L4 – Human-Computer Interface Development Life Cycle

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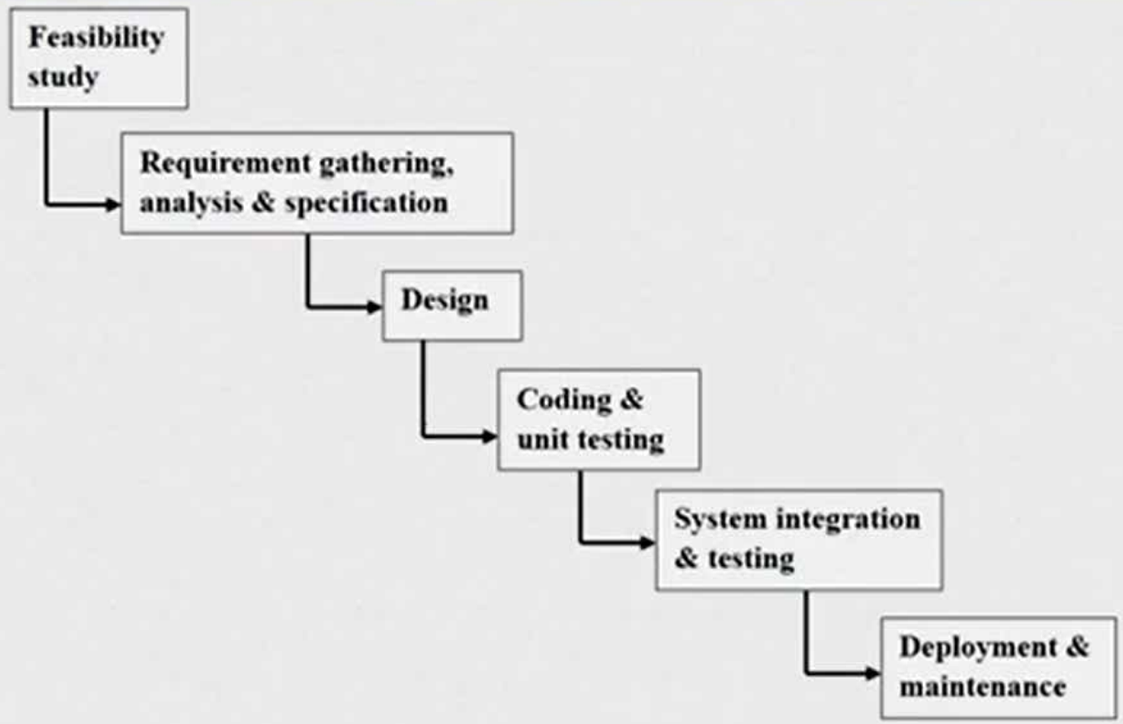
Recap

- What we learned so far
  - General introduction to the field
  - Software engineering life cycles

This lecture – interactive software development life cycle

Waterfall Model (Recap)

- Seven stages



Waterfall Model and UCD

- Interactive systems should be designed for the “laymen users” – they should find it “easy to use”

Waterfall Model and UCD

- The classical waterfall model does not explicitly takes into account this concern
- More focus on efficient “system” design

