

From Analysis to Design

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Design Process

Three Basic Steps

Design Creation

Three Fundamental Steps

- ▶ Define the input to the output
 - ▶ output variables
 - ▶ input variables
 - ▶ processing variables
- ▶ Develop the logic
- ▶ Write the modules

Design Creation

- ▶ Drawing
- ▶ Team discussions
- ▶ Wireframe
- ▶ Mockup
- ▶ Prototyping
- ▶ Wizard of Oz Technique

Design Activities

Evolutionary Iteration

Design Artifacts

Evolutionary Iteration

- ▶ High level design
- ▶ Informal design
- ▶ Formal design
- ▶ Detailed design

Design Artifacts

- ▶ Architecture design
- ▶ Interface design
- ▶ Component design
- ▶ Data structure design
- ▶ Algorithm design

Design Techniques

Structured Design

Functional Design

Object Oriented Design

Event Driven Design

Structured Design

- ▶ top down development, step wise refinement
- ▶ structure, sequence, repetition
- ▶ requirements are decomposed into subprograms
- ▶ each subprogram has a single entry and exit point
- ▶ break each component into subcomponents
- ▶ analyze each subcomponent
- ▶ stop when nothing can be broken down any further

Functional Design

- ▶ problem seen as a series of transformations
- ▶ each component is seen as a (mathematical) function
- ▶ functionality is decomposed into a series of functions
- ▶ functions are equivalent to values

Object Oriented Design

- ▶ system is viewed as a series of communicating objects
- ▶ objects offer services
- ▶ objects send messages to other other objects
- ▶ objects perform services in response to messages

Event Driven Design

- ▶ identify the event
- ▶ identify the inputs to events
- ▶ identify the outputs from events