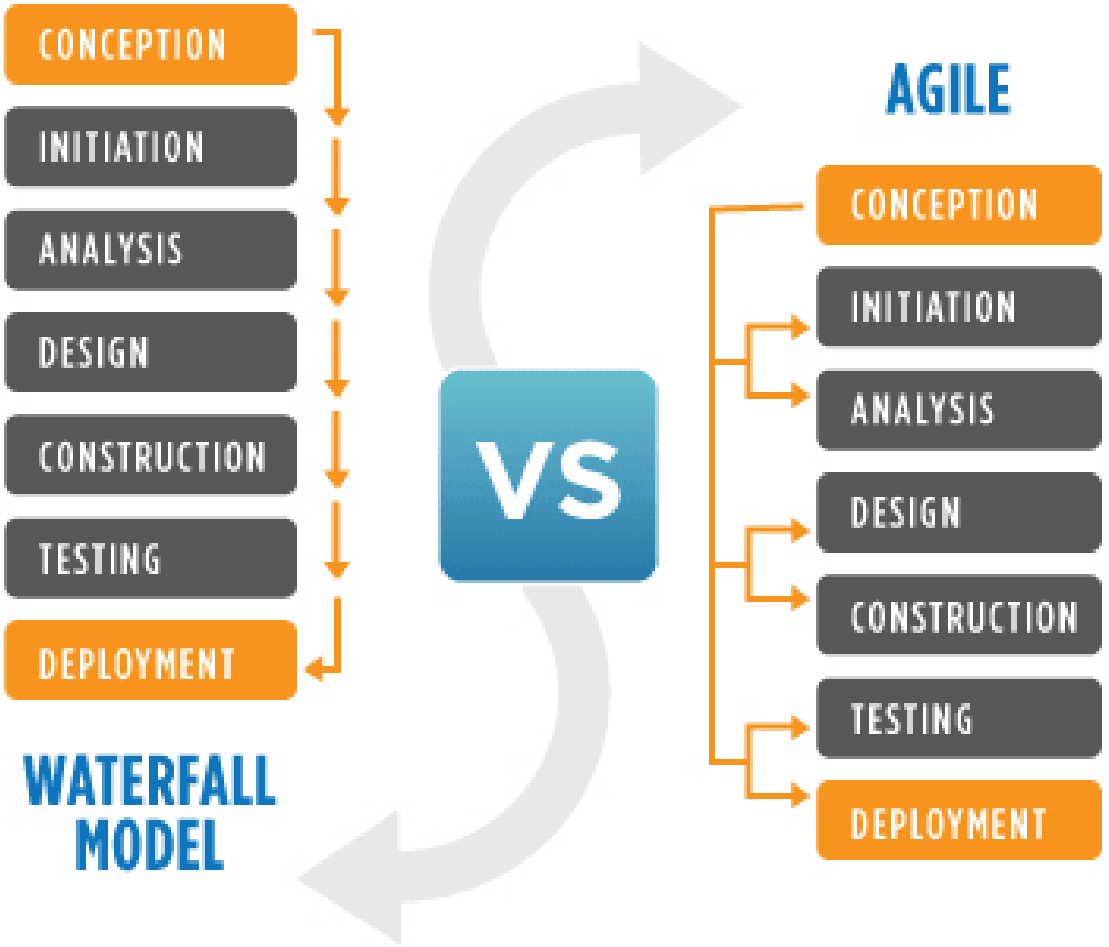
List of Topics

- What is Software Prototyping?
- Benefits of Software Prototyping
- Types of Prototyping
- Creating Paper Prototypes
- Creating High-Fidelity Prototype

Software Development Life Cycle



Software Prototyping

- A Software prototype is a **draft version** of software program that allows you to explore your ideas and show the intention behind a feature or the overall design concept to users before investing time and money into development.
- A prototype typically simulates only a few aspects of, and may be completely different from, the final product.
- Prototyping can be considered as a risk reduction activity

Prototyping Benefits

- Misunderstandings between software users and developers are exposed
- Missing services may be detected and confusing services may be identified
- A working system is available early in the process
- The prototype may serve as a basis for deriving a system specification
- The system can support user training and system testing

Continue…

- Sometimes it helps to demonstrate the concept to prospective investors to get funding for project.
- It reduces risk of failure, as potential risks can be identified early.
- Iteration between development team and client provides a very good and conductive environment during project.
- This type of approach of developing the software is used for non-IT-literate person.

Prototyping Process

1. **Identify basic requirements**
   - Determine basic requirements including the input and output information desired. Details, such as security, can typically be ignored.
2. **Develop initial prototype**
   - The initial prototype is developed that includes only user interfaces.
3. **Review**
   - The customers, including end-users, examine the prototype and provide feedback on potential additions or changes.
4. **Revise and enhance the prototype**
   - Using the feedback both the specifications and the prototype can be improved. Negotiation about what is within the scope of the contract/product may be necessary. If changes are introduced then a repeat of steps #3 and #4 may be needed.

Software Process

- **Evolutionary prototyping**
  - An initial prototype is produced and refined through a number of stages to the final system
- **Throw-away prototyping**
  - A prototype is produced to help discover requirements problems and then discarded
  - The system is then developed using some other development process

Types of Prototyping

- **Low-Fidelity Prototyping**
  - **Paper prototyping**
  - **Mockups**
- **High-Fidelity Prototyping**
  - Macromedia Director or Flash, Smalltalk , Java Script, Microsoft Tools, HTML

