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Adama Science and Technology University

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Chapter Three

Requirements Elicitation



Topics to be covered

- Requirements sources
- Elicitation techniques

***N.B. Requirements elicitation concept
& processes are already covered in
chapter two.***

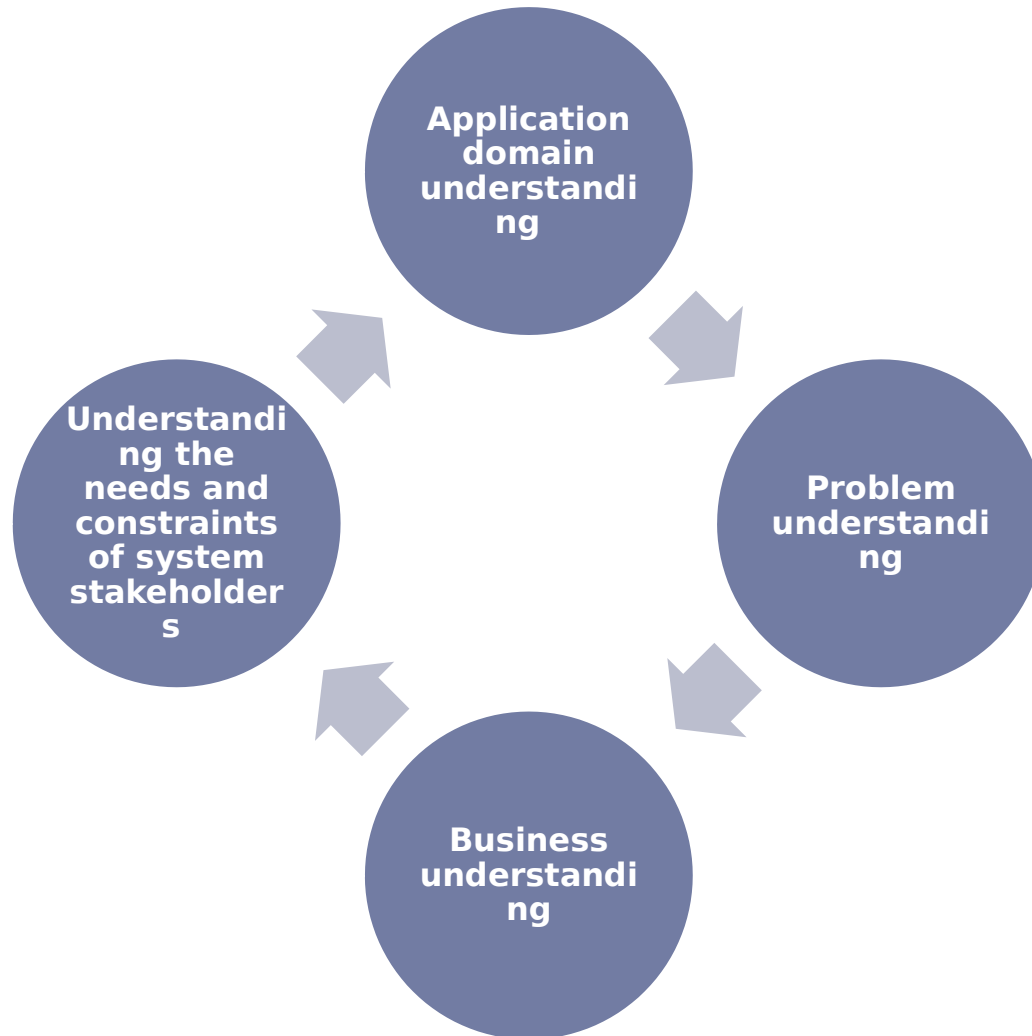
Requirements elicitation

- ▶ The heart of requirements development is *elicitation*, the **process of identifying the needs and constraints** of the various stakeholders for a software system.
- ▶ Elicitation is a collaborative and analytical process that includes activities to **collect, discover, extract, and define requirements**.

Cont'd...

- ▶ Elicitation is used to discover **business, user, functional, and nonfunctional requirements**, along with other types of information.
- ▶ Req. elicitation is perhaps the **most challenging, critical, error-prone, and communication-intensive** aspect of software development.

