

COMPUTER AIDED SOFTWARE ENGINEERING (CASE)

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The background features several flowing, wavy bands of color. At the top, a thick, vibrant red band curves across the frame. Below it, a thinner, more translucent yellow band flows. At the bottom, another thick red band curves upwards, overlapping with a yellow band that flows from the right side towards the center. The overall effect is dynamic and energetic, with a color palette of red, orange, and yellow.

INTRODUCTION

CONTENTS

- History
- Definition CASE
- Need of CASE Tools
- Why CASE Tools are developed?
- How organizations use CASE Tools?
- Categories of CASE Tools
 - Diagram tools
 - Project Management tools
 - Documentation tools
 - Web Development tools
 - Quality Assurance tools
 - Maintenance tools
- Advantages & Disadvantages

CHANGE.....

- Nowadays everything has to **go faster**. Because of the **increasing speed of changing** market-demands **new products replace** old ones much earlier than before.
- Thus the **production lines have to be developed faster** too.
- A very **important role** in this development is **software engineering**.
- In past, software systems were build using **traditional** development techniques.
- This is **too much costly and time consuming**.

COMPUTER AIDED SOFTWARE ENGINEERING (CASE)

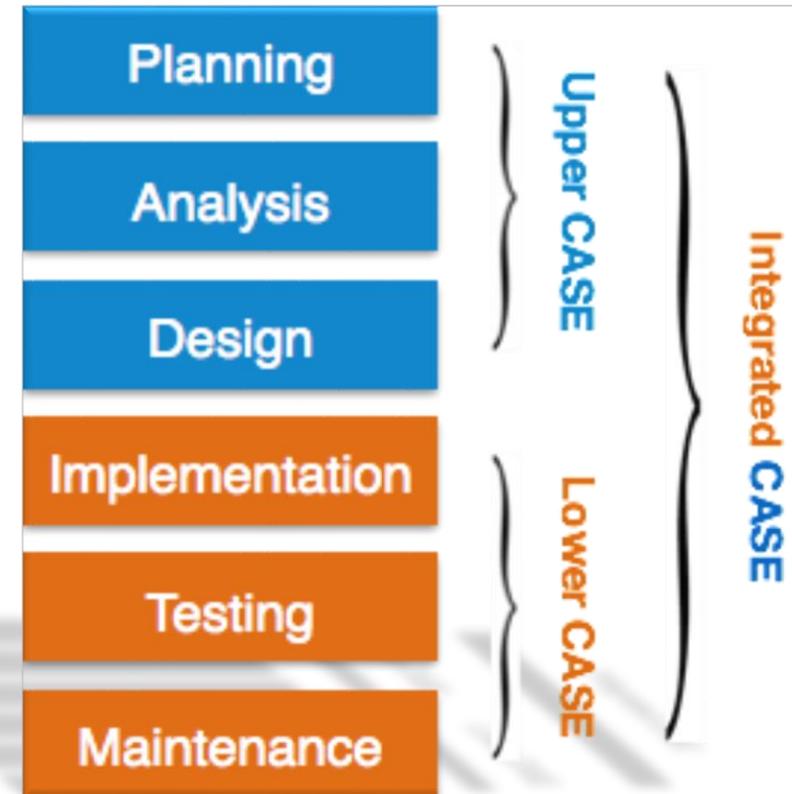
- To speed up the software system building process, **a new concept of designing software is introduced in the 70's**, called *Computer Aided Software Engineering (CASE)*.
- *Computer Aided Software Engineering (CASE)* is the **use of software tools to help in the development and maintenance of software**.
- Software systems that are **intended to provide Automated Support for software process** activities.
 - Automated Support is that **we use some software to develop another software**.

NEED OF CASE TOOLS:

- Software developers always looking for such **CASE tools that help** them in **many different ways during the different development stages** of software.
- They can **understand the software and prepare a good end product** that efficiently fulfill the user requirements.
- CASE tools provide the ways that can **fulfill the requirements of software developers**.
- These **tools provide computerized setting** to software developers to **analyze a problem and then design its system model**.

CASE (CONTINUE...)

- **CASE** is the use of a **computer-assisted method to organize** and control the **development of software**, especially on large, **complex projects** involving many software components and people.
- Using **CASE** allows **designers, code writers, testers, planners and managers** to share a common view of where a project stands at each stage of development.



WHY CASE TOOLS ARE DEVELOPED?

- Main purpose of the CASE tools is to decrease the development time and cost and increase the quality of software.
- CASE tools are developed for the following reasons:
 - Firstly Quick Installation
 - Time saving by reducing coding and testing time.
 - Enrich graphical techniques and data flow.
 - Enhanced analysis and design development.
 - Create and manipulate documentation
 - The speed during the system development increased.

HOW ORGANIZATION USES CASE TOOLS?

- To standardize the development process
- Rapid Application Development (RAD):
 - To improve the speed and quality of system development.
- Testing:
 - It help in improving the testing process through automated checking & simplified program maintenance.
- Documentation:
 - It improve the quality and uniformity & ensure the completeness of documentation.