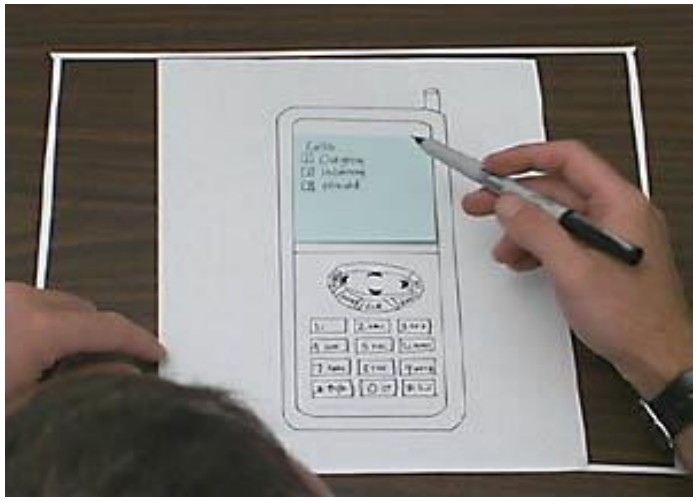
Low-Fidelity Prototyping

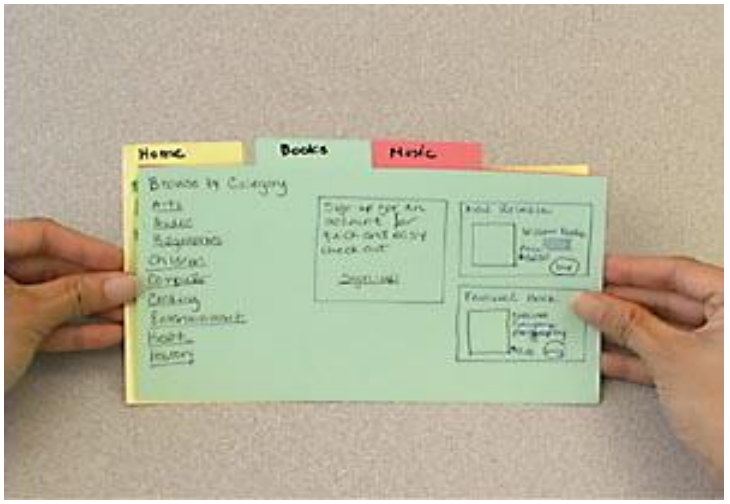
Tools for Paper Protyping

- Pen
- Pencil
- Color Pencil
- Rubber
- Paper
- Eraser
- Scale
- Scissor

Low-Fidelity Prototyping

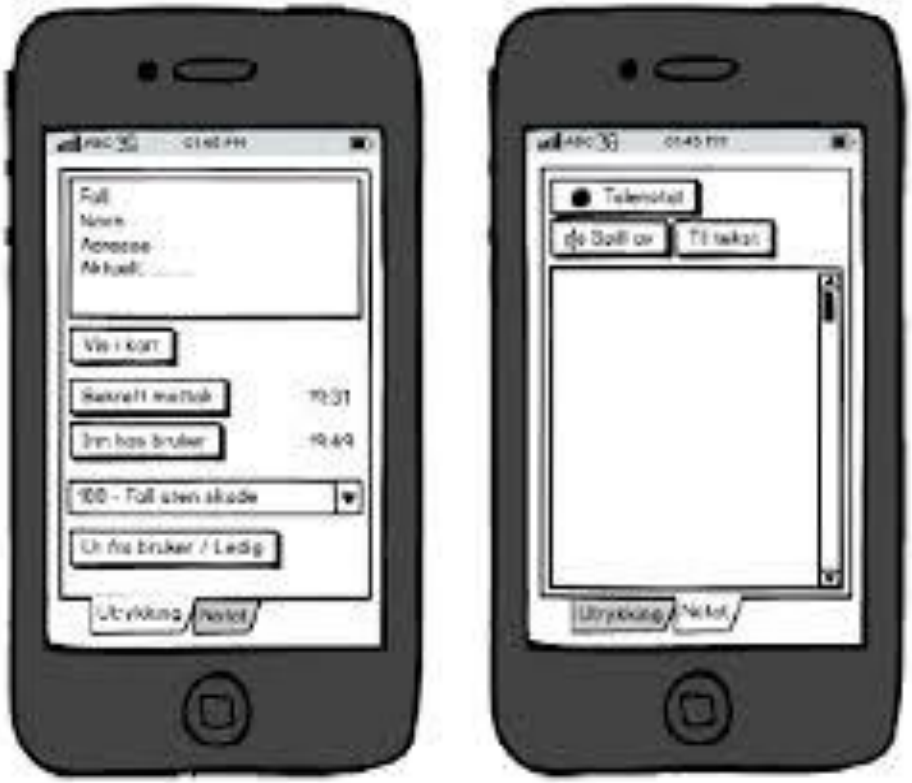
- Does not look very much like the final product. Material, behavior etc.
- Material such as paper & cardboard rather than electronic screens, metal and detailed code.
- Simple, cheap & quick to produce and redesign.
- Early stage of development –prototyping for the conceptual design.

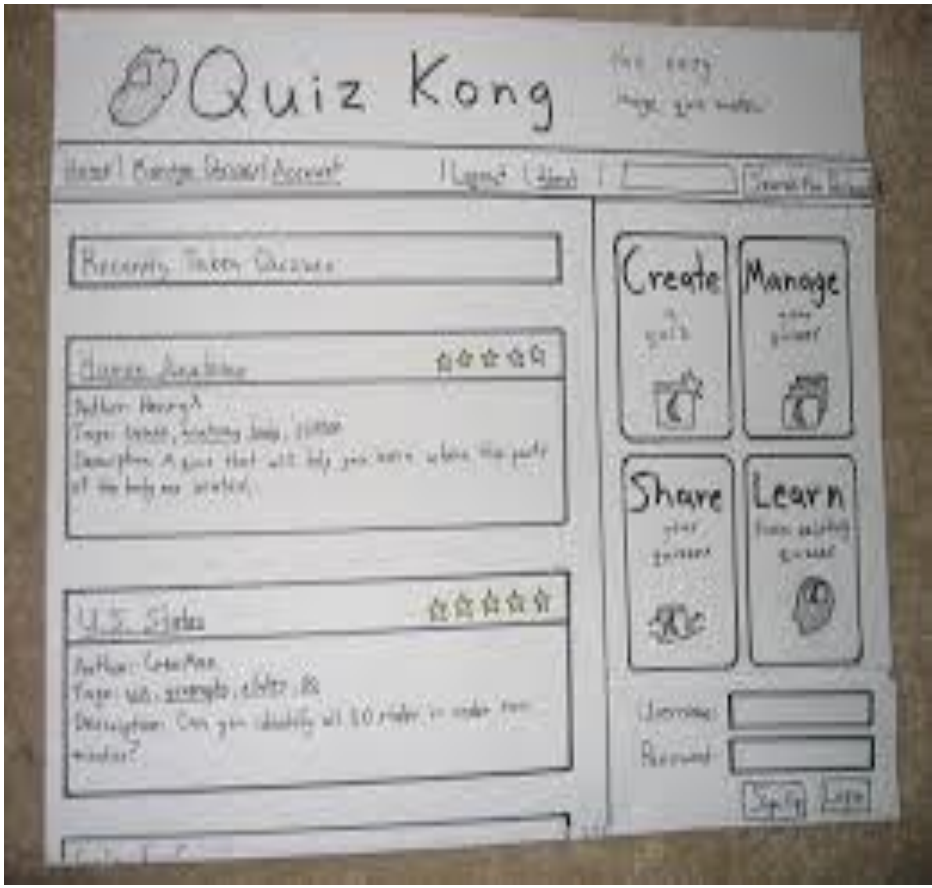




Creating Low-Fidelity Prototyping

Creating Low-Fidelity Prototyping





High-Fidelity Prototyping

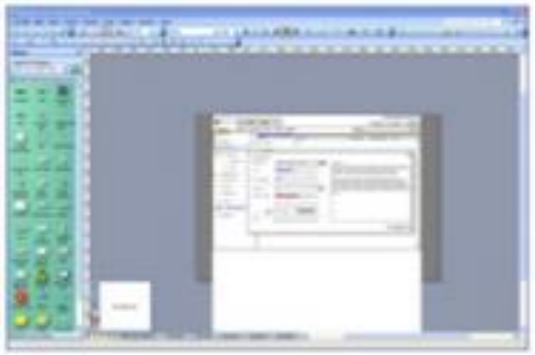
- Looks very much like the final product.
- If the prototype is for software system, a software tool, such as Macromedia Director or Flash, Visual Basic or Smalltalk, might be needed.
- Software prototype tools are also often qualified development environments.
- More time-consuming to produce than low-fidelity prototyping.

