SASTRA
ENGINEERING · MANAGEMENT · LAW · SCIENCES · HUMANITIES · EDUCATION
DEEMED TO BE UNIVERSITY
(U/S 3 of the UGC Act, 1956)
THINK MERIT | THINK TRANSPARENCY | THINK SASTRA

Chapter 5

Process of Interaction Design

B.Tech CSBS
VII Semester

Handled by
Smt T.M.Latha

SASTRA
ENGINEERING · MANAGEMENT · LAW · SCIENCES · HUMANITIES · EDUCATION
DEEMED TO BE UNIVERSITY
(U/S 3 of the UGC Act, 1956)
THINK MERIT | THINK TRANSPARENCY | THINK SASTRA

Outline

1. Activities
2. Characteristics
3. Lifecycle Models

Interaction Design

- Fields of design
    - Graphic design
    - Architectural design
    - Industrial design
    - Software design
- Our focus is on
    - Interaction design

Interaction Design

- Design
  - Plan/scheme conceived in the mind
    - Intended for subsequent action
- Act of designing involves
  - Development of plan/scheme
  - hope of execution with knowledge about
    - Practical constraints
      - Materials
      - Cost
      - feasibility

Interaction design involves

- Developing a plan
- Product’s intended use
- Target domain
- Relevant practical considerations