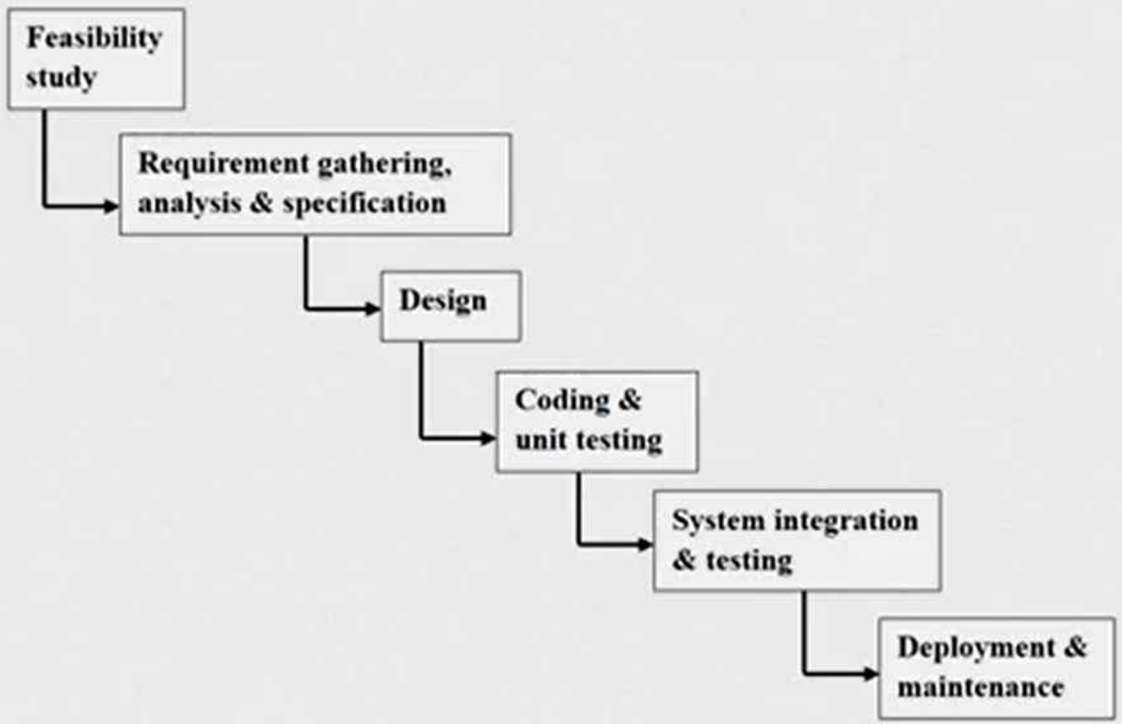
UCD & Iterative Life Cycle

- In order to implement UCD, we require highly iterative life cycle
  - Iteration between stages to account for user feedback