High-Fidelity Prototyping

Overview on Tools

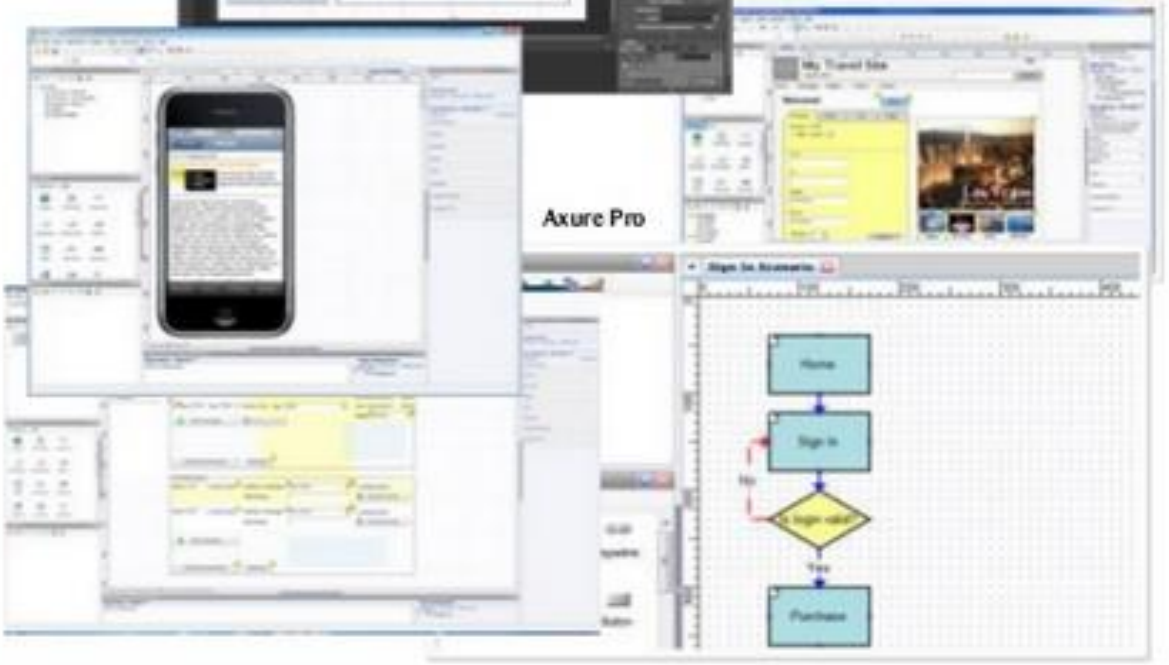
For Example

- Microsoft Visio, PowerPoint
- **MS Expression Blend**
- **Axure Pro**
- iRise Studioj



MS Visio

MS Expression Blend



Axure Pro

Creating High-Fidelity Prototyping (using Powerpoint)

Sign Up

First Name

Last Name

Birthday 01 Jan 1980

Gender Female Male

Height

Email

Password

Confirm Password

Sign Up

Creating High-Fidelity Prototyping(Using HTML, Java Script,css)

Advantages of Low-Fidelity Prototyping

- Low-fidelity representations, such as sketches, differ from the final product in interaction design, visual appearance, and/or level of details. The method is quick & cheap which encourage iterative design idea tryouts between/during usability tests.

- Quick Low-fidelity tests allows designers and users to focus on high-level interaction design and information architecture, rather than on details or visual style.

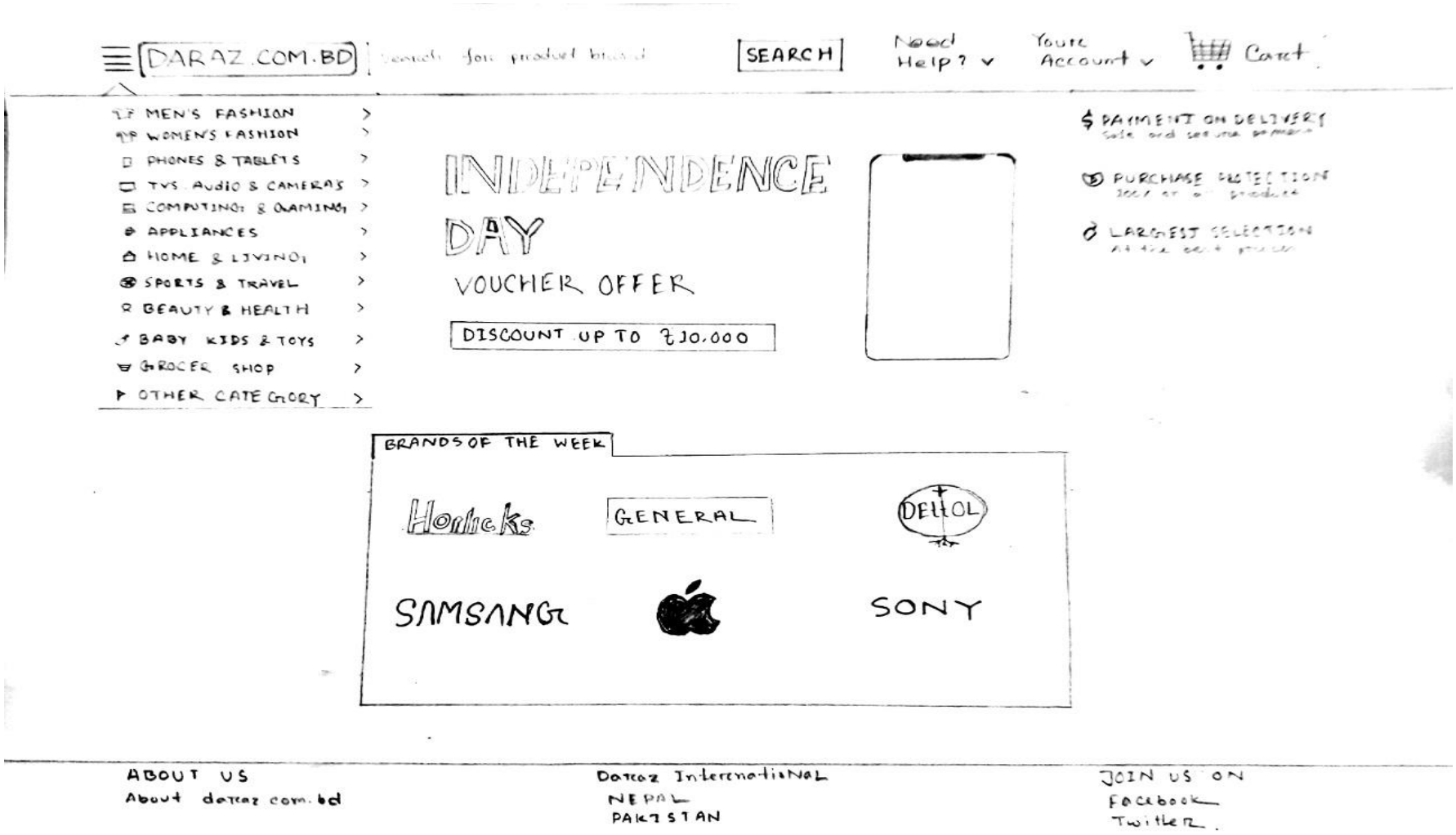
Advantages of High-Fidelity Prototyping

- High-fidelity prototypes offer more realistic interactions than low-fidelity.
- Better at conveying the range of design possibilities.
- User-driven.

Design and PrototypingTopics

- University Management System
- Hospital Management System
- Electronic Patient Record System
- Online Shoping System
- Smart Phone Design
- Product Design (Business Idea)
- Games Design
- Website Developent
- Recruite Management System
- Tourism Software