SASTRA
DEEMED TO BE UNIVERSITY
(U/S 3 of the UGC Act, 1956)
THINK MERIT | THINK TRANSPARENCY | THINK SASTRA

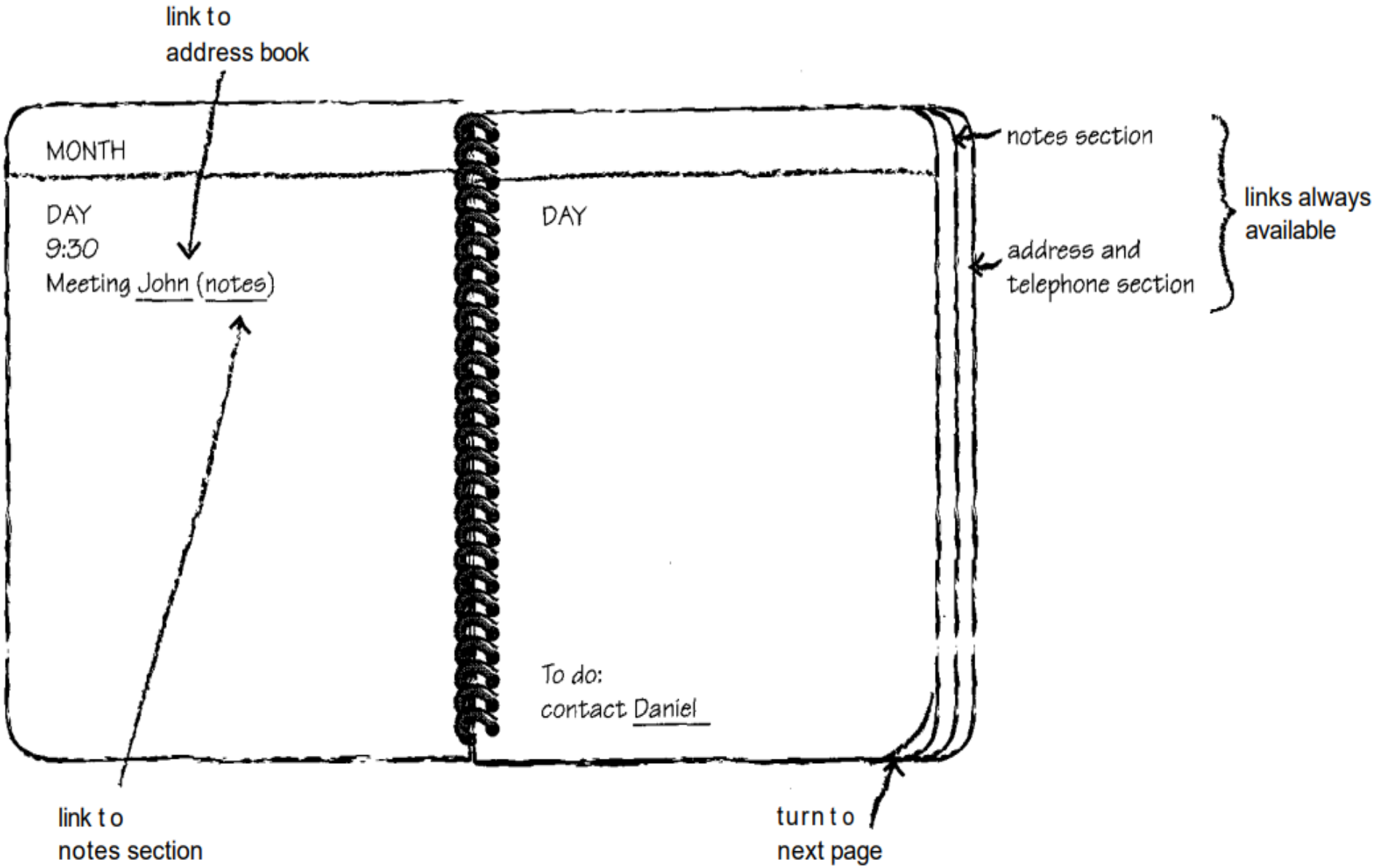


Figure 6.1 An outline sketch of an electronic calendar.

Four basic activities of interaction design

- Identifying needs and establishing requirements
- Developing alternative designs
- Build interactive versions that can be
  - Communicated
  - Assessed
  - Evaluated
    - Measuring their acceptability

- Identifying needs and establishing requirements
  - Fundamental to a user-centered approach
  - Important in interaction design
  - Must know
    - The target users
    - Kind of support the interactive product usefully provide
    - Product’s requirements

- Developing alternative designs
  - Core activity of designing
  - Suggest ideas for meeting requirements
  - Broken into two sub-sequent activities
    - Conceptual design
      - Describes what the product should
        - Do
        - Behave
        - Look like
    - Physical design
      - Considers details of the product
        - Colors
        - Sounds
        - Images to use
        - Menu design
        - Icon design

- Building interactive versions of the designs
  - Does not mean a software version
  - Different techniques may be used to build interactive versions
    - Paper-based prototype
    - Role-playing users

- Evaluating Designs
  - Determines the usability and acceptability of the product
  - Measured by
    - Number of errors users make using it
    - How appealing it is
    - How well it matches the requirements

- Evaluating Designs
  - Determines the usability and acceptability of the product
  - Measured by
    - Number of errors users make using it
    - How appealing it is
    - How well it matches the requirements

Three key characteristics of interaction design process

- User focus
- Specific usability criteria
- Iteration

- User focus
  - Forms a central plank of our view on the interaction design process
  - Does not guarantee
    - Development will involve users
    - But, provide users opportunities for
      - Evaluation
      - User feedback

- Specific usability and user experience goals
  - Should be
    - Identified
    - Clearly documented
    - Agreed upon
  - Help designers
    - Choose different alternative designs
    - Check on progress as the product is developed

- Iteration
  - Allows designs to be refined based on feedback
  - Particularly true with innovation
  - Innovation
    - Takes time
    - Evolution
    - Trial and error
    - Great deal of patience
  - Designers never get the solution right the first time