UCD & Iterative Life Cycle

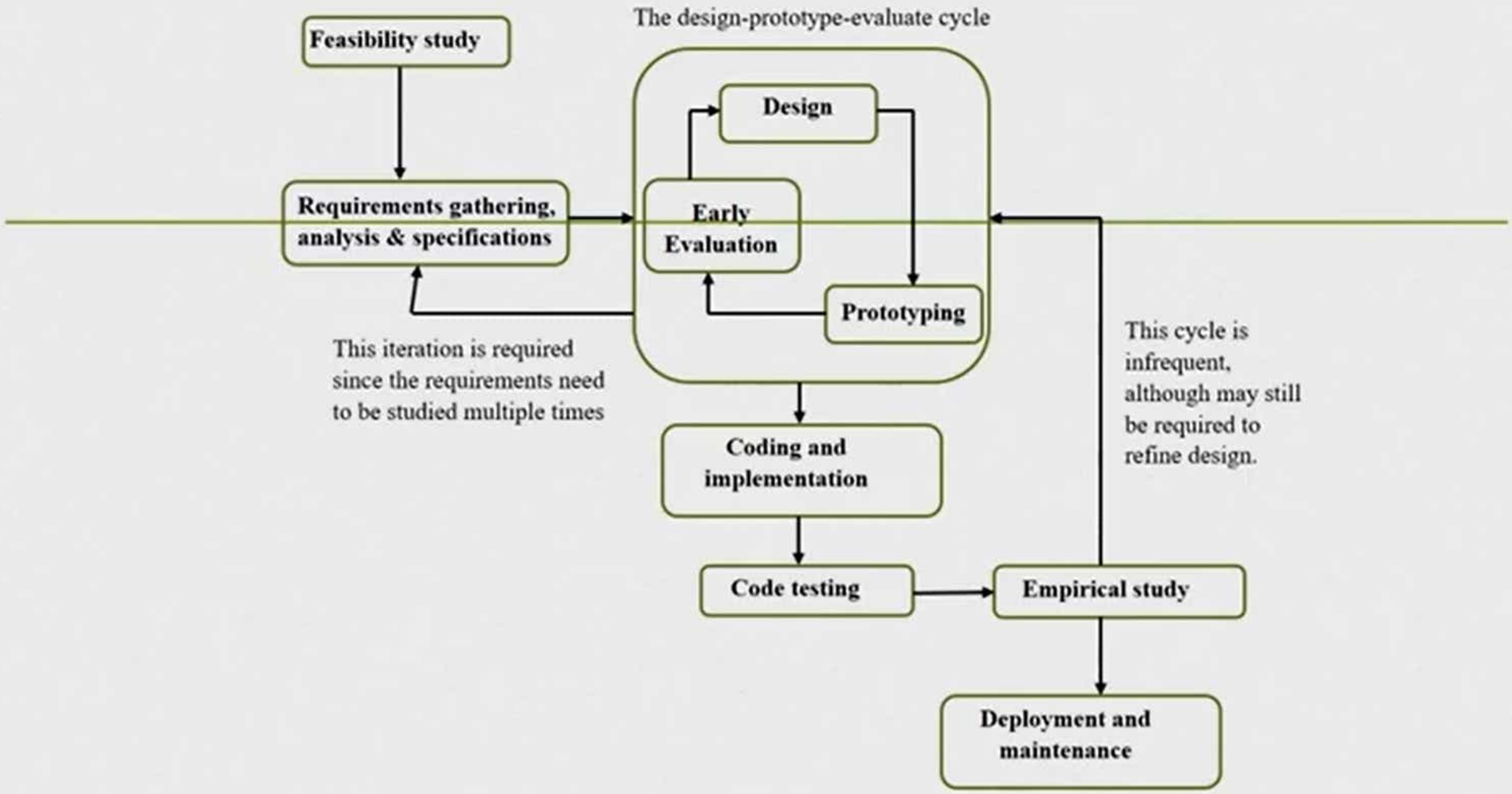
- Waterfall model not suitable

Iteration (too many)



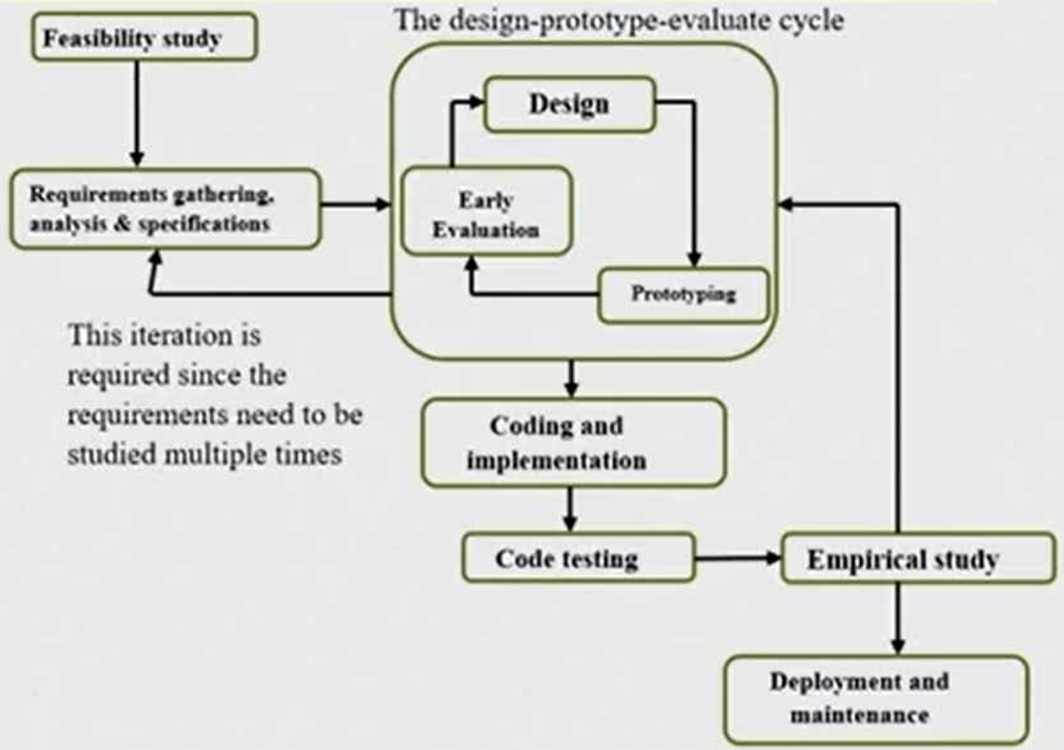
UCD & Iterative Life Cycle

- A refined life cycle model is required


The design-prototype-evaluate cycle
Feasibility study
Requirements gathering, analysis & specifications
Design
Early Evaluation
Prototyping
This iteration is required since the requirements need to be studied multiple times
Coding and implementation
Code testing
Empirical study
This cycle is infrequent, although may still be required to refine design.
Deployment and maintenance