Components of requirements elicitation



Elicitation activities

- ▶ **Application domain understanding**
 - ▶ Application domain knowledge is **knowledge of the general area where the system is applied.**
- ▶ **Problem understanding**
 - ▶ The details of the **specific customer problem** where the system will be applied must be understood.
- ▶ **Business understanding**
 - ▶ You must understand **how systems interact** and contribute to overall business goals.
- ▶ **Understanding the needs and constraints of system stakeholders**
 - ▶ You must understand, in detail, **the specific needs of people who require system** support in their work.

Elicitation stages

► Objective setting

- The organisational objectives should be established including general goals of the business, an outline description of the problem to be solved, **why the system is necessary** and **the constraints on the system**.

► Background knowledge acquisition

- Background information about the system includes information about the organisation **where the system is to be installed**, the application domain of the system and information about existing systems.

► Knowledge organisation

- The large amount of knowledge which has been collected in the previous stage must be organised and collated.

► Stakeholder requirements collection

- System stakeholders are consulted to discover their requirements.

Elicitation techniques

- ▶ Specific techniques which may be used to collect knowledge about system requirements. But this knowledge must be structured
 - ▶ **Partitioning** – combining related knowledge
 - ▶ **Abstraction** - recognising generalities
 - ▶ **Projection** - organising according to perspective
- ▶ Elicitation problems
 - ▶ Not enough time for elicitation
 - ▶ Inadequate preparation by engineers
 - ▶ Stakeholders are unconvinced of the need for a new system

Elicitation techniques

- ▶ Scenarios
- ▶ Interviews
 - ▶ *Open ended*
 - ▶ *Close ended*
- ▶ Observations and social analysis
- ▶ Requirements reuse
- ▶ Prototype
- ▶ Workshop
- ▶ Focus group discussions etc.

Scenario

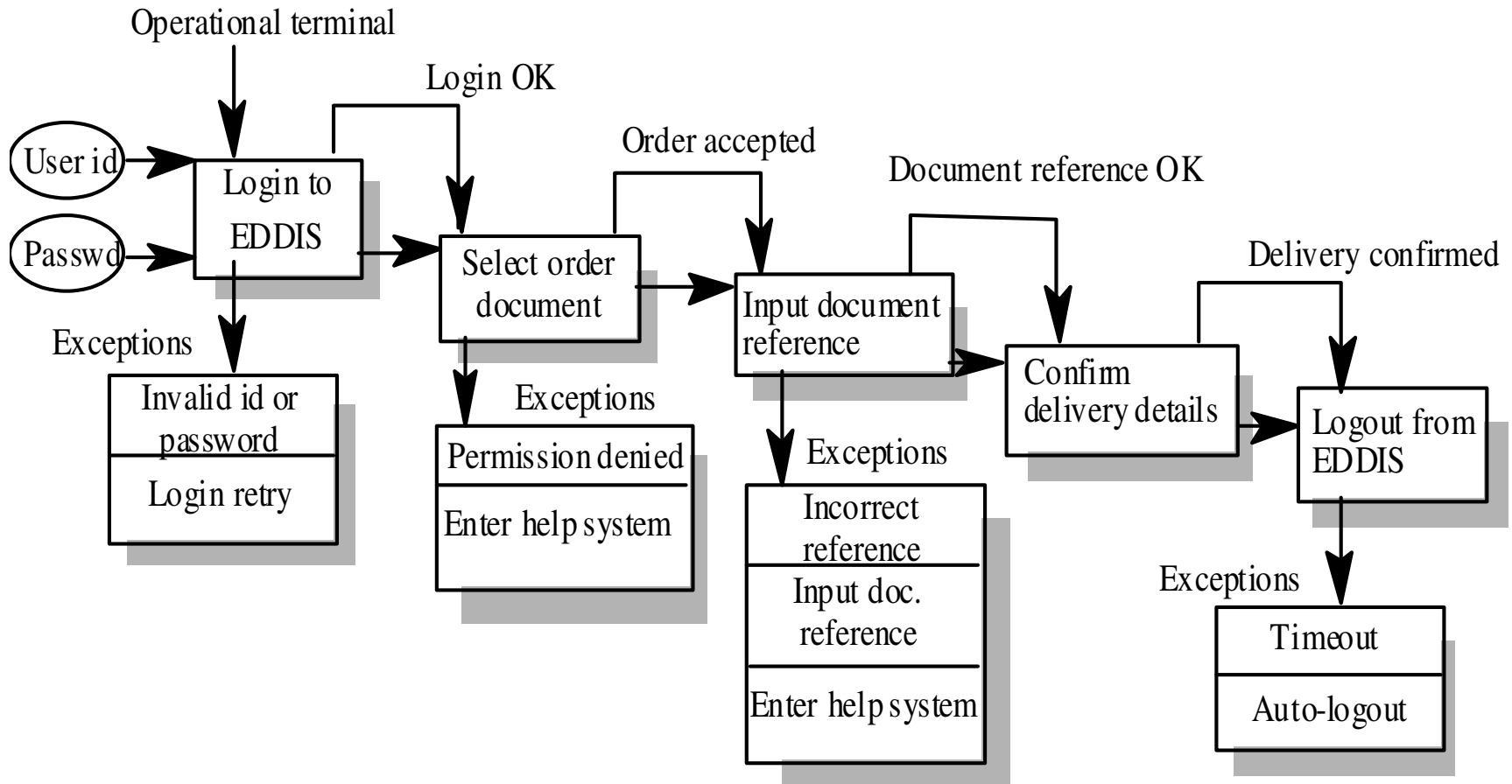
- ▶ Scenarios are examples of **interaction sessions** which describe how a user interacts with a system.
- ▶ Scenarios are **stories** which explain how a system might be used. They should include
 - ▶ a description of the system state before entering the scenario
 - ▶ the normal flow of events in the scenario
 - ▶ exceptions to the normal flow of events
 - ▶ information about concurrent activities
 - ▶ a description of the system state at the end of the scenario