Lifecycle model for interaction design

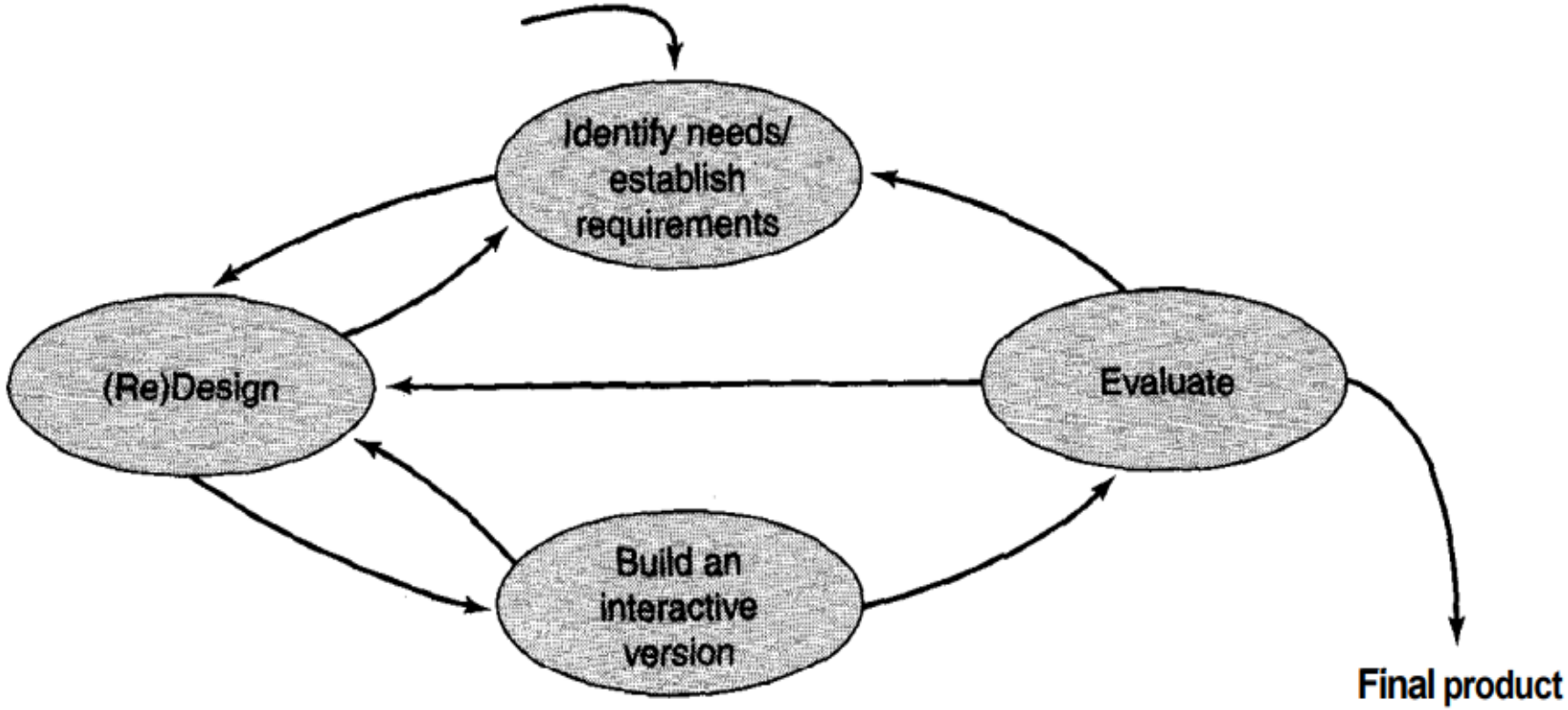


Figure 6.7 A simple interaction design model.

- Lifecycle of the new product starts by
  - identifying needs and requirements
  - Alternative designs are generated to meet the needs and requirements
  - Interactive versions of the designs are developed and evaluated
  - Based on the feedback, the team returns to identify needs/refining requirements

Lifecycle model in Software Engineering

- Software engineering has spawned many lifecycle models, including
  - Waterfall
  - Spiral
  - Rapid Applications Development
    - Representative models used in the industry
    - Proved to be successful
      - Emphasize on iterative, user-centered view

The Waterfall lifecycle Model

- First model in software engineering
- Forms the basis of many lifecycles in use today
- Linear model
  - Each step must be completed before the next can be started
- Flaw
  - Freezes requirements for months/years, till design & implementation are completed
    - Requirements may change over time

The Spiral Lifecycle Model

- In 1988 Barry Boehm suggested the model
- Two features
  - Risk analysis
  - Prototyping
    - Incorporates in an iterative framework
      - Allows ideas and progress to be repeatedly checked and evaluated

- Spiral
  - encourages alternatives
  - Re-addresses problems
- WinWin spiral model
  - Incorporates the identification of key stakeholders & win conditions
    - Satisfactory outcome for each stakeholder group
    - A period of stakeholder negotiation to ensure a ‘win-win’ result