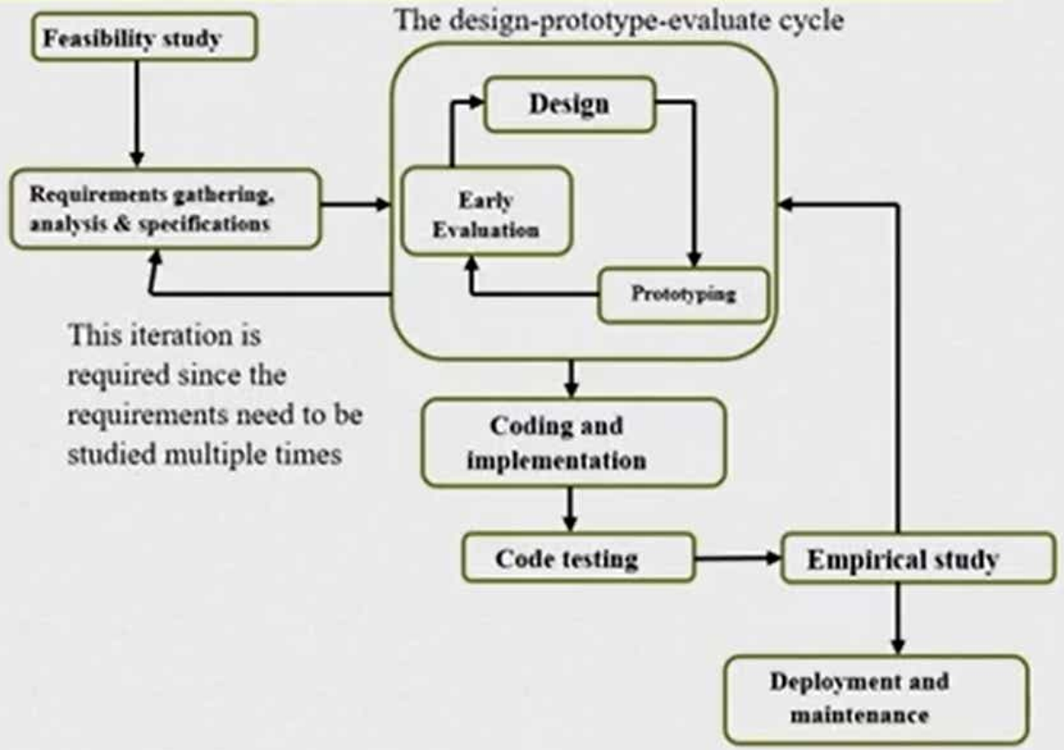
Requirement Gathering

- Should involve end users also, not only "customer/client"
  - Contextual inquiry, ethnographic studies, cultural probes etc



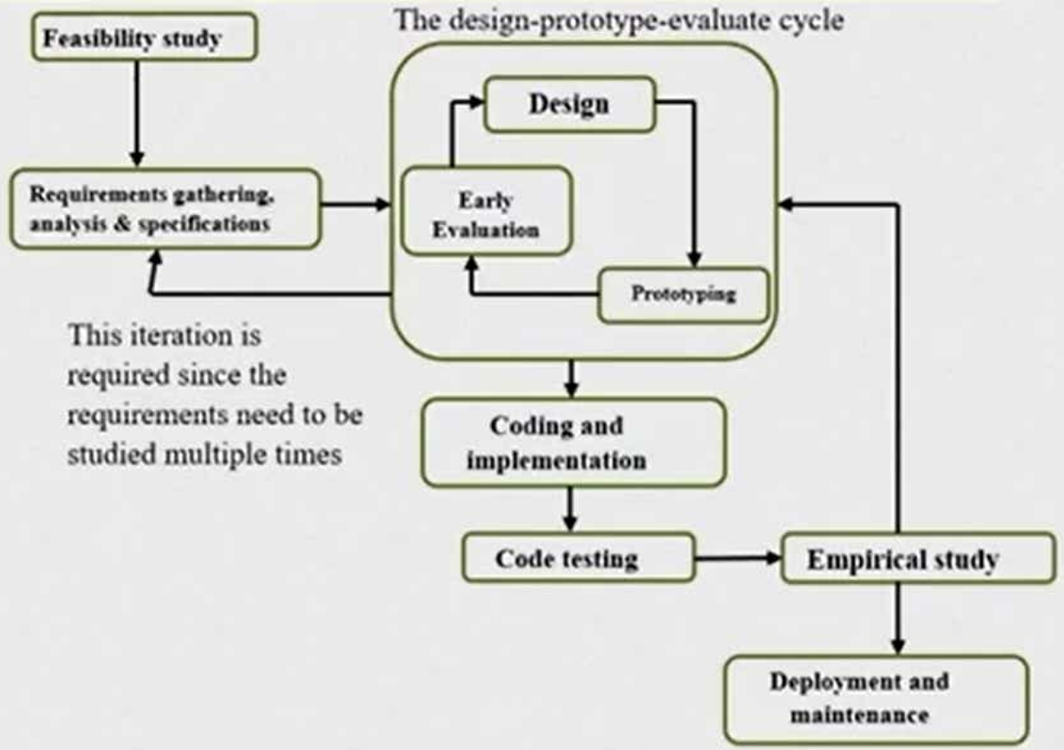
Design-Prototype-Evaluate Loop

- Loop required for refinement of early designs based on feedback
- Many iterations
- Should be performed quickly (less time consuming)