Home Page..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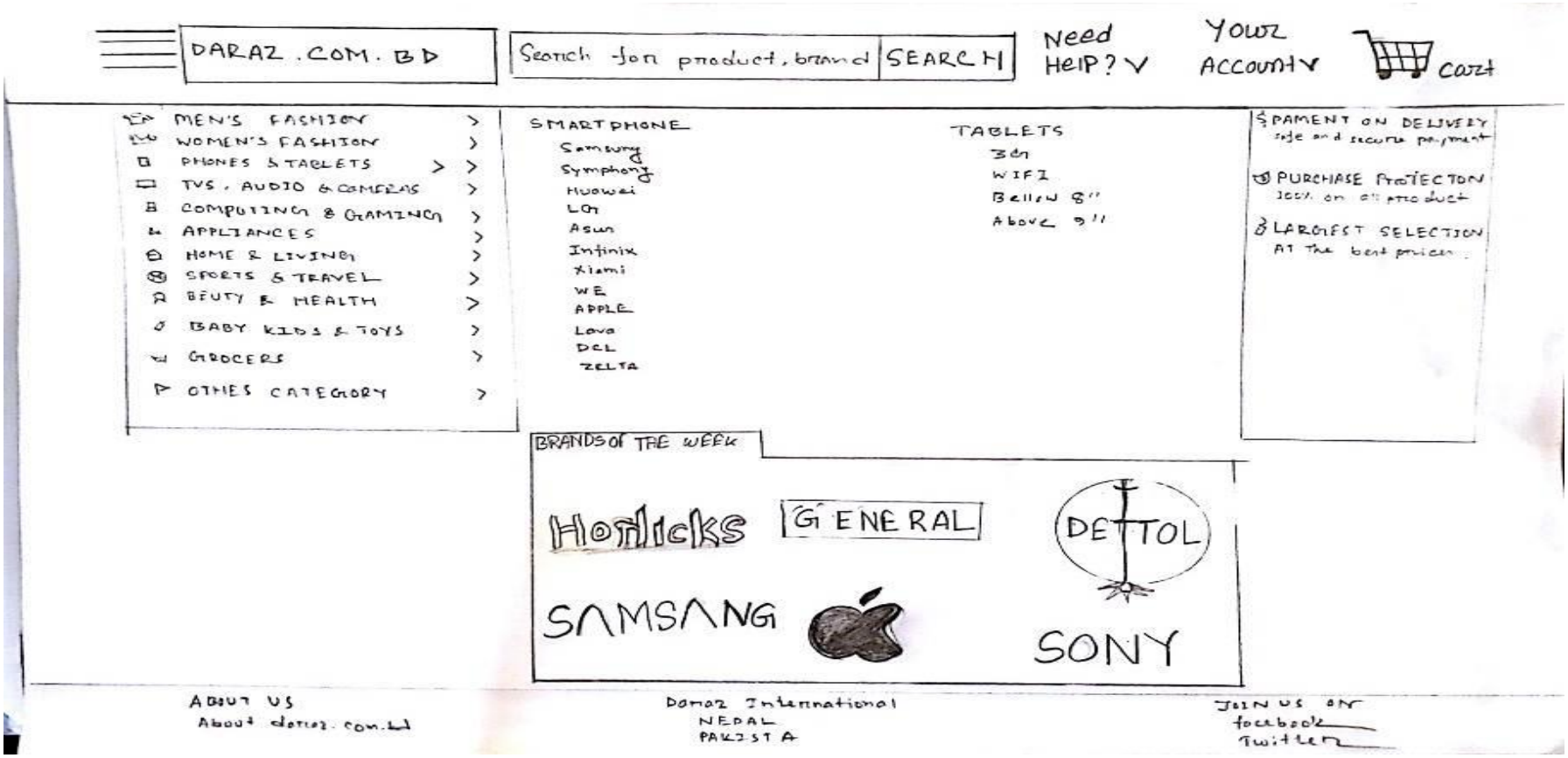
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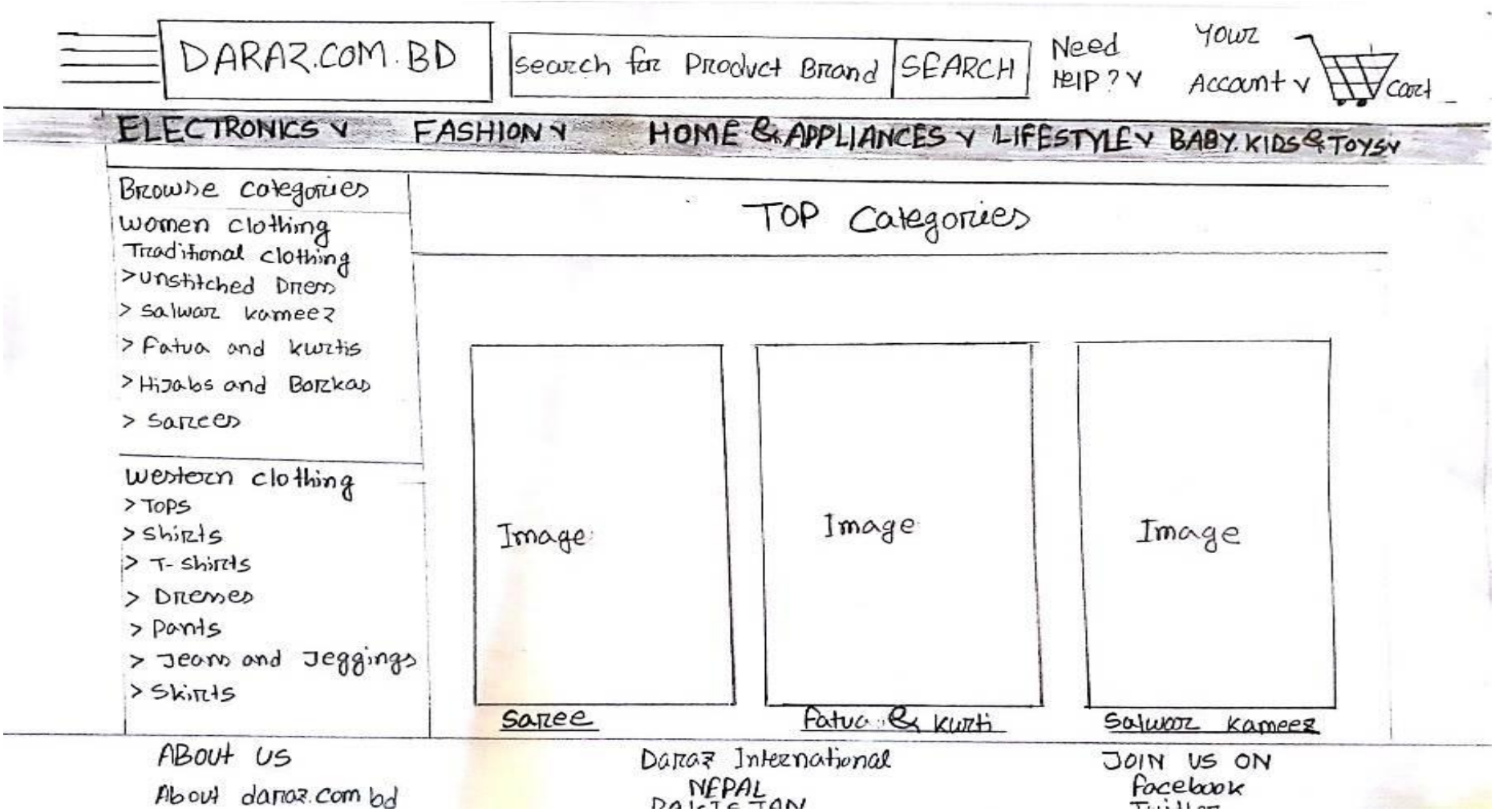
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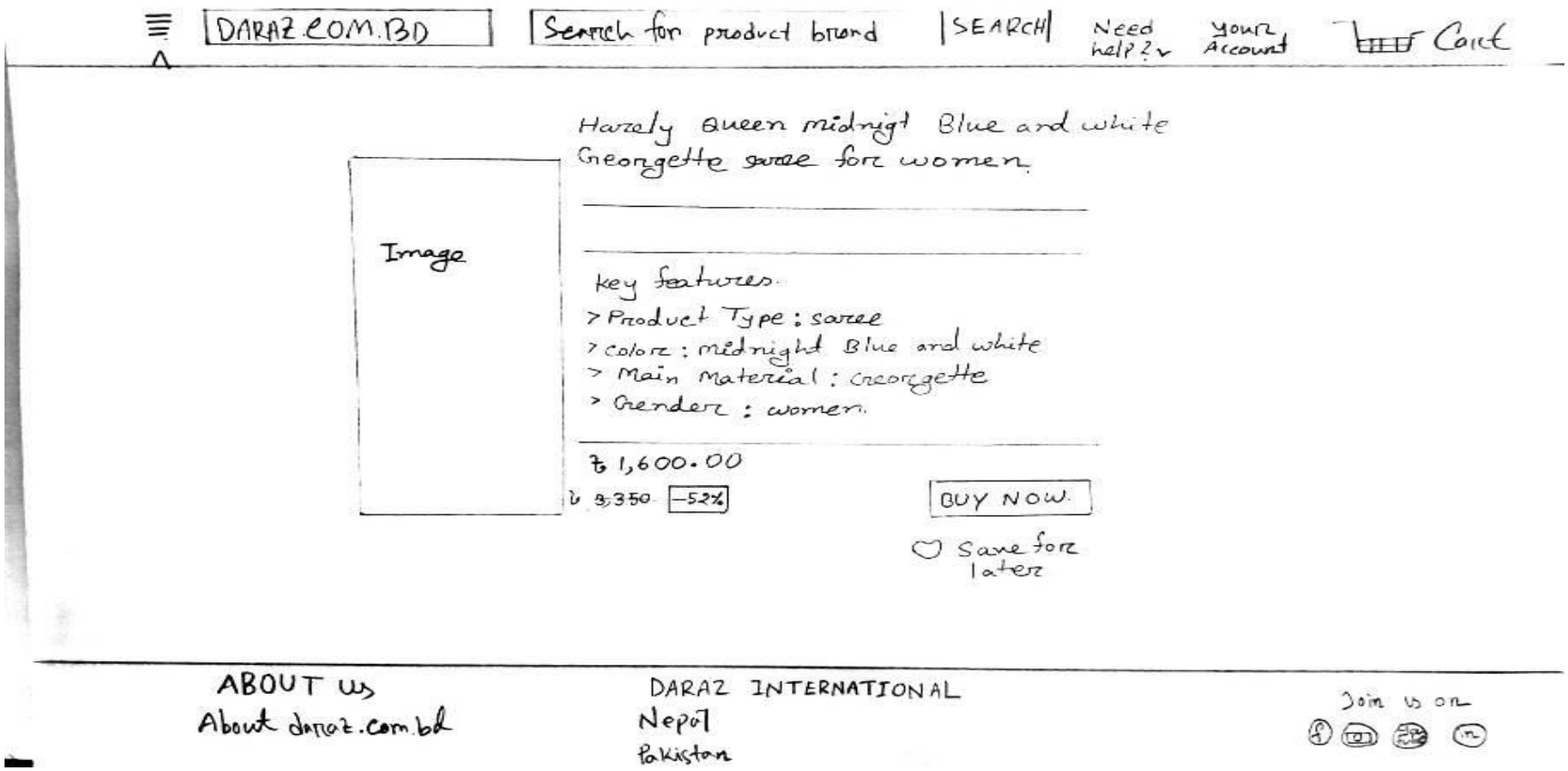