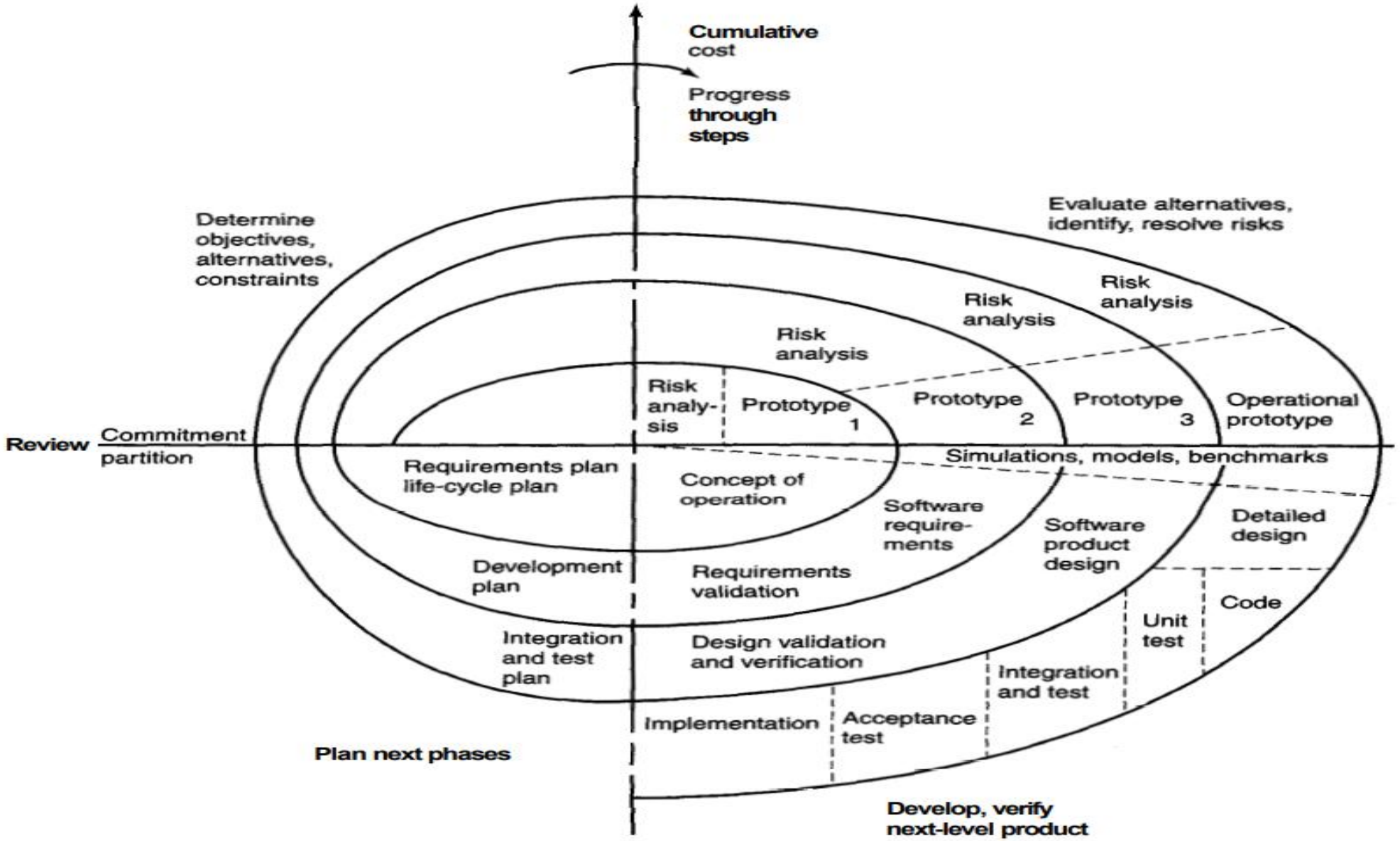


Figure 6.9 The spiral lifecycle model of software development.

Rapid Applications Development (RAD)

- Tries to find solution to inappropriate nature of linear lifecycle models
- Attempts to
  - take a user-centered view
  - Minimize the risk caused by changing requirements during the course of the project

- Two key features
  - Time-limited cycles
    - A system/partial system must be delivered at the end of every six months
      - Called time-boxing
    - Breaks down the large project into many smaller projects
    - Delivers products incrementally
    - Enhances flexibility and maintainability of the final system

- Joint Application Development
  - Users and developers come together
    - To thrash out requirements of the system
    - To make decisions on difficult issues
  - Representatives from identified stakeholder group attend workshops

