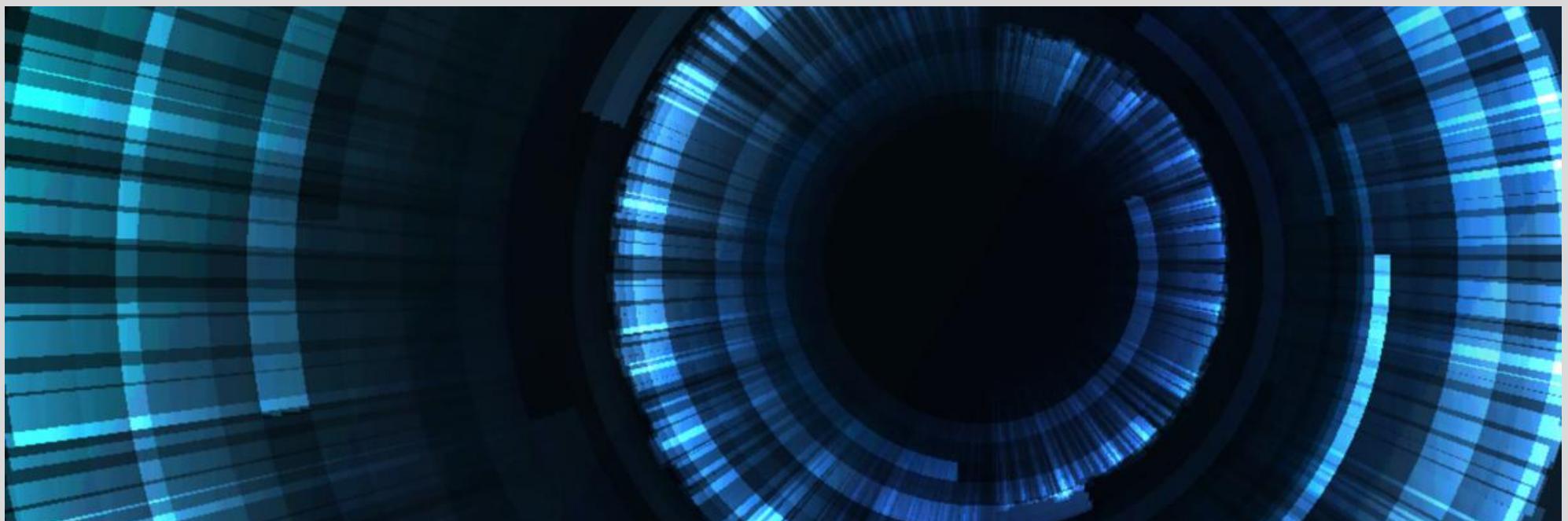


# Human Computer Interaction



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## Usability Inspection Methods

- Not usability testing
  - No natural user interaction with the system
- Teams evaluate based upon agreed characteristics
  - Informal assessment using guidelines
- Goal
  - To identify problems with a user interfaces quickly

## Two techniques

- **Pluralistic walkthrough**
  - meetings where users, developers, and UX people step through a scenario, discussing each element of the interaction
- **Heuristic evaluation**
  - most informal method and involves having UX person judge elements compliance with agreed usability principles (the "heuristics").

## Pluralistic walkthrough

- **Assessing potential usability issues without doing user testing**
  - In teams that may include users, developers, designers and others
- **Method**
  - Define a scenario
  - Walk through a task and note problematic areas of interaction
  - Work together to step through a task or scenario, discussing usability issues associated with elements involved at each step
  - Evaluators take on the role of a typical user
  - Note down issue and give severity ratings (low, medium, high)
- **Benefits**
  - Focus on users' tasks at a detailed level, i.e. looking at the steps taken
  - Good multidisciplinary team exercise to get different viewpoints, expertise and opinions
- **Limitations**
  - Requires a good facilitator
  - Difficult to schedule different stakeholder together

## Pluralistic walkthrough - roles

- **Facilitator**
  - Led and direct the conversation to stay on focus and controls the clicking through of each screen
- **Notetaker**
  - Write down the recommendations from the discussion
- **'Users'**
  - The team takes on the role of the user and walks through the scenario

## Pluralistic walkthrough - procedure

1. Create a scenario
2. Take the first step in the scenario walkthrough
3. Ask 'users' to write down what action they would take to accomplish the task
4. Share your answers
5. Agree recommendations from the discussion
6. Summary discussion