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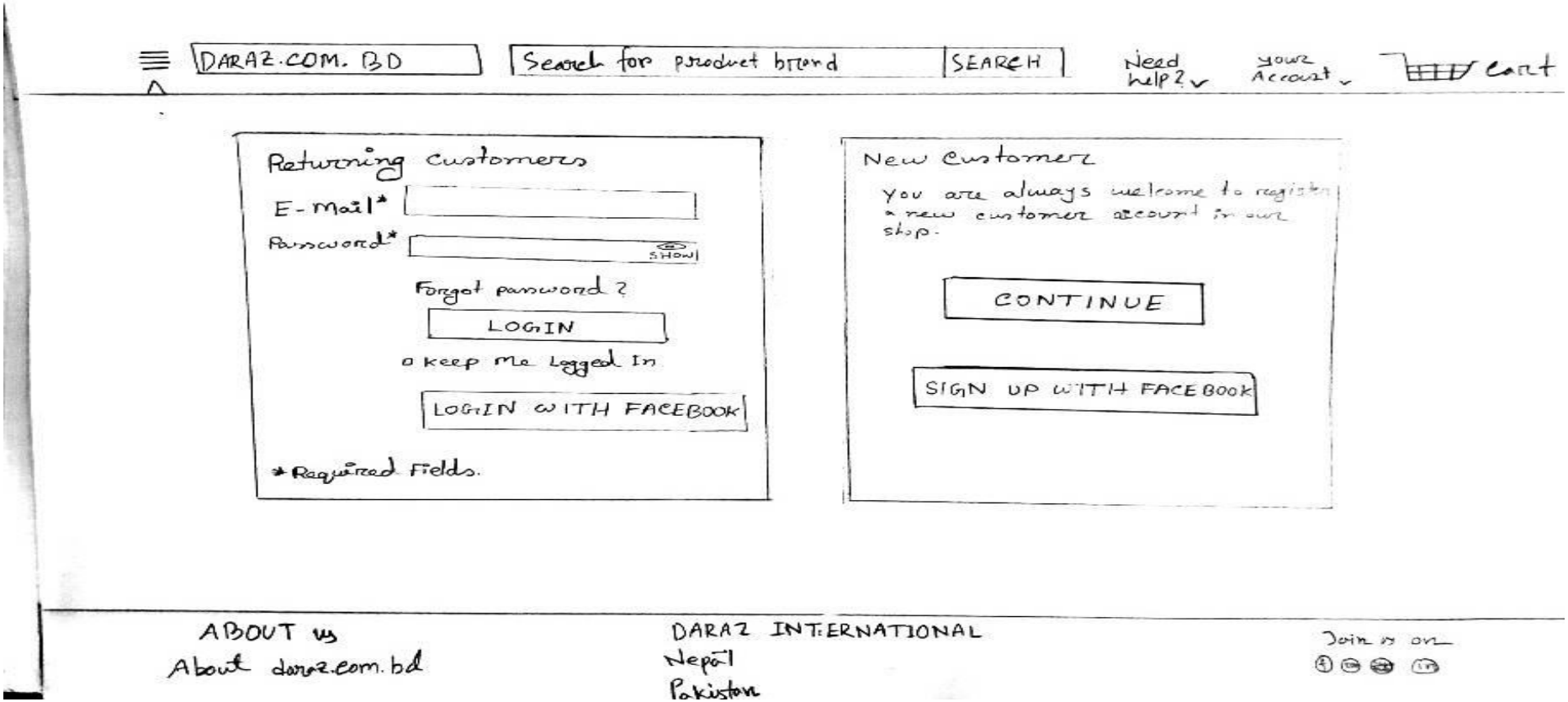
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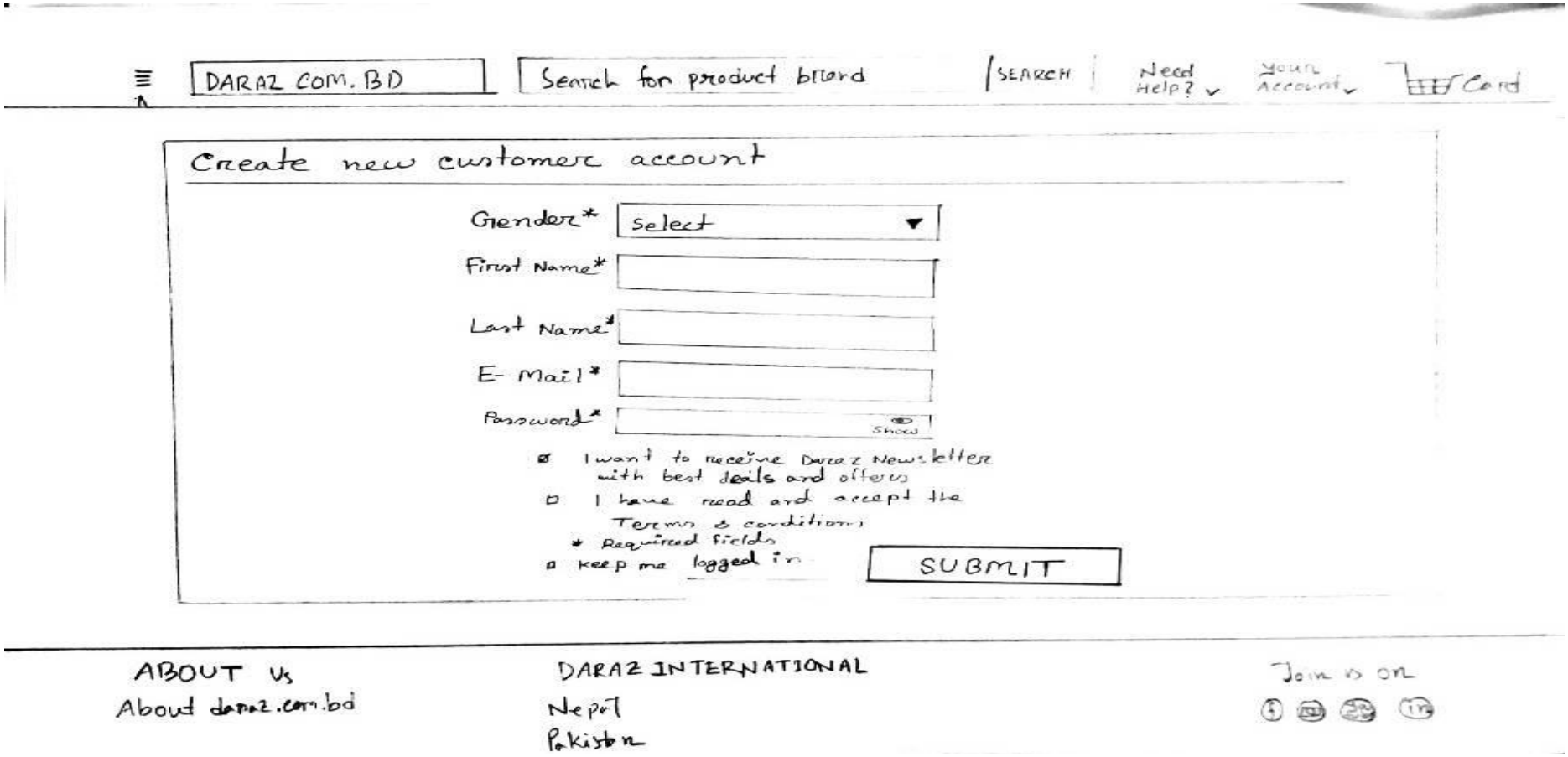
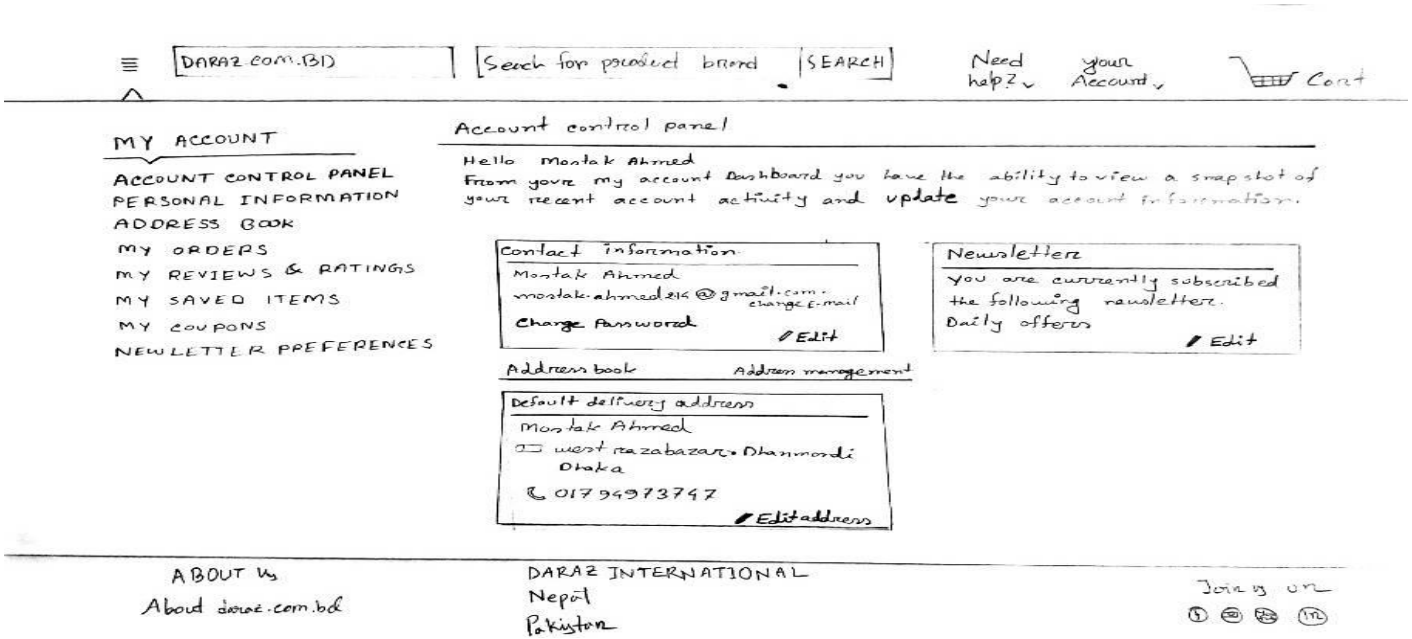