SASTRA
DEEMED TO BE UNIVERSITY
(U/S 3 of the UGC Act, 1956)
THINK MERIT | THINK TRANSPARENCY | THINK SASTRA

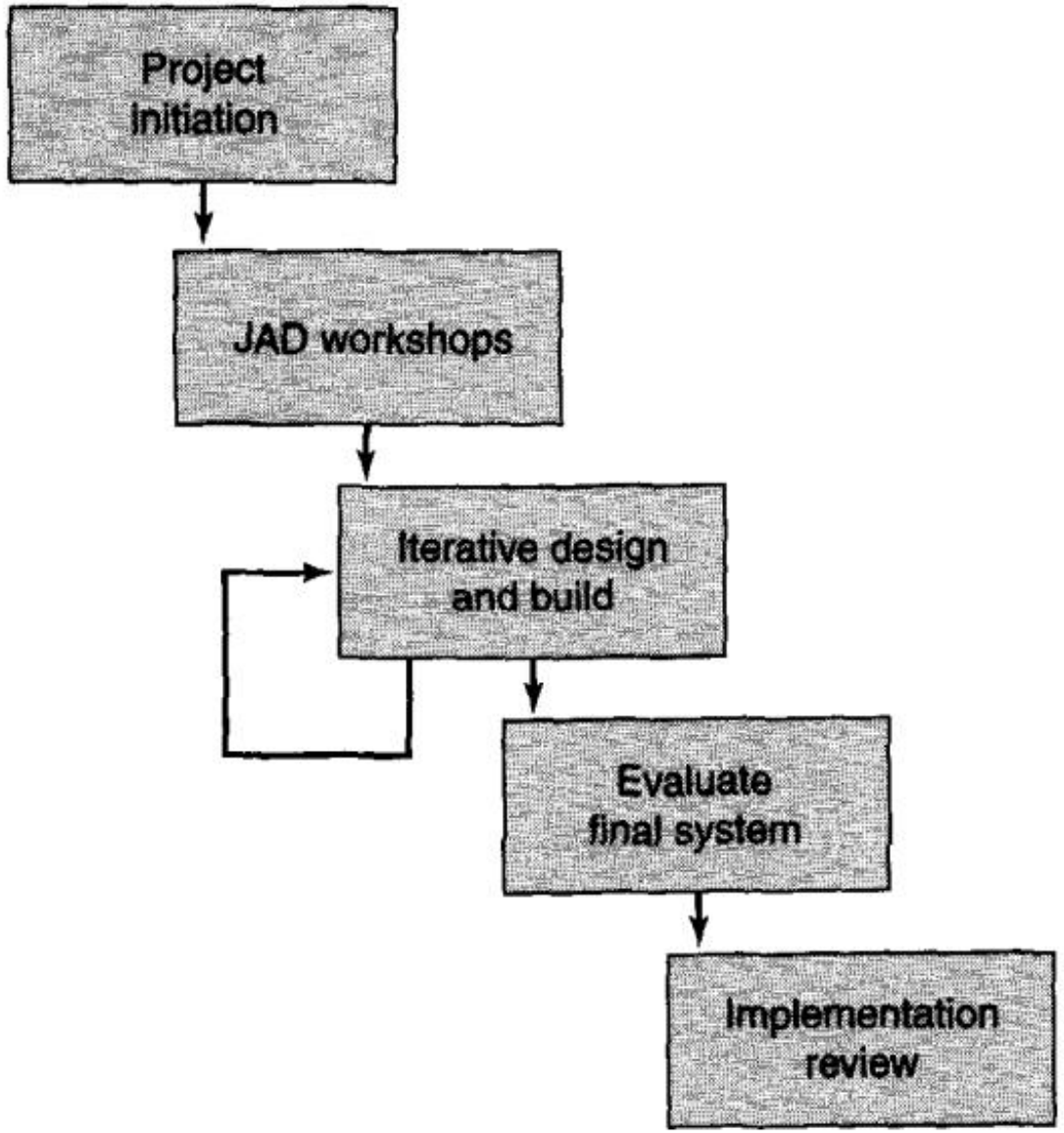


Figure 6.10 A basic **RAD** lifecycle model of software development.

Lifecycle models in HCI

- Interaction design has emerged from HCI
  - The Star Lifecycle Model
  - The Usability Engineering Lifecycle