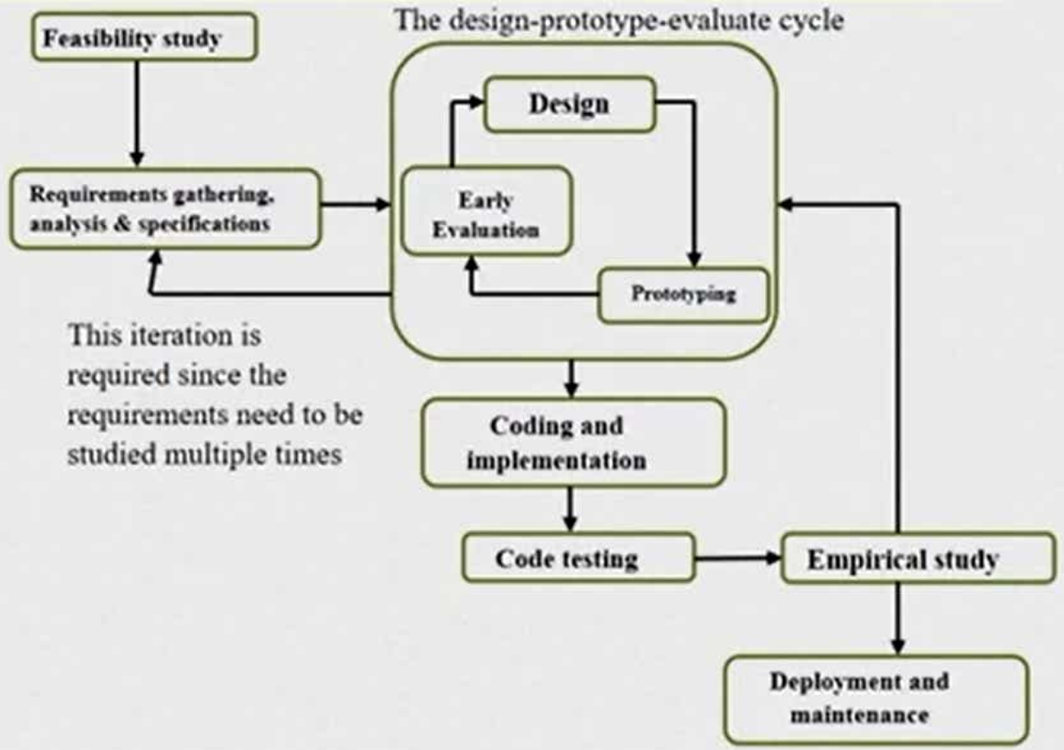
Design-Prototype-Evaluate Loop

- Design include
  - Interface design (design-prototype-evaluate loop important to take into account user input)
  - Code design