After you have completed the entire scenario discuss **strengths** and **weaknesses** of the interaction and what you would **improve** upon

## Heuristic evaluation

- Nielsen and Mohlich, 1990
  - <https://dl.acm.org/citation.cfm?id=97281>
- Agreed usability principles known as heuristics are used to evaluate interface elements
  - e.g. layout, dialog boxes, menus, navigation structure, etc
- Heuristics resemble high-level design principles
  - e.g. making designs consistent, reducing memory load, and using terms that users understand

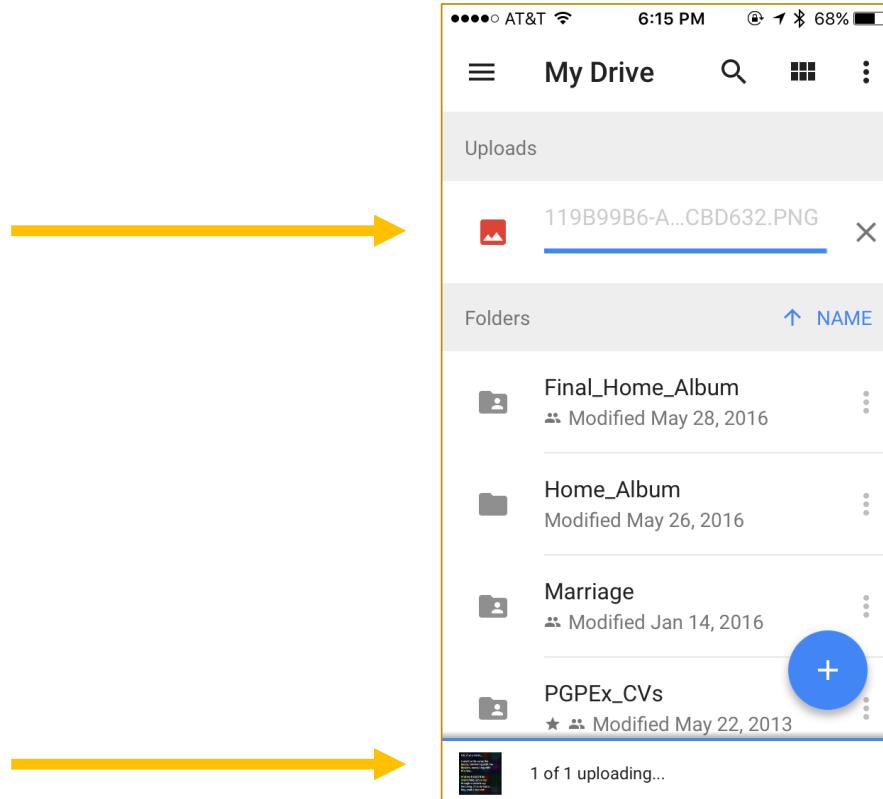
## 10 Heuristic guidelines

1. Validity of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

## 10 Heuristic guidelines

### 1. Validity of system status

- Are users kept informed about what is going on?
- Is appropriate feedback provided within reasonable time about a user's action?



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<https://blog.prototyp.io/10-usability-heuristics-with-examples-4a81ada920c>

## 10 Heuristic guidelines

### 2. Match between system and the real world

- Is the language at the interface simple?
- Are the words, phrases and concepts familiar to the user?

The screenshot shows a web browser displaying a landing page for Neil Patel. The page features a large portrait of Neil Patel on the left and text on the right. The text reads: "NEILPATEL" in orange, "The ADVANCED Customer Acquisition Webinar" in smaller orange text, and "How to generate 195,013 visitors a month without spending a dollar on ads" in large black text. Below this, there is a "FREE BONUS" link. At the bottom, there is an orange button with the text "YES, I WANT NEIL TO TEACH ME HOW TO GROW MY BUSINESS!". A yellow arrow points from the word "visitors" in the main text to the "YES" button, illustrating the heuristic principle of matching system language with real-world concepts.