CONTINUE...

- Project Management:
 - It improves project management activity and to some extent automates various activities.
- Reduce the maintenance cost:
 - Use of CASE tools makes the software easy to maintain and reduce the maintenance costs.
- Increase productivity
 - Automation of various activities of system development and management processes increases productivity of the development team.

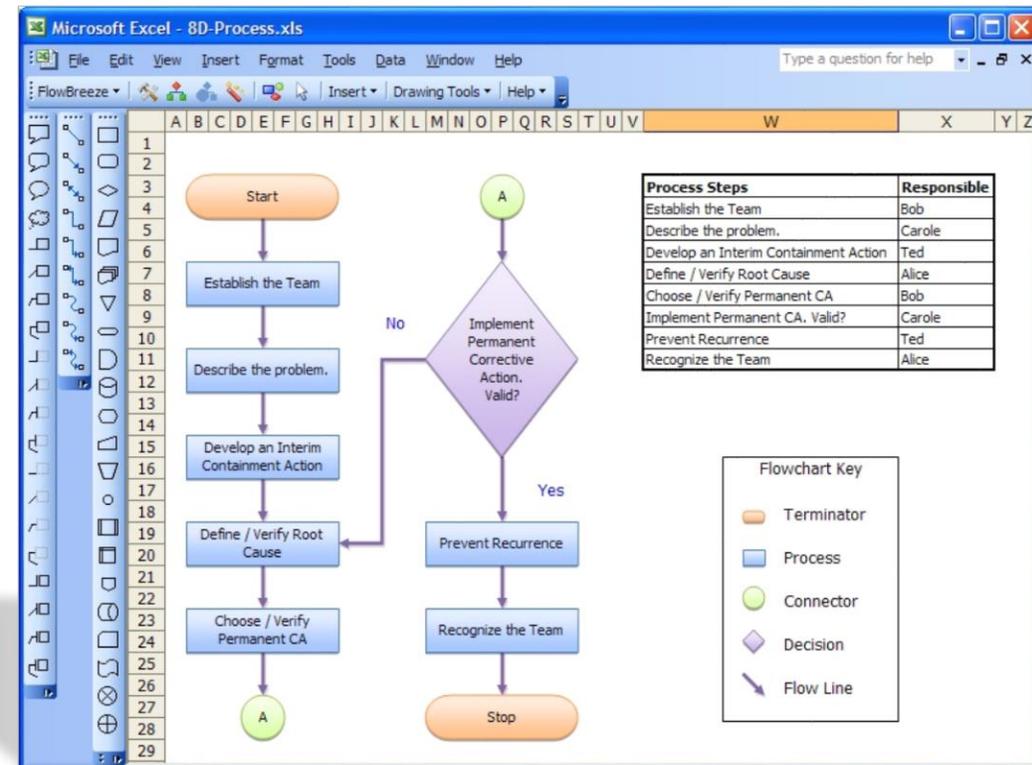
CASE TOOLS

- Major categories of CASE tools are:
 - Diagram tools
 - Project Management tools
 - Documentation tools
 - Web Development tools
 - Quality Assurance tools
 - Maintenance tools



DIAGRAM TOOLS

- These tools are used to represent system components, data and control flow among various software components and system structure in a graphical form.
- Examples
 - Flow Chart Maker tool
 - DFD's (Data Flow Diagram)
 - ERD's (Entity Relationship Diagram)



PROJECT MANAGEMENT TOOLS

- These tools are used for project planning, cost and effort estimation, project scheduling and resource planning.
- Examples
 - Creative Pro Office



DOCUMENTATION TOOLS

- Documentation tools generate documents for technical users and end users.
- Training Manuals, Installation Manual, User Manuals can be generated by documentation tools.
- Examples
 - DrExplain



WEB DEVELOPMENT TOOLS

- These tools assist in designing web pages with all allied elements like forms, text, script, graphic and so on.
- Web tools also provide live preview of what is being developed and how will it look after completion.
- Examples
 - Adobe Edge Inspect



QUALITY ASSURANCE TOOLS

- Quality assurance in a software organization is monitoring the engineering process and methods adopted to develop the software product in order to ensure conformance of quality as per organization standards.
- Examples
 - JMeter



MAINTENANCE TOOLS

- Software maintenance includes modifications in the software product after it is delivered.
- Examples
 - Bugzilla for defect tracking.



Bugzilla

A screenshot of the Bugzilla web interface. The browser window title is "Bugzilla@Mozilla - Bug List". The page shows a list of 96 bugs found. The table has columns for ID, Rev, Pri, OS, Assignee, Status, Resolution, and Summary. The bugs listed include performance regressions, screen savers, context menus, javascript errors, security dialog boxes, cache problems, and various other issues.