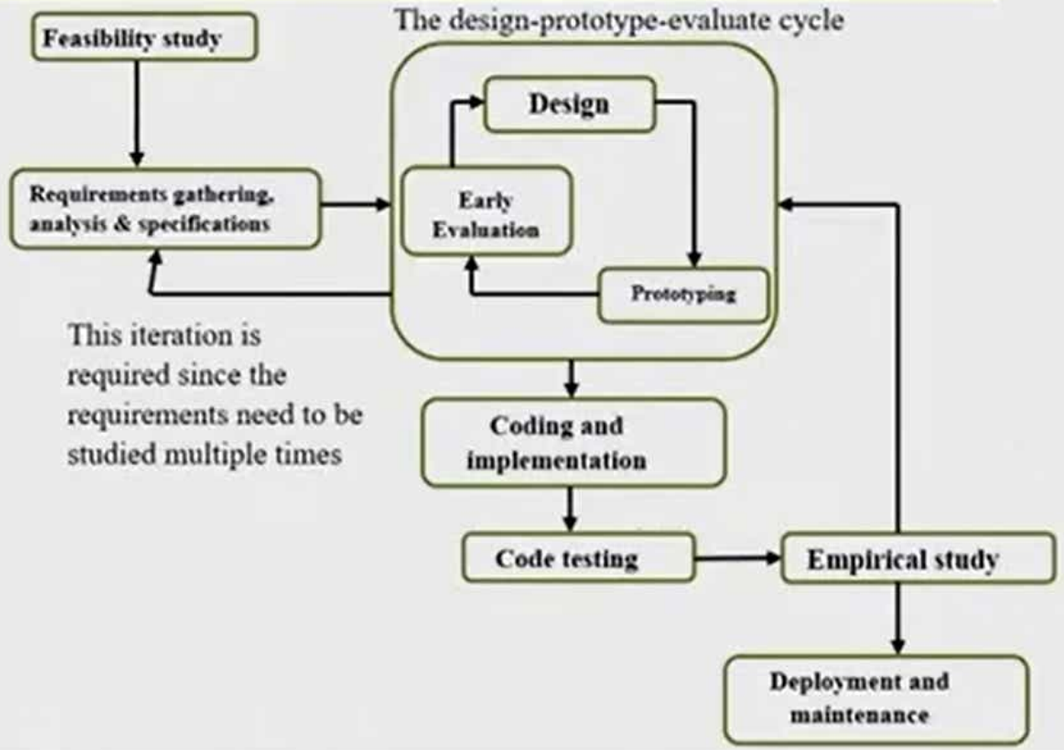
Coding & Code Testing

- Can be done in the traditional way
- Early stages and loop important – otherwise costly to rewrite codes and test



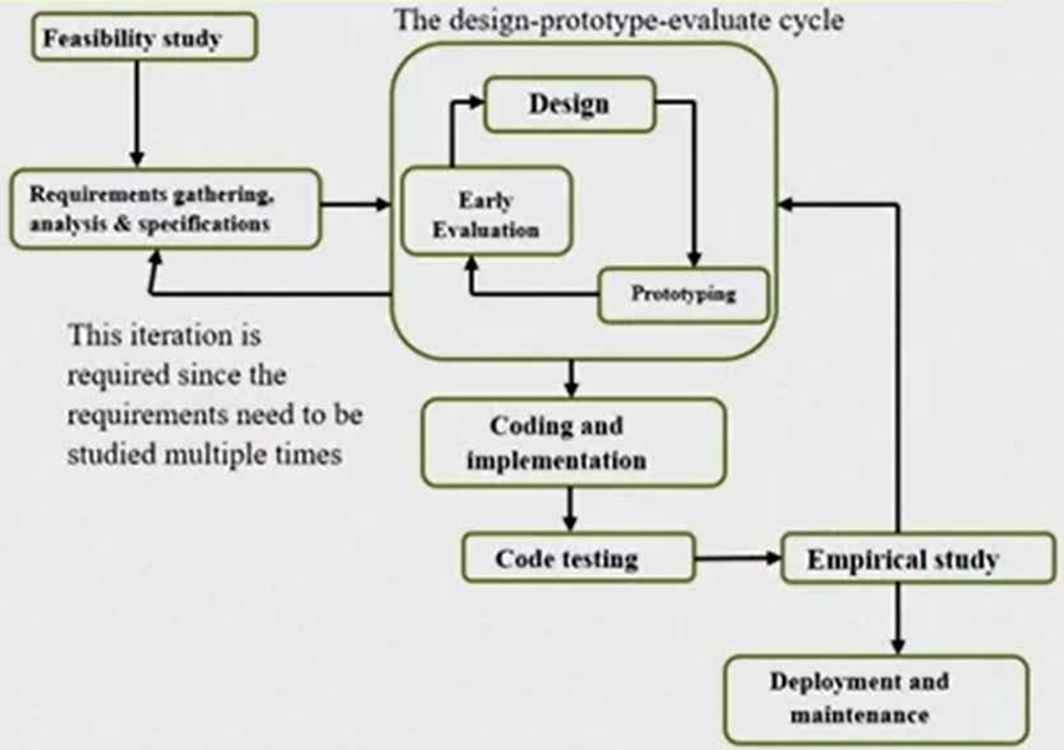
Empirical Study

- Required to ensure product conforms to usability
- Involves systematic testing with end users (and different from code testing)



Key Consideration

- Loops other than design-prototype-evaluate should not be frequent
- Otherwise, development cost (manpower, time, resources) increase



Book

- **Bhattacharya, S**. (July, 2019). Human-Computer Interaction: User-Centric Computing for Design, McGraw-Hill India
  - Print Edition: ISBN-13: 978-93-5316-804-9; ISBN-10: 93-5316-804-X
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Chapter 2, Sec 2.1 – 2.4.2