UNIT-3 HCI Assignment

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1. Evaluation of Online Banking Website Using Norman's Seven Principles

Chosen Interface: Generic Online Banking Website

Norman's Seven Principles:
1. Use both knowledge in the world and in the head
- Assessment: Tooltips and help icons provided (knowledge in the world), but assumes familiarity with terms like "ACH transfer" (knowledge in the head). Novices may struggle.
- Rating: Partially adhered.
- Suggestion: Explain banking terms clearly.

2. Simplify the structure of tasks
- Assessment: Transferring money is broken into steps, but excessive forms or CAPTCHAs complicate tasks.
- Rating: Moderately adhered.
- Suggestion: Streamline forms to reduce cognitive load.

3. Make things visible
- Assessment: Key actions like "Transfer Funds" are prominent, but error messages or progress indicators may be unclear.
- Rating: Mostly adhered.
- Suggestion: Improve visibility of feedback.

4. Get the mappings right

- Assessment: Button labels like "Confirm" align with actions, but some icons (e.g., arrow for "submit") lack clarity.
- Rating: Mostly adhered.
- Suggestion: Add text labels to icons.

5. Exploit the power of constraints
- Assessment: Numeric input fields and two-factor authentication guide users, but invalid inputs (e.g., negative amounts) may be allowed.
- Rating: Partially adhered.
- Suggestion: Add real-time input validation.

6. Design for error
- Assessment: Limited undo options; error messages are often technical (e.g., "Error 403").
- Rating: Poorly adhered.
- Suggestion: Provide clear error messages and recovery paths.

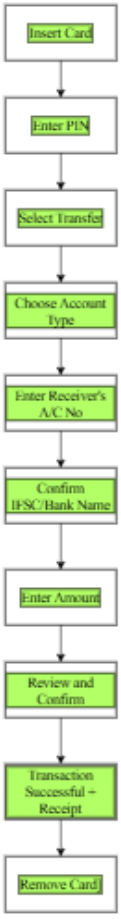
7. Standardize when all else fails
- Assessment: Follows web conventions (e.g., house icon for "home"), but terms like "beneficiary" may confuse users.
- Rating: Mostly adhered.
- Suggestion: Use consistent, plain language.

Summary: The interface excels in visibility, mappings, and standardization but needs better error handling, task simplification, and knowledge balance.

2. User's Mental Model: ATM Money Transfer User Mental Model (example steps):

Mental Model Description:
- Step 1: Insert card, enter PIN, see main menu.
- Step 2: Select "Transfer" from main menu.
- Step 3: Choose "From" and "To" accounts, enter amount.

- Step 4: Confirm details, expect success/failure message.
- Step 5: Retrieve receipt and card..



The user believes this flow will successfully transfer money.

3. Heuristic Evaluation: Amazon Mobile App

Heuristic	(i) Adhered? ✓	(ii) Not Adhered? ✗	Suggestions
1. **Visibility of System Status**	✓Loading spinners & order status updates	-	-
2. **Match Between System & Real World**	✓Uses real-world metaphors like "cart"	-	-
3. **User Control & Freedom**	✓Easy to cancel orders or remove items	-	-
4. **Consistency & Standards**	✓Consistent icons and layout	-	-
5. **Error Prevention**	✗Accidentally buying due to 1-click	Suggest a confirmation popup	
6. **Recognition Rather Than Recall**	✓Previously searched items are shown	-	-
7. **Flexibility & Efficiency**	✓Voice search, filters, and sorting	-	-

8. **Aesthetic & Minimalist Design**	✕Some pages are cluttered with ads	Reduce banner clutter for better focus	
9. **Help Users Recognize, Diagnose Errors**	✕Error messages (e.g., payment failure) are vague	Show specific error details (e.g., "Card expired")	
10. **Help & Documentation**	✓Has FAQs and support chat	-	-

UNIT 4

1. Case Study: Task Analysis for a Web-Based Ticket Booking System for a Cultural Festival ('Gangotri')

Objective:
To analyze the tasks a user performs while booking tickets for the 'Gangotri' cultural festival through a web-based system.

Primary User Goal:
To book one or more tickets for events at the festival.

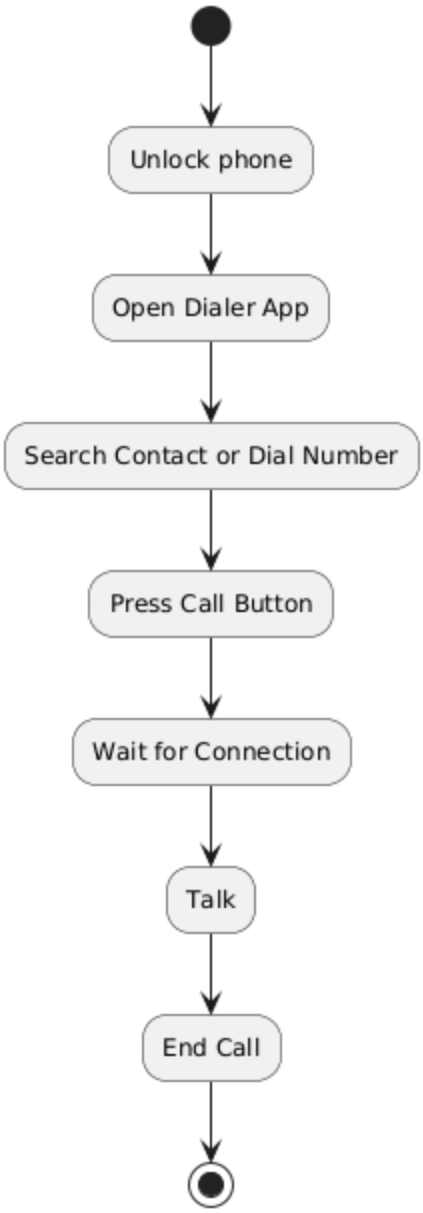
Key User Tasks:
- Access the ticket booking website
- Browse the list of events
- Select an event and time slot
- Choose number and category of tickets
- Register or log in
- Provide attendee details
- Make payment
- Receive ticket confirmation (via email or download)