- The Star Lifecycle Model

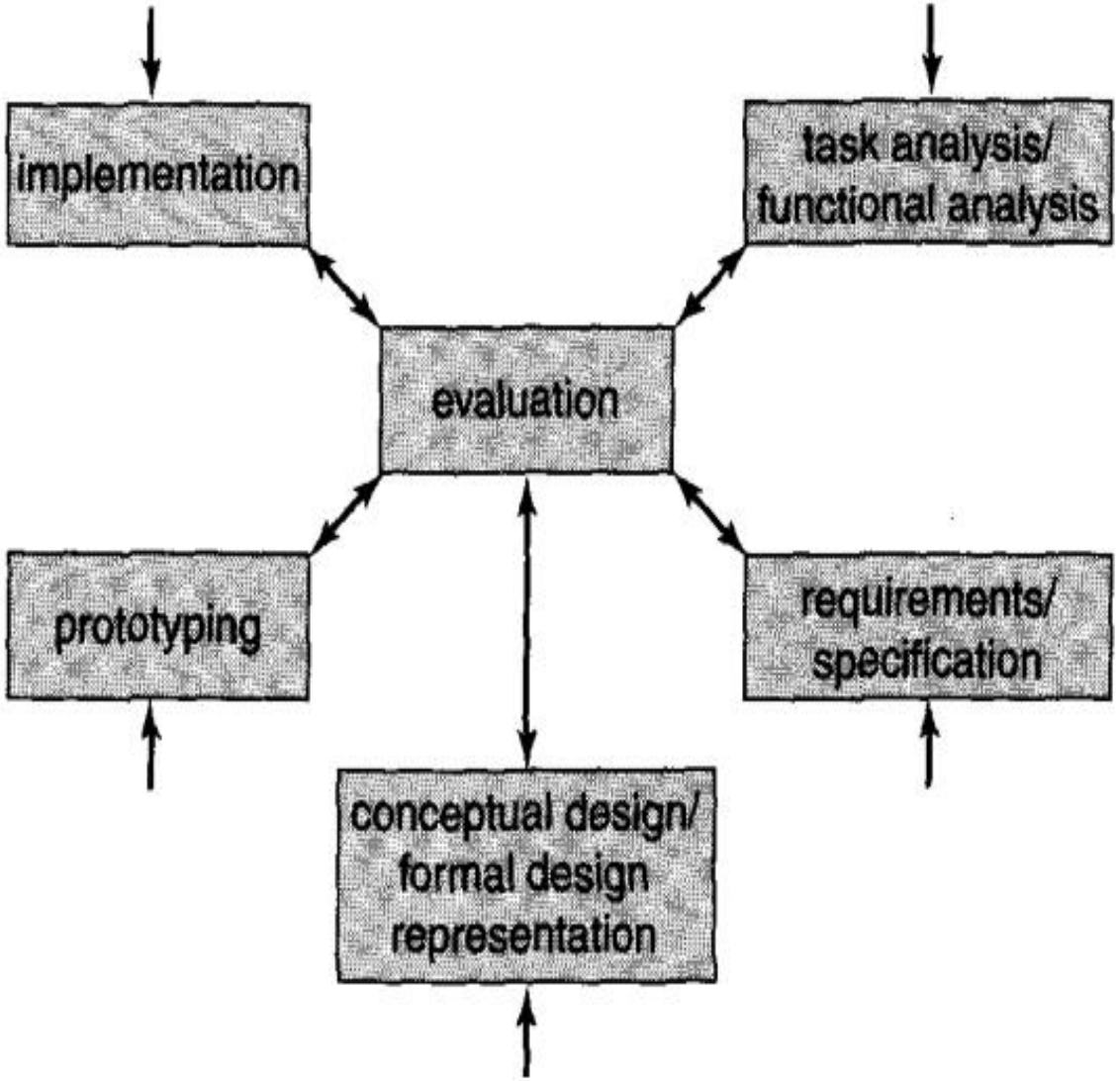
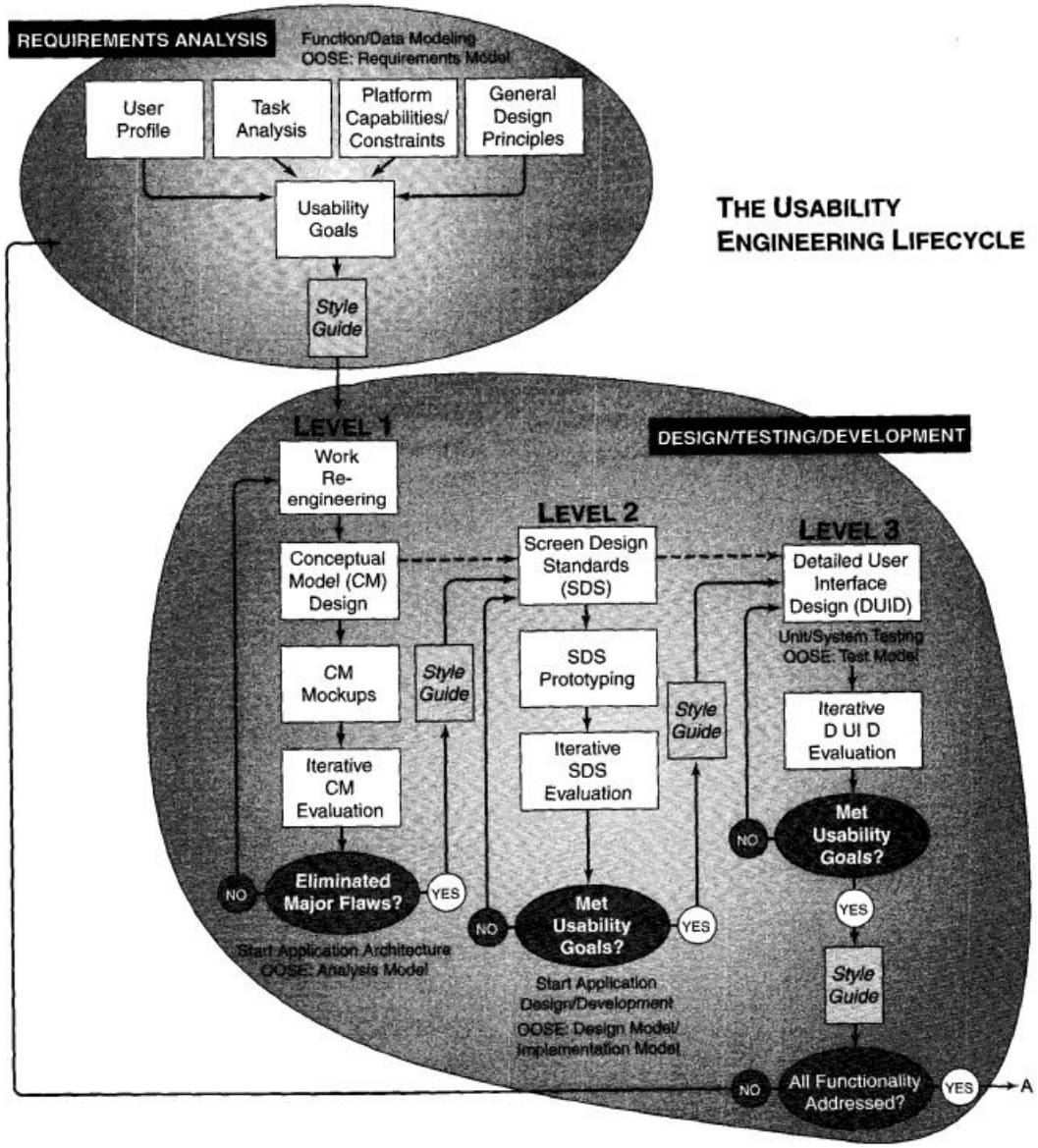


