Lecture – 3:
HAX guidelines (applied)

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So far…

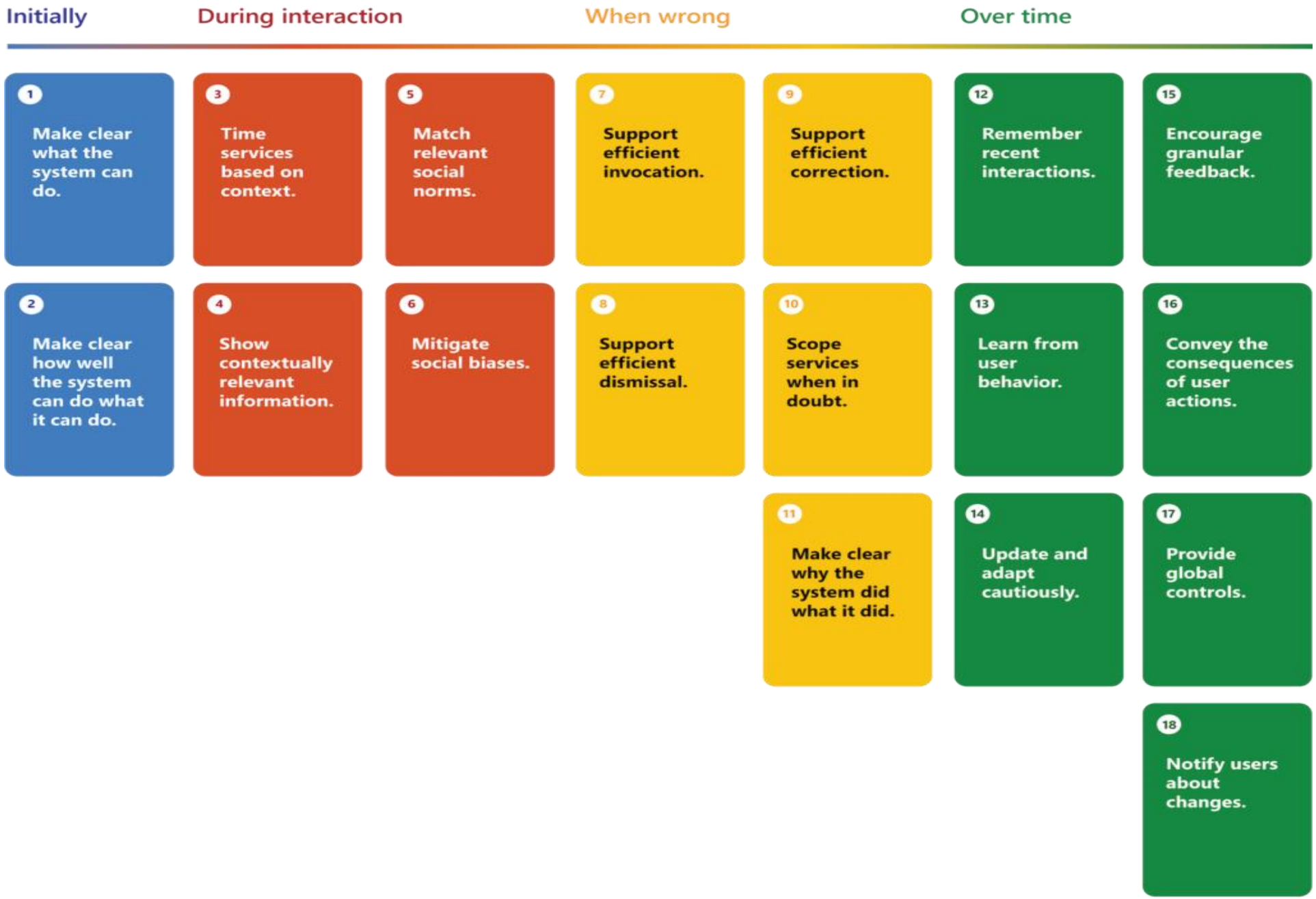
- Why human-centred AI?
- Identifying opportunities for AI
  - Repetitive, uncertain
  - 10 common cases: estimate, forecast, generate, ….
- Initiative and autonomy
  - Human vs. AI vs. Both
- HAX guidelines
  - At the start, During interactions, During errors, Long-term use
  - 18 in number, proposed by Microsoft, obtained from practice

Clarifications

- Not all guidelines apply in all contexts
- Some guidelines contradict with others
- Discretion needed → priority, balancing
- Example: Self-driving car vs. course recommendation
  - A driver doesn’t explain why/how they drive
    - Overwhelming if it explains every acceleration, deceleration, stop at a signal, etc.
  - If a question is asked about a route or building, it must be able to explain
  - Explain surprises, uncommon actions, etc.