Control panel



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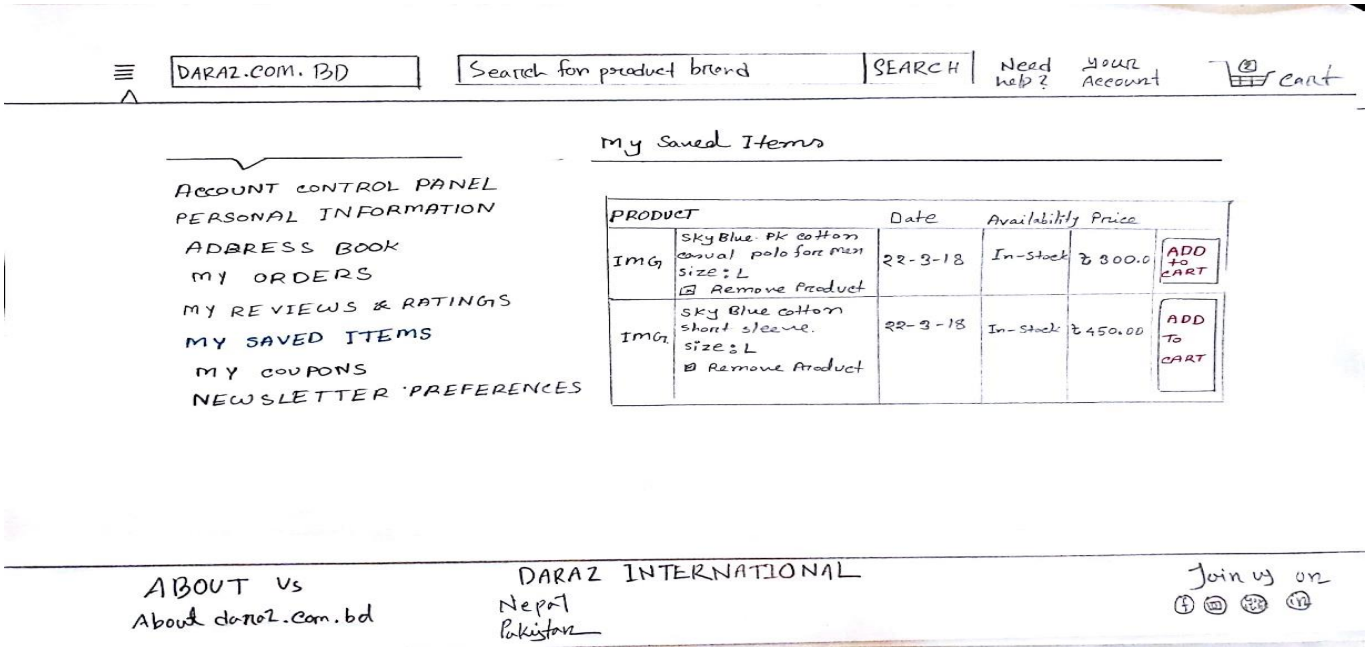
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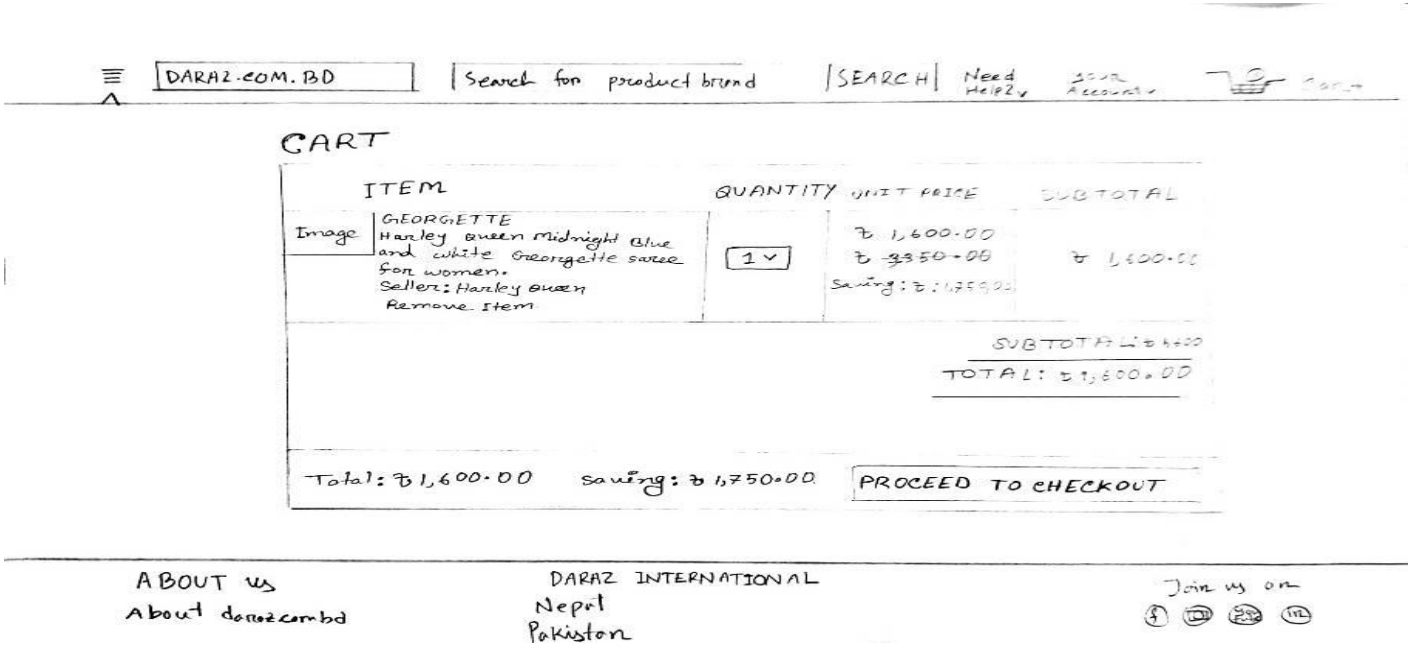