Hierarchical Task Analysis (HTA) Overview:

0. Book ticket for Gangotri festival
   1. Open the booking website
   2. Browse events
   3. Select desired event
   4. Choose ticket category and number
   5. Log in or register
   6. Enter attendee details
   7. Make payment
   8. Get ticket confirmation

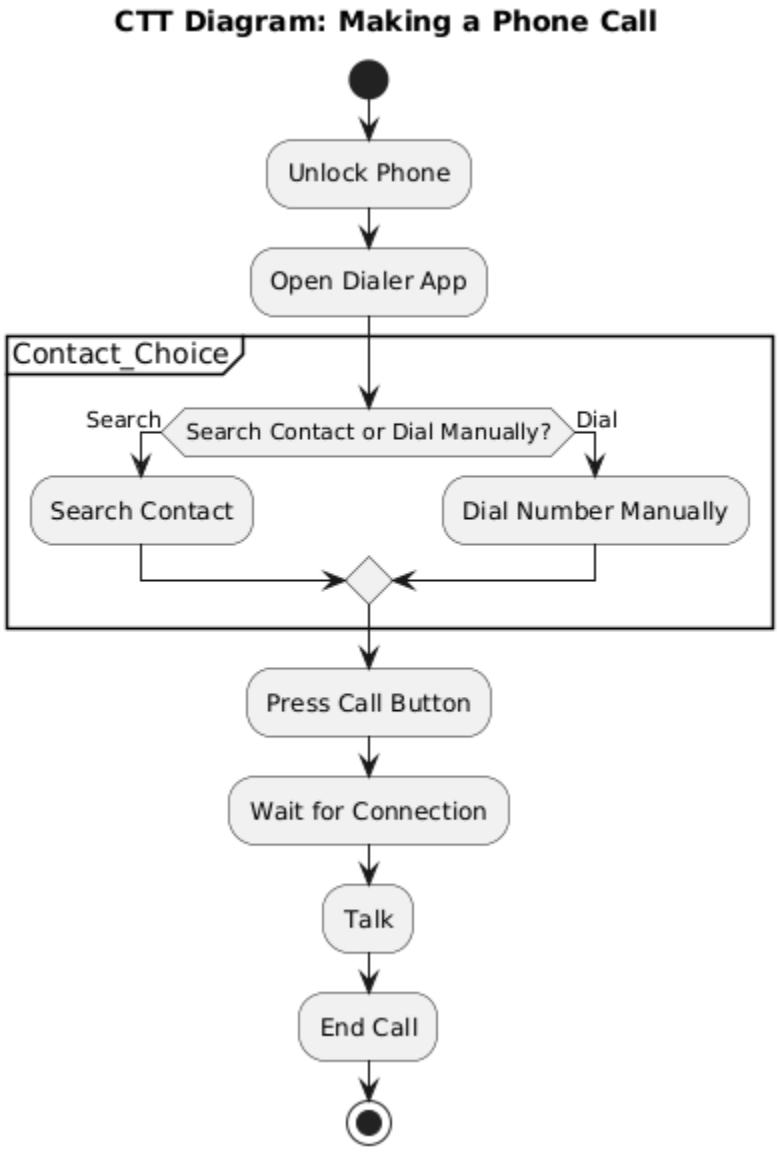
5. Log in or register
   5.1 Click 'Login/Register'
   5.2 Enter username and password (or register details)
   5.3 Submit and wait for authentication

2. HTA Diagram for Making a Phone Call



3. CTT for Making a Phone Call

ConcurTaskTree (CTT) Representation:



4. Use of Formalism in Dialog Design

What is Formalism in Dialog Design?
Formalism involves using formal methods (mathematical/logical models) to

design, analyze, and verify interactive dialogues between users and systems.

Benefits of Using Formalism:
- Precision: Clearly defines system behavior, reducing ambiguity.
- Validation: Ensures the dialog matches user needs and system goals.
- Verification: Helps detect errors (like unreachable states or dead-ends).
- Reusability: Formal models can be reused across systems.

Common Formal Methods in Dialog Design:
- Finite State Machines (FSMs): Represent states and transitions based on user/system actions.
- ConcurTaskTrees (CTT): Model hierarchical and concurrent tasks.
- Petri Nets: Represent concurrent events and transitions.
- Statecharts: Extended FSMs that allow hierarchy, concurrency, and more.

Example in Dialog Design:
In a ticket booking dialog:
- Formalism ensures that after "Select Event", the system must wait for a "Ticket Type" input before moving to "Payment".
- Helps identify invalid paths (e.g., skipping payment but receiving confirmation).