Evaluating interfaces with guidelines

- Work in pairs
- Pick one of the following AI experiences:
  - Formula auto-fill in Google Sheets
  - Google Maps traffic and navigation
  - Google flights
  - IRCTC train confirmation chances
- Evaluate the AI experience against all guidelines
  - Go one guideline at a time
  - Identify if the guideline is relevant and why?
  - If so, how well does it implement the guideline?
  - If not, what can be done?


Initially
During interaction
When wrong
Over time
1
Make clear what the system can do.
2
Make clear how well the system can do what it can do.
3
Time services based on context.
4
Show contextually relevant information.
5
Match relevant social norms.
6
Mitigate social biases.
7
Support efficient invocation.
8
Support efficient dismissal.
9
Support efficient correction.
10
Scope services when in doubt.
11
Make clear why the system did what it did.
12
Remember recent interactions.
13
Learn from user behavior.
14
Update and adapt cautiously.
15
Encourage granular feedback.
16
Convey the consequences of user actions.
17
Provide global controls.
18
Notify users about changes.

How did it go?

- Comments / questions?
- Anything ambiguous / tricky?
- Fact:
  - Designing experiences from scratch for a new interface is harder than evaluating an existing interface.
- How do we do it then?
  - Look for inspiration elsewhere
  - Follow conventions from familiar/common tools
  - Use design patterns (also available with the HAX toolkit)
  - https://www.microsoft.com/en-us/haxtoolkit/design-patterns/

Homework-1 : Design Human-AI Interactions

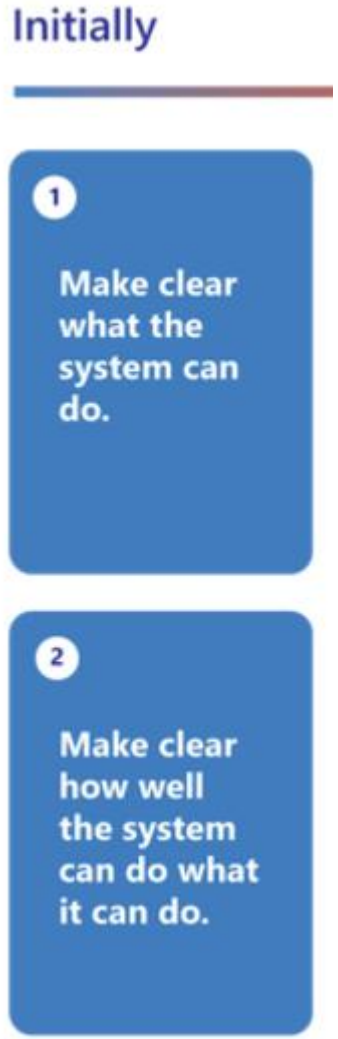
- Course-work recommendation on Pingala
- Due 15th August, 2359 (one week from now)
  - To be released today
  - Via HelloIITK

Why the guidelines work?

- Guidelines are, well, guidelines → applied in practice
- But what lies behind them?
- In general, principles of usability are rooted in how humans work!
- Here too!

Mental models

- People's internal understanding of how a system works
- Often simplified, but very useful
- Infer how a system works, what it can do, how to recover from errors, make decisions, etc.
- These guidelines, along with explanations, help users form appropriate mental models of the system
  - Simplistic, because AI systems are often complex
  - Even probabilistic reasoning is hard to explain
  - Good mental models → appropriate use/trust



Example: AI predicts cancer in doctor office

- What do you think AI does?
- What do you think doctor thinks what AI does?
- What do you think patient thinks what AI & doctor do?

Mental models

- Problematic when System model ≠ User model ≠ Designer model
- Good HAX helps users form accurate models
- Helps users when to use the system / not to use it
- Helps users also decide how to use the system
  - Abandon vs. redo prompts
- Helps users decide when to believe AI / not

Next class

- Further into principles underlying HAX guidelines
- Gulfs of execution & evaluation
- Methods on designing AI interfaces

- Read: Google PAIR workbook, chapter-2 on mental models