Figure 6.13 The Star lifecycle model.

- Usability Engineering Lifecycle
  - Lifecycle has three tasks
    - Requirement analysis
    - Design/testing/development (largest, involves many subtasks)
    - Installation

SASTRA
DEEMED TO BE UNIVERSITY
(U/S 3 of the UGC Act, 1956)
THINK MERIT | THINK TRANSPARENCY | THINK SASTRA



THE USABILITY ENGINEERING LIFECYCLE

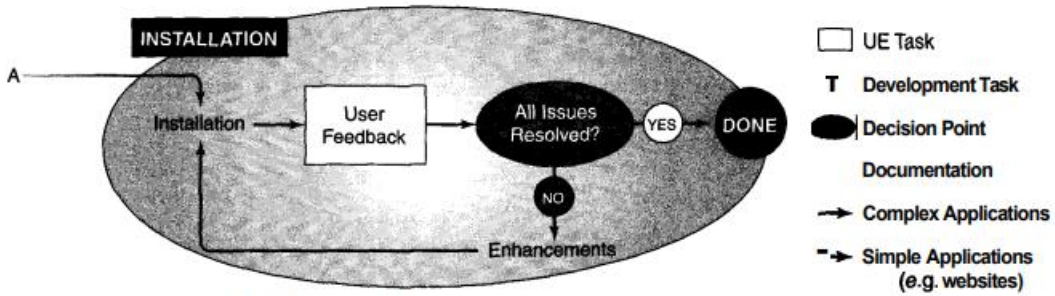


Figure 6.14 *(continued).*

THANK YOU