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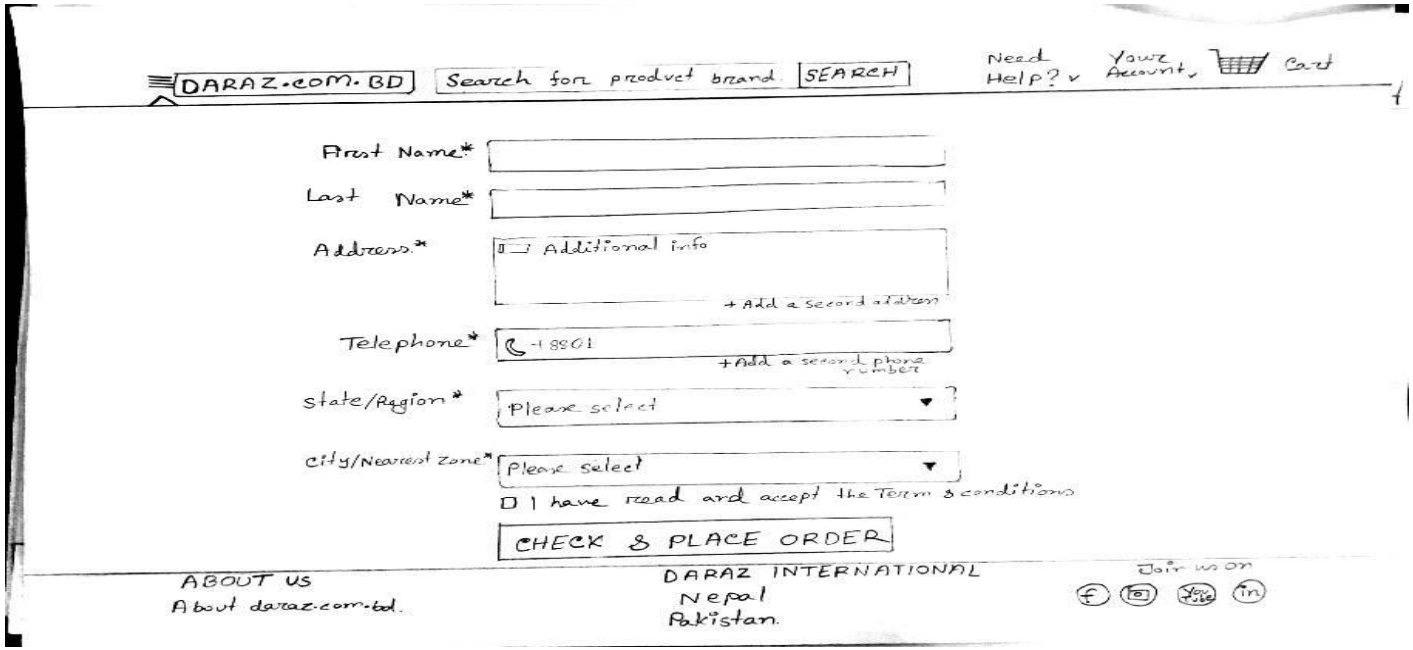
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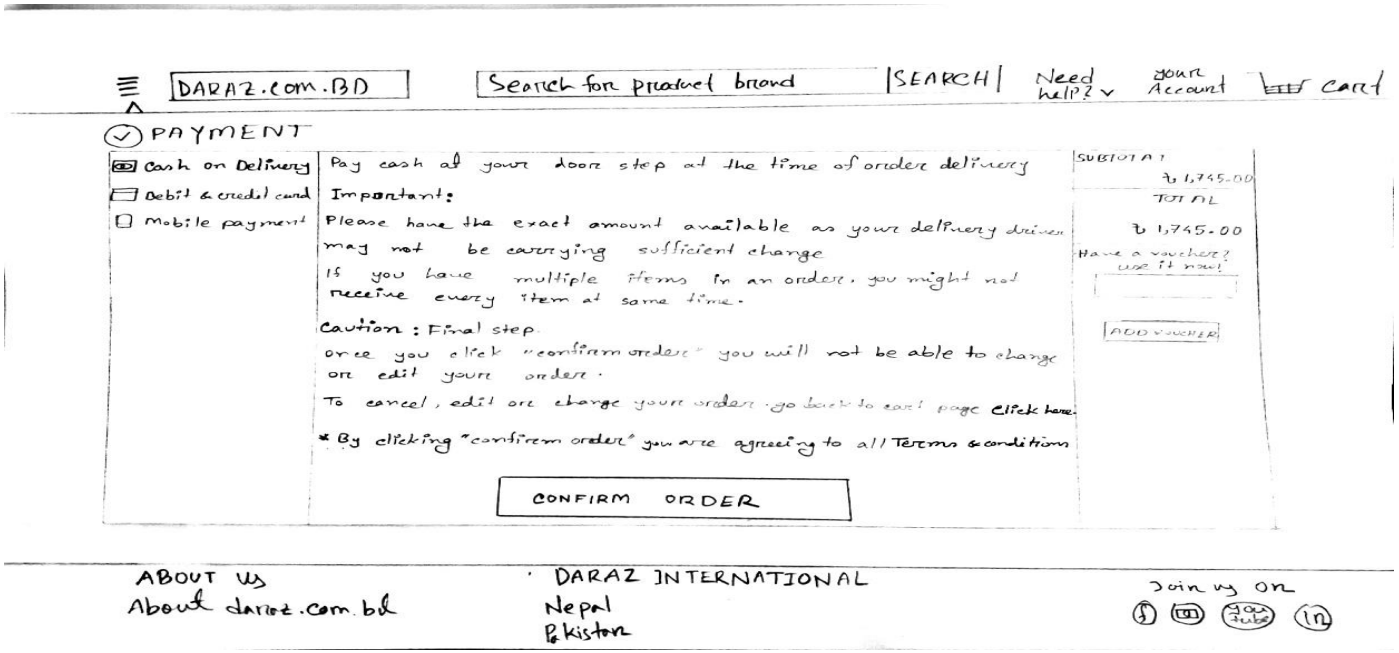

