



View Layer

Designing Interface Objects





Objectives

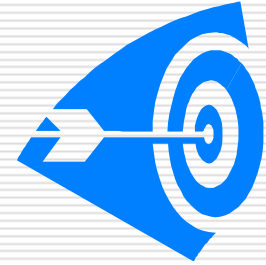
- ❑ To suggest some general design principles for user interface design
- ❑ To explain different interaction styles and their use
- ❑ To explain when to use graphical and textual information presentation
- ❑ To explain the principal activities in the user interface design process
- ❑ To introduce usability attributes and approaches to system evaluation

Cont...



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- Identifying view classes
 - Designing Interface objects
 - View layer is the user Interface (UI)
 - After completion of analysis we start to design user interface(UI).

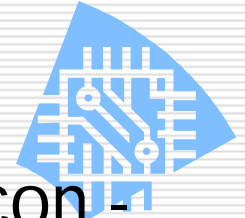




User Interface(UI)

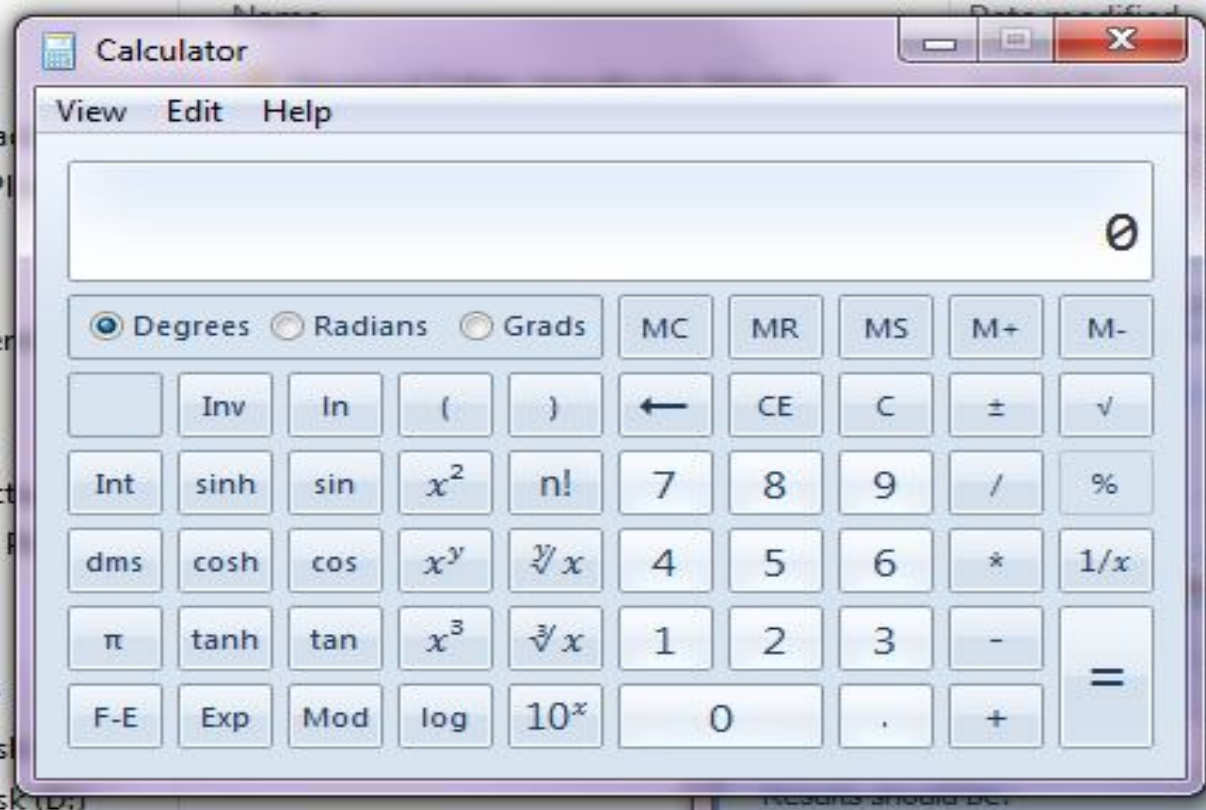
- ✓ User interfaces should be designed to match the skills, experience and expectations of its anticipated users.
- ✓ Main goal of user interface is to display and obtain the information in accessible, efficient manner.
- ✓ User interface helps to interacts the user with the application for successful task completion.

Graphical User Interface(GUI)



✓ In GUI , icons are used to represent objects.(icon - Image Console)

Example : Calculator used in windows



✓ Use of GUI helps the user to indentify objects very easy and it gives the knowledge about the operation by seeing the icons....

so GUI help the user to complete the task very fastly..
Ex :Windows ..is fully based on GUI.