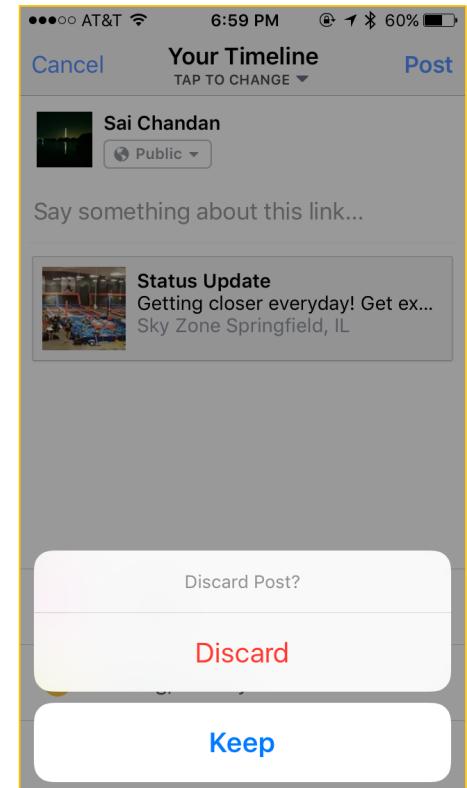
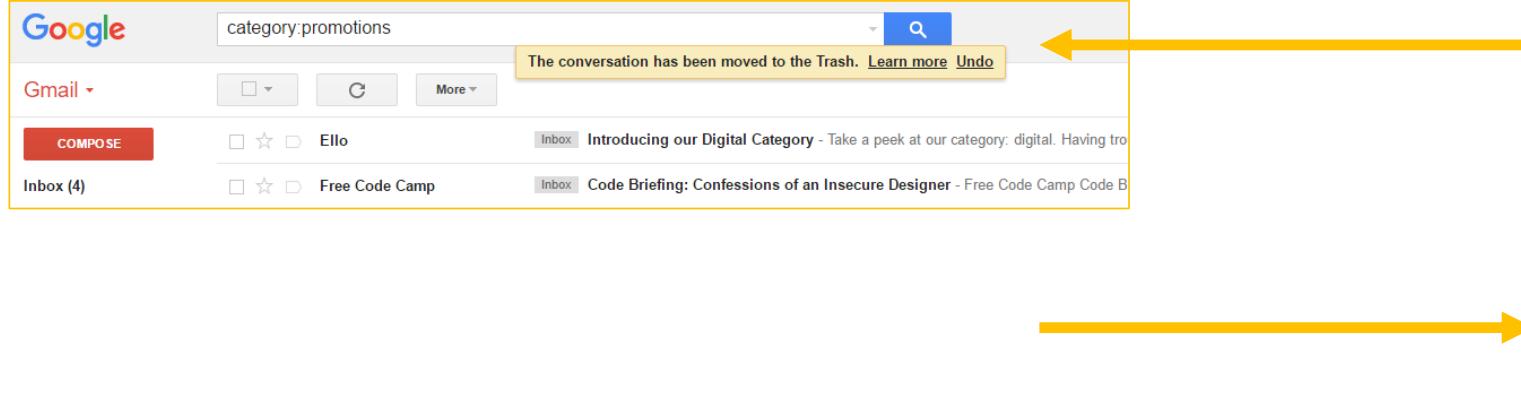
12

<https://blog.prototypr.io/10-usability-heuristics-with-examples-4a81ada920c>

## 10 Heuristic guidelines

### 3. User control and freedom

- Are there ways of allowing users to easily leave ‘places’ they unexpectedly find themselves in?



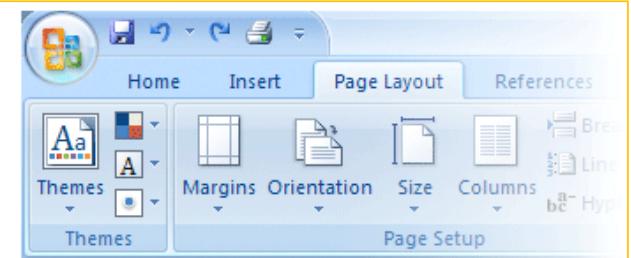
## 10 Heuristic guidelines

### 4. Consistency and standards

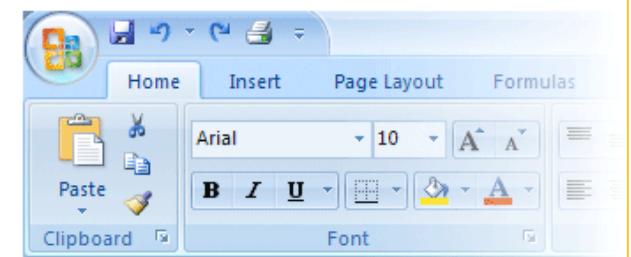
- Are the ways of performing similar actions consistent?