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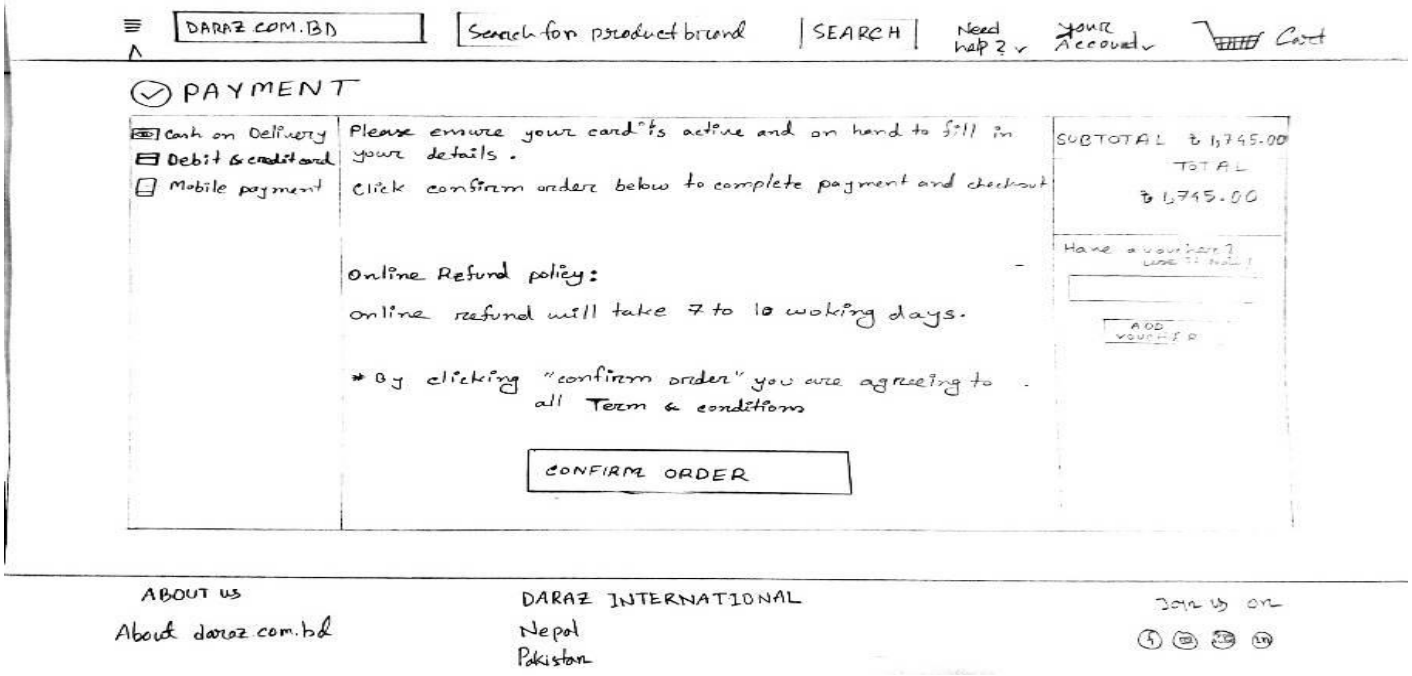

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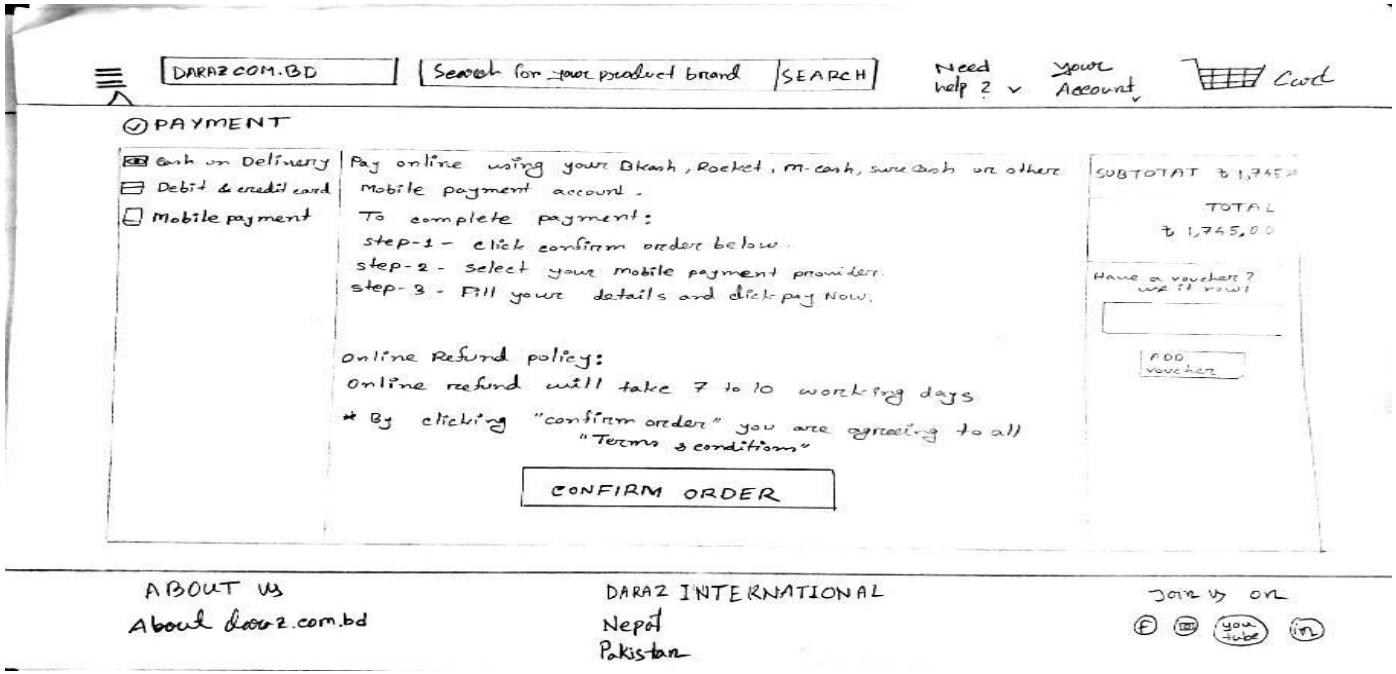

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