User Interface Design As A Creative Process



Creative thinking is not confined to a particular field .
ex: The artist sketches , the teacher encourages the student development,
the scientist develops a theory etc..

- ✓ Creativity implies newness
- ✓ It often concerned with the improvement of old products as much as with creation of new one
- "how to make something better " is an essential characteristic of an effective , creative process.

User Interface Design As A Creative Process (cont)



- To develop new product ,systems or design, we are using inventive imagination, by bring various combinations of known objects or situations.

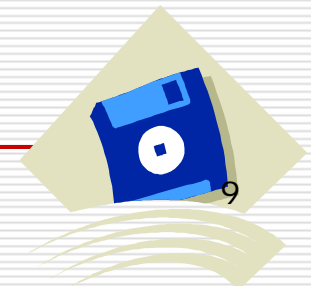
To view user interface design as a creative process , it is necessary to understand what the creative process really involves. ...

- 1.A curious and imaginative mind.
- 2.A broad background and fundamental knowledgege of existing tools and methods.

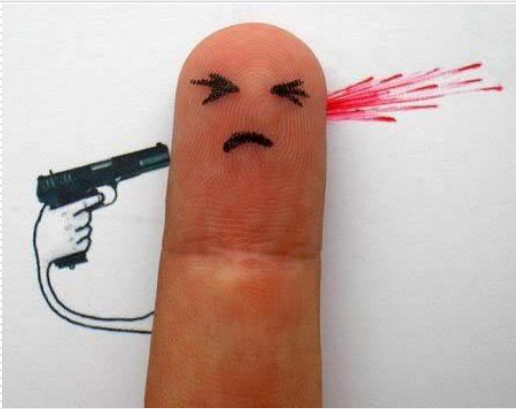
User Interface Design As A Creative Process (cont.)

3. An enthusiastic desire to do a complete and thorough job of discovering solutions once a problem has been defined.

4. Being able to deal with uncertainty and ambiguity and to defer premature closure.



Designing View Layer classes



Introduction

- Three layer architecture
 - 1)view layer
 - 2)business layer
 - 3)access layer
- View layer is the only exposed objects of an application with which users can interact.
- Represents the set of operations in the business that users must perform to complete their tasks.
- Business or Access layer are more independent of their environment whereas in view layer that is not the case

Major Aspects

View layer objects are responsible for two major aspects of application.

- INPUT: -responding to user interaction. The user interaction must be designed to translate an action by the user, such as clicking on a button or selecting from a menu, into an appropriate response. That response may be to open or close another interface or to send a message down into the business layer to start some business process.
- OUTPUT: -displaying or printing business objects. This layer must paint the best picture possible of the business objects for the user. In one interface, this may mean entry fields and lists boxes to display an order and its items. In another, it may be a graph of total price of a customer's orders.

Major Activities

The process of designing View layer classes is divided into four major activities

- The macro level UI design process->identifying view layer objects.
- Takes place during analysis phase of system development.
- Objective: to identify classes that interacts with human actors by analyzing the use cases developed in the analysis phase.

Each use cases should capture a complete, unambiguous, and consistent picture of the interface requirements of the system. Use cases concentrate on describing what the system does rather than how it does .

In this phase we need to address the issue of how the interface must be implemented.

Contd...

- Micro level UI design activities->

- 1) Designing the view layer objects by applying design axioms and corollaries. In designing view layer objects, decide how to use and extend the components so they best support application – specific functions and provide the most usable interface.

- 2) Prototyping the view layer interface. After defining a design model, prepare a prototype of some of the basic aspects of the design. Prototyping is particularly useful early in the design process.

- Testing usability and user satisfaction- >

- 1) We must test the application to make sure it meets the audience requirements. To ensure user satisfaction, we must measure user satisfaction and its usability along the way as the UI design takes form.

- 2) Despite the importance of usability and user satisfaction, many system developers still fail to pay adequate attention to usability, focusing primarily on functionality.

- Refining and iterating the design.

Macro level Process : Identifying View classes by Analyzing use cases



Interface Objects

- ❑ The interface objects handles all communication with the actor but processes no business rules or object storage activities.
- ❑ In essence, the interface objects will operate as a buffer between the user and the rest of the business objects.
- ❑ The interface objects is responsible for behavior related directly to the tasks involving contact with actors.
- ❑ Interface objects are unlike business objects, which lie inside the business layer and involve no interaction with actors.

for ex., computing employee overtime is an example of business object service but the data entry for the employee overtime is an interface object.

