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## Assignment # 1

### Q1 – Brief Answers

#### i) Two situations where a mouse is preferred over a joystick

1. **Precise Pointer Selection** – Tasks like selecting icons, clicking small buttons, or navigating menus require **accuracy**, which a mouse provides much better than a joystick.
2. **General Desktop Use** – Activities such as web browsing, document editing, dragging–dropping files need **fine control**, which is difficult with a joystick.

#### ii) Significance of “7 + or - 2” in Human-Computer Interaction

The theory says **humans can keep only 5–9 items in working memory**.  
In HCI, this means:

- ❖ Menus should not have too many options.
- ❖ Forms should not require remembering long steps.
- ❖ Interfaces should reduce cognitive load.

#### iii) Importance of “Context” in identifying needs & requirements

Context refers to **environment, user situation, culture, devices, and tasks**.  
It is important because:

- ❖ User needs vary by real-life environment.
- ❖ Designers avoid wrong assumptions by observing context.
- ❖ Requirements become **accurate, realistic, and user-centered**.

### Q2 – Difference between Prototypes, Wireframes, and Sketch + Scenario

#### 1) Sketch

- ❖ Hand-drawn, quick, rough ideas.
- ❖ Represents early thinking.
- ❖ No details, no structure.  
**Used at:** Very early stage (idea generation / brainstorming).

#### 2) Wireframe

- ❖ Clean, grey-scale layout.
- ❖ Shows structure: navigation, buttons, elements.

- ❖ No colors or real images.  
**Used at:** Low-fidelity design phase before UI.

### 3) Prototype

- ❖ Clickable, interactive model.
- ❖ Shows real user flow and behavior.
- ❖ Used for user testing.  
**Used at:** Testing stage before development.

#### Scenario: Designing a Food Delivery App

Stage	What you use	Example
1.	<b>Sketch</b>	Draw rough boxes for home screen, menu, cart.
2.	<b>Wireframe</b>	Build clean layout showing where search bar, icons, and list items go.
3.	<b>Prototype</b>	Make a clickable app simulation where user can select items, add to cart, checkout.

### Q3 – Why a designer’s model differs from the end-user’s model

A **designer’s model** is based on:

- ❖ Technical knowledge
- ❖ System structure
- ❖ Internal logic
- ❖ How the system should work

A **user’s model** is based on:

- ❖ Past experiences
- ❖ Expectations
- ❖ Simplicity
- ❖ What they think will happen

**Why they differ:**

- ❖ Users don’t know internal system logic.
- ❖ Designers think in terms of data flow; users think in terms of tasks.
- ❖ Designers assume users understand design intentions.
- ❖ Users rely on habits learned from other apps.

**Example:**

Designer thinks "Add to Cart" → “stored in database table”.  
User thinks “My item is saved and visible in cart”.

This mismatch leads to usability problems.

## Q4 – Apply Nielsen’s 10 Heuristics on Amazon App + Suggested Fixes

	<b>Issue</b>	<b>Fix</b>
<b>Visibility of System Status</b>	Loading indicators on Amazon sometimes appear late, causing confusion.	Add real-time progress bars and skeleton loading screens.
<b>Match Between System &amp; Real World</b>	Technical terms like “Subscribe & Save” may confuse new users.	Use human language: “Save 10% on monthly repeat orders”.
<b>User Control &amp; Freedom</b>	Accidentally adding items to cart requires multiple steps to remove.	Add <b>Undo Add-to-Cart</b> popup lasting 3–5 seconds.
<b>Consistency &amp; Standards</b>	Some icons (e.g., three-dot menu) behave differently across screens.	Make all menus follow consistent Android/iOS UI standards.
<b>Error Prevention</b>	Users accidentally buy items due to <b>Buy Now</b> being near <b>Add to Cart</b> .	Add spacing + confirmation message for one-tap purchases.
<b>Recognition rather than Recall</b>	Order filters require remembering past search parameters.	Provide <b>preset filters</b> like “Last 30 days”, “Delivered”, “Cancelled”.
<b>Flexibility &amp; Efficiency</b>	Power users cannot checkout quickly.	Provide <b>Quick Checkout</b> option for common addresses.
<b>Aesthetic &amp; Minimalist Design</b>	Too many promotional banners clutter home screen.	Show only 2–3 personalized banners with “See More” link.
<b>Help Users Recognize, Diagnose &amp; Recover Errors</b>	Payment failure messages do not explain the real reason.	Show clear messages like: “Your card expired. Update card to complete payment.”
<b>Help &amp; Documentation</b>	Help section is hidden deep in menu.	Add <b>Help</b> icon on top navigation bar.