Microsoft Word



Microsoft Excel



Microsoft Powerpoint



## 10 Heuristic guidelines

### 5. Error prevention

- Where and why do errors occur?

The image consists of two side-by-side screenshots. The left screenshot shows a Google search interface. A yellow arrow points from the search bar area to the dropdown suggestions below it. The suggestions list includes 'olympic' (misspelled), 'olympics', 'olympics 2016', 'olympic trials', and 'olympics schedule'. Below the suggestions, a placeholder text 'Press Enter to search.' is visible. The right screenshot shows a user registration or account creation form. A yellow arrow points from the right edge of the first screenshot towards the password field in the second. The password field has a red underline and the text 'Password strength: Too short' above it, followed by a note: 'Use at least 8 characters. Don't use a password from another site, or something too obvious like your pet's name. [Why?](#)'. The rest of the form includes fields for 'Choose your username' (with a note about preferring current email addresses), 'Create a password', 'Confirm your password', and 'Birthday' (with dropdown menus for Month, Day, and Year).

## 10 Heuristic guidelines

### 6. Recognition rather than recall

- Are objects, actions and options always visible?

The screenshot shows a product recommendation section on an e-commerce platform. It is divided into two main sections: 'Inspired by your browsing history' and 'Inspired by your purchases'. Each section contains six product cards with images, names, descriptions, ratings, and prices.

**Inspired by your browsing history:**

- Ekta Active Sand (Set of 10) - ₹ 310.00
- Jiada Non Toxic Crystal Fruit Clay Slime | Colorful DIY Toy | Creative Rubber Soft... - ₹ 270.00 prime
- Yucky Science Galaxy Glitter Crunchy Slime Making Kit for Girls and Boys (Multicolour)... - ₹ 422.00 prime
- Yucky Science Slime Activator Liquid Plus 200 ml (Clear) - ₹ 254.00 prime
- ShopNGift DIY 5D Slime Gel Super-Light Modeling Air Dry 6 Colour Magic Clay Jelly for Kids... - ₹ 220.00 prime
- Anokhi Ada Set of Two Wide, Four Sleek and Four Super Sleek Black Hairbands for Girls and... - ₹ 320.00 prime

**Inspired by your purchases:**

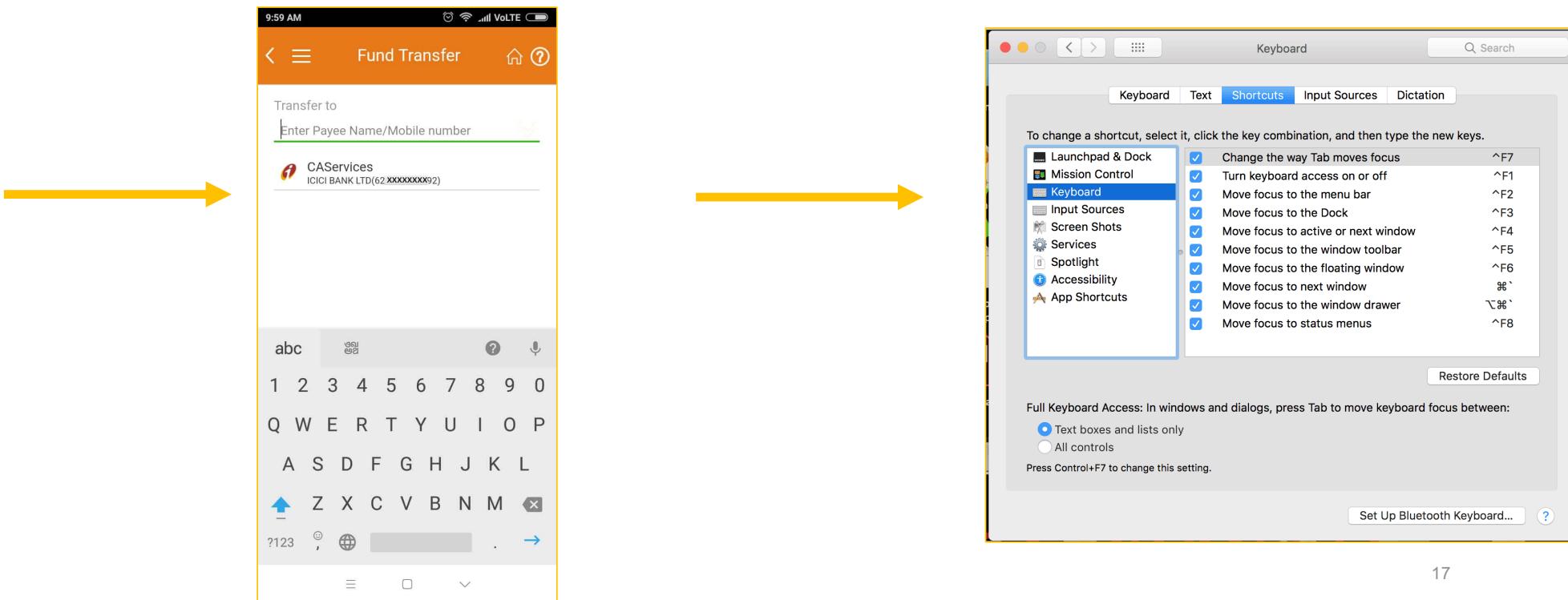
- SanDisk Ultra 32GB Class 10 Micro SDHC Memory Card with Adapter (SDSQUAR-032G-GN6MA) - ₹ 659.00 prime
- Glitteria Trendy Hair Butterfly Clips for Girls & Women, Set of 6 (AMP-SB-08-BF-PS6-BLACK) - ₹ 205.00 prime
- TECH SHOP Universal Adapter Worldwide Travel Adapter with Built in Dual USB Charger... - ₹ 549.00 prime
- SanDisk Ultra Dual 32GB USB 3.0 OTG Pen Drive, Pack of 2 - ₹ 1,530.00 prime
- SanDisk Ultra CZ48 16GB USB 3.0 Pen Drive (Black) - ₹ 399.00 prime
- Sony USM32BA2 OTG 32GB Pen Drive (Silver) - ₹ 749.00 prime