Steps followed by view layer macro classes

The view layer macro process consists of two steps:

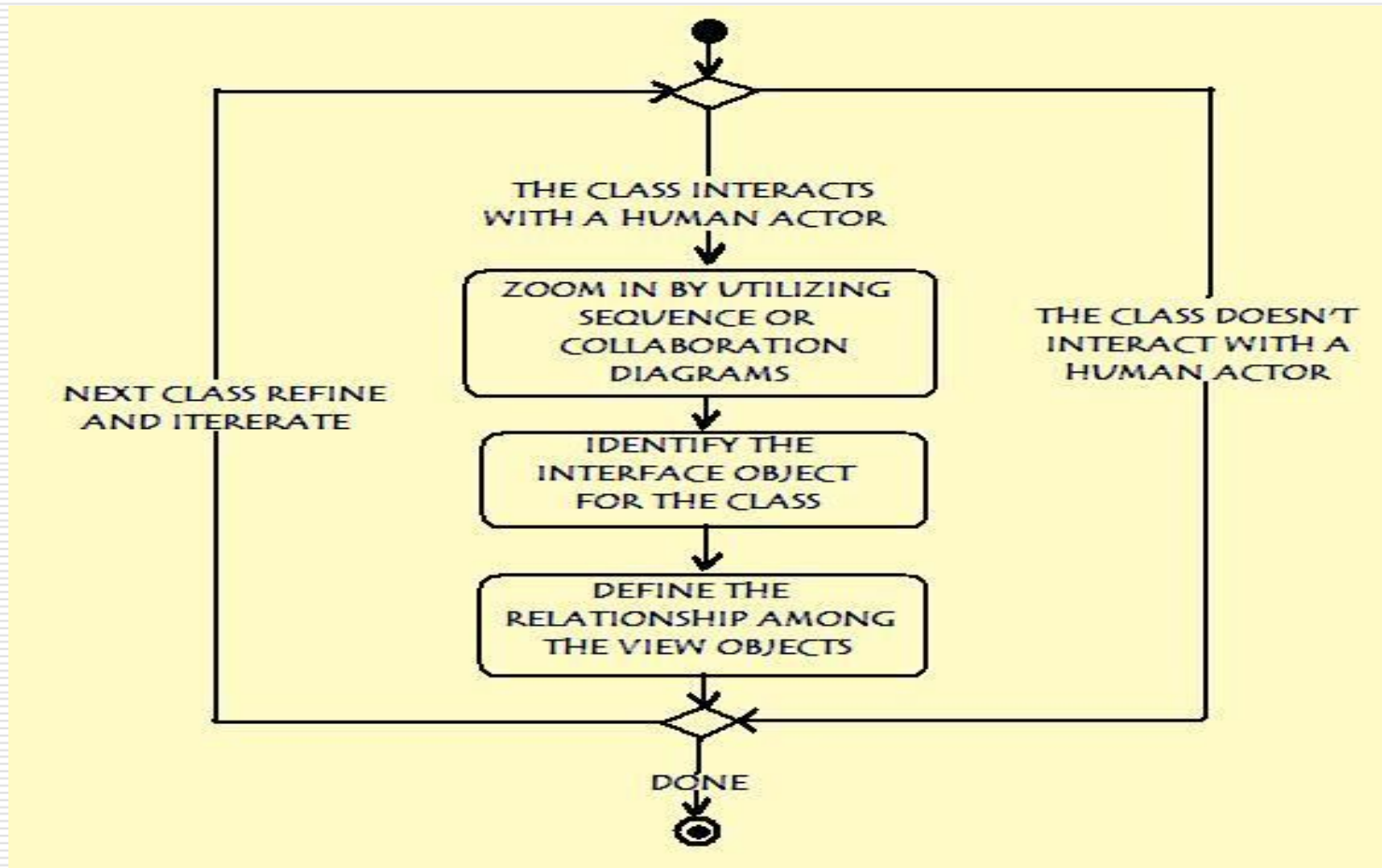
- For every class identified, determine if the class interacts with a human actor, If so perform the following; otherwise move to the next class

1) Identify the interface objects for the class. Zoom in on the view objects by utilizing sequence or collaboration diagrams to identify the interface objects, their responsibilities, and the requirements for this class.

2) define the relationships among the interface objects. The interface objects, like access classes, for the most part, are associated with the business classes.