Scenario example

- ▶ Log in to system
- ▶ Issue order document command
- ▶ Enter reference number of the required document
- ▶ Select a delivery option
- ▶ Log out from system

Let's change this scenario in to illustrated diagram.

Scenario example



Scenario example

Test Steps

+ Insert Step Insert Link Refresh Clone Import Delete -- Show/hide columns -- Edit Parameters						
☐ Step #	Description	Expected Result	Sample Data	Execution Status	ID	Edit
☐ Step 1	Call 'Login to Application' (TC17)		browserName: Internet Explorer login: librarian password: librarian	N/A	TS:1	Edit
☐ Step 2	User clicks link to create book	User taken to first screen in wizard		Passed	TS:2	Edit
☐ Step 3	User enters books name and author, then clicks Next	User taken to next screen in wizard	Macbeth, William Shakespeare	Passed	TS:3	Edit
☐ Step 4	User chooses book's genre and sub-genre from list	User sees screen displaying all entered information	Play, Tragedy	Passed	TS:4	Edit
☐ Step 5	User clicks submit button	Confirmation screen is displayed		Passed	TS:5	Edit
Show 15 rows per page						
⏮ ⏪ Displaying page 1 ↺ of 1 ⏩ ⏭						

Requirements reuse

- ▶ Reuse involves taking the requirements which have been developed for one system and using them in a different system.
- ▶ Requirements reuse **saves time and effort** as reused requirements have already been analysed and validated in other systems.
- ▶ Currently, requirements reuse is an **informal process but more systematic** reuse could lead to larger cost savings.

Reuse possibilities

- ▶ Where the requirement is concerned with providing application domain information.
- ▶ Where the requirement is concerned with the style of information presentation. Reuse leads to a consistency of style across applications.
- ▶ Where the requirement reflects company policies such as security policies.

Requirements sources

Goals

- The term “goal” (sometimes called “business concern” or “critical success factor”) refers to the overall, high-level objectives of the software.

Domain knowledge

- The software engineer needs to acquire or have available knowledge about the application domain.

Stakeholders

- Identify, represent, and manage the “viewpoints” of many different types of stakeholders.

Cont'd...

Business rules

- These are statements that define or constrain some aspect of the structure or the behavior of the business itself.

Organizational environment

- Software is often required to support a business process, the selection of which may be conditioned by the structure, culture, and internal politics of the organization.

Operational environment

- Requirements will be derived from the environment in which the software will be executed

Reading Assignment

Chapter III: Requirements Elicitation	Sommerville - 2011	Wiegiers - 2003
3.1. Requirements Sources	Chapter 4 – section 5	Chapter 5, 6 & 9
3.2. Elicitation Techniques		



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END OF CHAPTER THREE