Yellow arrows point from the left margin to the 'Inspired by your browsing history' and 'Inspired by your purchases' sections.

## 10 Heuristic guidelines

### 7. Flexibility and efficiency of use

- Have accelerators (i.e. shortcuts) been provided that allow more experience users to carry out tasks more quickly?



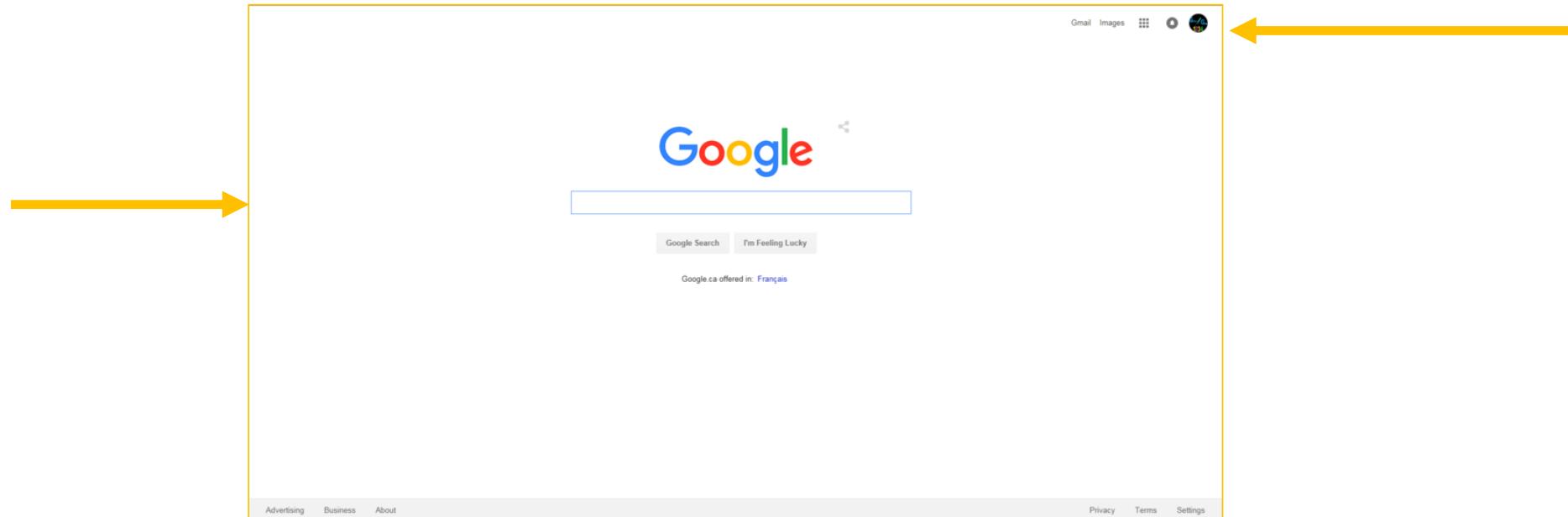
17

<https://uxgorilla.com/flexibility-and-efficiency-of-use/>

## 10 Heuristic guidelines

### 8. Aesthetic and minimalist design

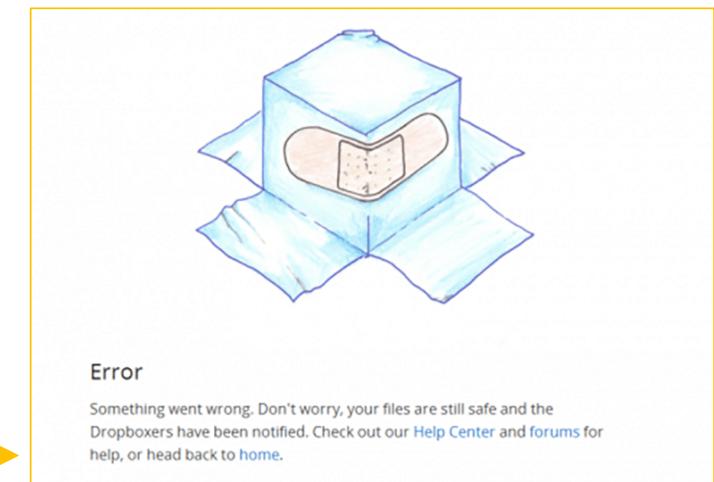
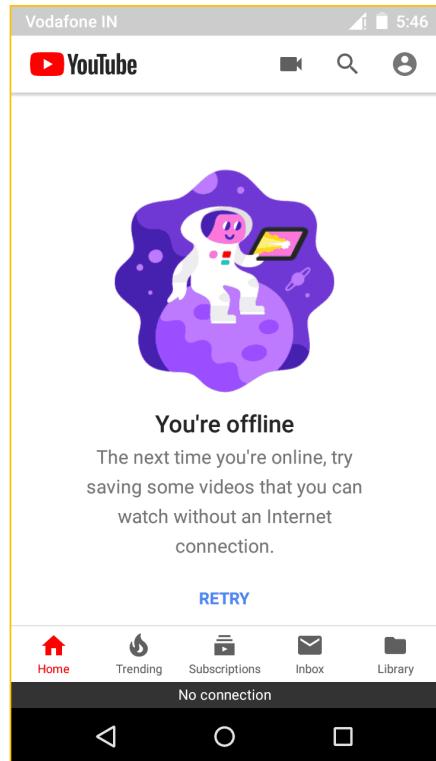
- Is any unnecessary and irrelevant information provided?