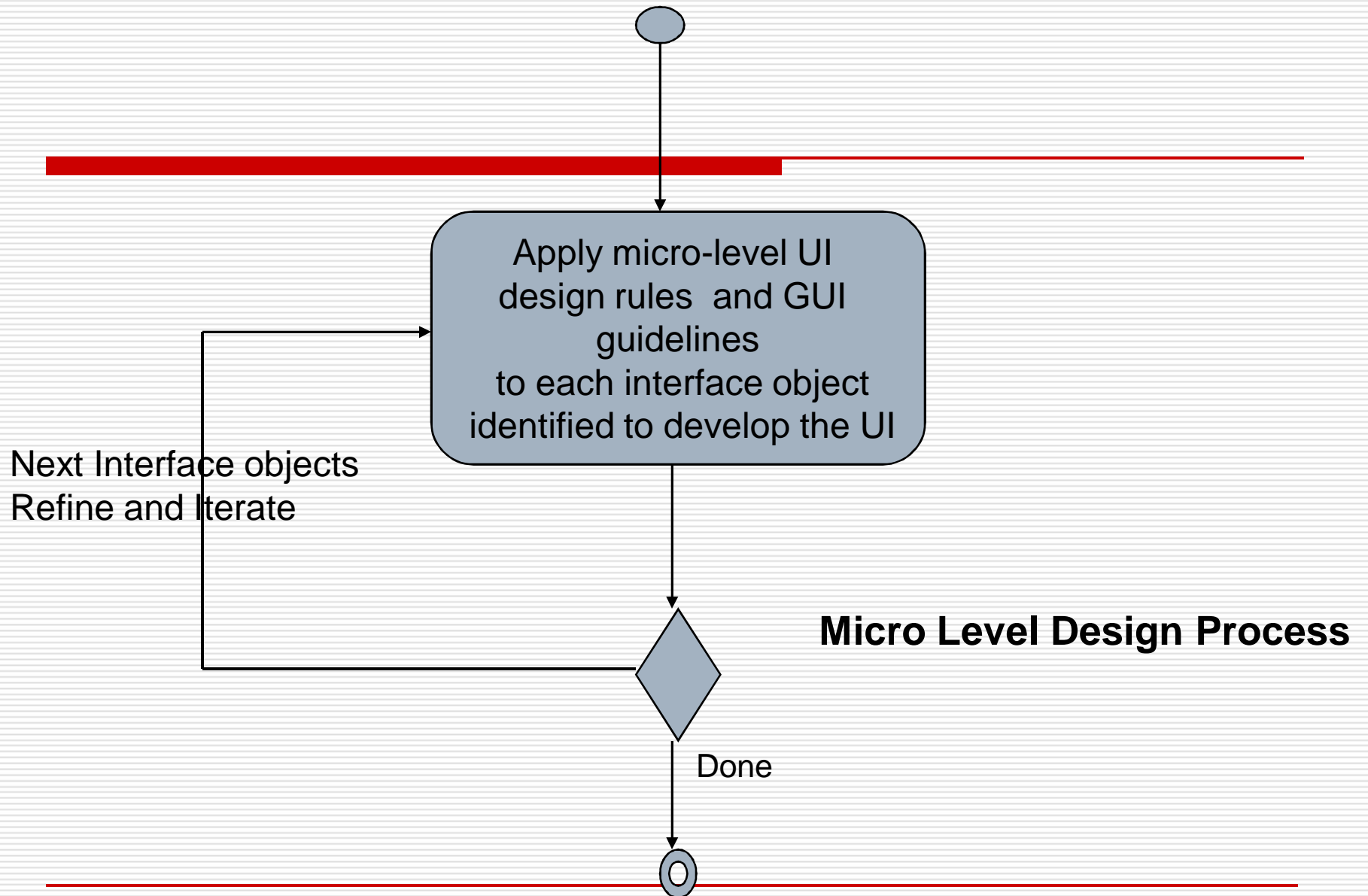
- Iterate and refine

Macro level design process



Micro level process

- Two process in macro level are:
 - For every interface object identified in the macro UI design process, apply micro-level UI design rules and corollaries to develop the UI.
 - Iterate and refine.



UI Design Rule

□ Rule 1: Making the interface Simple

- This rule is an application of corollary 2 (Single purpose).

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- Rule 2: Making the interface Transparent and Natural.
 - Application of Corollary 4

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- Rule 3: Allowing the users to be in Control of the software. (Application of corollary 1)
 - Some of the ways to put users in control are:
 - Make the interface forgiving (errors should not cause serious effect)
 - Make the interface visual (provide users with list of items)
 - Provide immediate feedback (feedback should be given for all choices)
 - Avoid modes
 - Make the interface consistent

The Purpose Of a View Layer Interface

- Forms and data entry windows
- Dialog boxes
- Application windows
- Command button layouts
- Using colors

Steps involved in creating User interface

- Create user interface objects
- Assign appropriate actions to user interface objects and events.
- Test and debug.