## 10 Heuristic guidelines

### 9. Help users recognize, diagnose, and recover from errors

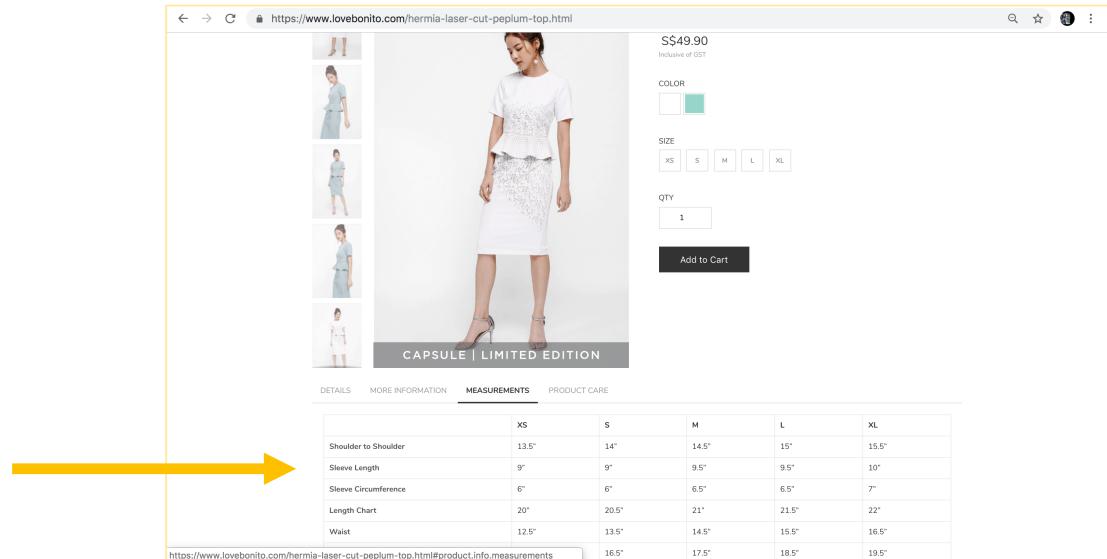
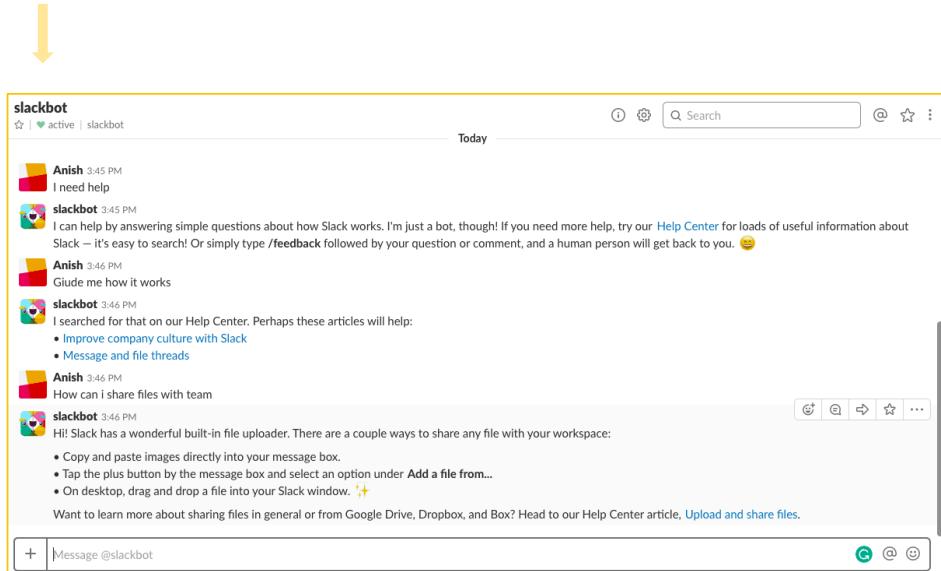
- Do user messages use plain language to describe the nature of a problem and suggest a way of solving it?



## 10 Heuristic guidelines

### 10. Help and documentation

- Is help information provided that can be easily searched and easily followed?



## 10 Heuristic guidelines

1. Validity of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
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9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

## Evaluation example

- **Flexibility and efficiency of use**
  - **issues:** Can't copy info from one window to another
  - **recommendation:** allow copying
- **Consistency and Standards**
  - **issues:** Typography uses different fonts in 3 dialog boxes could slows users down
  - **recommendation :** pick a single format for entire interface

## Severity ratings

**0** = I don't agree that this is a usability problem at all

**1** = Cosmetic problem only: need not be fixed unless extra time is available on project

**2** = Minor usability problem: fixing this should be given low priority

**3** = Major usability problem: important to fix, so should be given high priority

**4** = Usability catastrophe: imperative to fix this before product can be released

## Severity ratings example

- Consistency ( Severity = 3 )

The interface used the label “Save” on the first screen for saving the user’s settings

Then it used the label “Store” on the second screen

Users may be confused by this different terminology for the same function.

## 10 Heuristic guidelines

### 1. Validity of system status

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- Is appropriate feedback provided within reasonable time about a user's action?

### 2. Match between system and the real world

- Is the language at the interface simple?
- Are the words, phrases and concepts familiar to the user?

### 3. User control and freedom

- Are there ways of allowing users to easily leave 'places' they unexpectedly find themselves in?

### 4. Consistency and standards

- Are the ways of performing similar actions uniform?

### 5. Error prevention

- Where and why do errors occur?

## 10 Heuristic guidelines

### 6. Recognition rather than recall

- Are objects, actions and options always visible?

### 7. Flexibility and efficiency of use

- Have accelerators (i.e. shortcuts) been provided that allow more experienced users to carry out tasks more quickly?

### 8. Aesthetic and minimalist design

- Is any unnecessary and irrelevant information provided?

### 9. Help users recognize, diagnose, and recover from errors

- Are user messages helpful?
- Do they use plain language to describe the nature of the problem and suggest a way of solving it?

### 10. Help and documentation

- Is help information provided that can be easily searched and easily followed?

## Assignment 4 – Discouraging design through the usability and user experience lens Analysing design using the five design principles

Upload a PDF file with a PHOTO and DESCRIPTION of something you use that you think is **poorly designed**.

It can be any object, hardware, software, or anything else.

Tell us the name of the object and explain why you think it has a poor design –

- 1 ) Describe the *problems* with the **usability and/or user experience**
- 2 ) Discuss *issues* using the **five design principles**

Why do you think these are problems?

**How do you think you could design a way to improve the item?**

Be sure to include your name and Roll number at the top of the file.

## In-Class exercise

### Pluralistic walkthrough:

Scenario:

Select 4 plane tickets from **Delhi to Pune** for **a family of 4**  
**2 adults** (1 student) **and 2 children** (ages 3 and infant)

**Departing Delhi** in the **afternoon** – March 7

**Departing Pune** in the **evening** – March 14

**BEGIN at the homepage:**

<http://www.airindia.in>

TAKE SCREENSHOTS OF EACH INTERFACE YOU EVALUATE

Note down issue and give severity ratings (low, medium, high)

Welcome to Air India

www.airindia.in

90%

Skip to Content ~Screen Reader Access A A A TOLL NUMBER For calls when in India : 1860 233 1407 / 0124-2641407 / 020-26231407 - हिंदी - EN

A STAR ALLIANCE MEMBER

Login | Enroll

Home Manage Your Trip Special Offers Travel Information Flying Returns Baggage Contact GST

DELHI → SEOUL Non-Stop

HOTEL

KNOW MORE

1 Book Flight Bid & Upgrade Select Seat Check-in Flight Status

Vigilance Awareness week

The screenshot shows the homepage of the Air India website. At the top, there's a banner for a non-stop flight from Delhi to Seoul. Below the banner, there are several navigation links: Home, Manage Your Trip (which is highlighted in orange), Special Offers, Travel Information, Flying Returns, Baggage, Contact, and GST. At the bottom, there are links for booking a flight, bid & upgrade, selecting a seat, check-in, and flight status. A blue circle with the number '1' is placed over the 'Book Flight' button, which is circled in blue. There's also a small illustration of a person in traditional Korean clothing next to the 'KNOW MORE' button. The footer features a 'Vigilance Awareness week' message.

# Human Computer Interaction



NEXT WEEK

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Next week – 17th & 19th January

## GROUP PRESENTATIONS

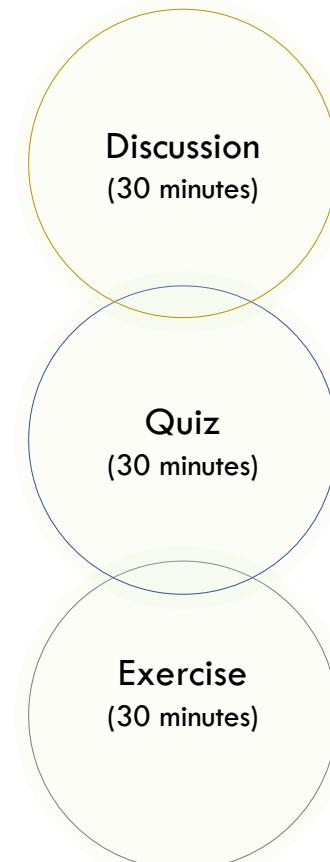
**Monday 17th January**

TEAMS - 4, 17, 28

**Thursday 19th January**

TEAMS - 13, 35, 48

10 min presentations on any topic covered so far from the lectures, book or from the reading material provided.



> 10 minutes each team >

> Quiz 1 >

> Group Exercise >

## FINAL PROJECT THEMES

Identity a **problem** / Identify a **need** / Identify an **opportunity**.

It can be a **product**, a **service**, a **system**, etc.

Brainstorm & think of as **many possible topics** for the final project.

Collectively decide **one common area to work** for the final project.

**Ensure** and establish that the requirement is **real** and **relevant**.

Social issues

Criminal issues

Economic issues

Cultural issues

Interpersonal relationships

Gender issues

Political issues

Health issues - Physical / Mental

Children & Geriatric issues

Hunger / Poverty / Homeless issues

Environment issues

Educational issues

Technological issues

**One week to finalise the project topic**