ID	Rev	Pri	OS	Assignee	Status	Resolution	Summary
486226	nor	--	All	general@js.bugs	UNCO		TM: Arrays 50% performance regress
486276	nor	--	Wind	nobody@mozilla.org	UNCO		Prevent the screensaver from starting when viewing videos
486284	enh	--	All	nobody@mozilla.org	UNCO		Provide "Read Receipt" with an option to "Ask" on composition
486290	nor	--	Wind	nobody@mozilla.org	UNCO		context menu on right click displayed away from current mouse position in two monitor configuration
486291	maj	--	Wind	nobody@mozilla.org	UNCO		javascript E4X: XML.xpath query stopped to work in Firefox 3.1
486294	enh	--	All	nobody@mozilla.org	UNCO		Enhancement requested: Conversion of attachments to ODF formats
486295	nor	--	Wind	nobody@mozilla.org	UNCO		Security dialog boxes
486296	maj	--	Mac	nobody@mozilla.org	UNCO		Cache problem - The code updates, but not the display
486303	enh	--	All	nobody@mozilla.org	UNCO		Enhancement suggestion: New option for sent mail folder selection
486308	min	--	Wind	nobody@mozilla.org	UNCO		files in downloads window have the folder icon
486316	maj	--	Wind	nobody@mozilla.org	UNCO		TB "forgets" existing folders
486318	maj	--	Wind	nobody@mozilla.org	UNCO		Pop-Up Blocker prevents windows from opening
486319	nor	--	Wind	nobody@mozilla.org	UNCO		did not install
486324	nor	--	Wind	nobody@mozilla.org	UNCO		Cookies seem to reset when Firefox is closed regardless of "Clear Private Data" options.
486327	nor	--	Linu	nobody@mozilla.org	UNCO		Segmentation fault when right-clicking on a specific YouTube bookmark
486328	nor	--	Linu	nobody@mozilla.org	UNCO		NPR_GetURLNotify() downloads empty files
486347	crit	--	Wind	nobody@mozilla.org	UNCO		Profile not saving, Toolbars, bookmarks, history, all being cleared upon closure, and all still missin upon opening
486349	crit	--	Linu	nobody@mozilla.org	UNCO		Segmentation fault "Eprog" \$[+*?@?]
486351	nor	--	Wind	nobody@mozilla.org	UNCO		Sent folder won't copy email nor does it contain text of the body of the email.
486352	nor	--	All	nobody@mozilla.org	UNCO		chrome overrides do not work with query strings
486354	nor	--	Linu	nobody@mozilla.org	UNCO		Incorrect mail tree in IMAP account
486368	nor	--	Wind	nobody@mozilla.org	UNCO		the browser keeps shutting down. A box pops up and says sorry lost connection want to restart or new session
486372	enh	--	Wind	nobody@mozilla.org	UNCO		Window Popup Blocker: URL's property for blocking sites, too
486378	nor	--	Wind	nobody@mozilla.org	UNCO		Poor performance using bookmarks menu with large amounts of bookmarks.
486384	nor	--	Wind	nobody@mozilla.org	UNCO		When saving an image using the right click "save image as" option Firefox 3.5b4pre freezes before saving image

ADVANTAGES

- CASE tools improve quality and productivity of software.
- Produces system that more closely meet user needs and requirements.
- Produces system with excellent documentation.
- Tools are more effective for large scales systems.
- Produce more flexible system.
- CASE tools reduce the time for error correction and maintenance.



DISADVANTAGES

- Very Complex
- Not easily maintainable
- Good quality CASE tools are very expensive.
- Require training of maintenance staff.
- May be difficult to use with existing system.

اهداف درس

- ❑ **The Context of Systems Analysis and Design**
- ❑ **Requirements Elicitation and Business Analysis**
- ❑ **System Analysis Techniques and Tools**
- ❑ **Logical Data Design**
- ❑ **Object Oriented Design**
- ❑ **Interaction Design**

سرفصلهای کلی مطالب

- ✓ What's CASE?
- ✓ CASE benefits
- ✓ Introduction to CASE for High, low & Integrated
- ✓ CASE Implementation & Maintenance
- ✓ CASE Standards
- ✓ Role of Repository & Encyclopedia
- ✓ CASE & structure programming, System Analysis & Software Engineering, Database, Information Modelling, Graphical Model
- ✓ Reverse Engineering for CASE
- ✓ Role of CASE in software recycling
- ✓ Software Management, Computer Applications, Systems & Information Model with aid of CASE
- ✓ Limitation of CASE Application Technology Transfer
- ✓ Choosing CASE for organization & User barrier in CASE application
- ✓ CASE Technology Movement

سرفصلهای جزئی تر مطالب

- ✓ Planning (SDLC, Development Methodologies, Team Roles)
- ✓ Project Initiation
- ✓ Business Value
- ✓ Feasibility Study
- ✓ Project Selection (Project Portfolio)
- ✓ Project Management (Various Activities)
- ✓ Requirement Determination
- ✓ Use-Case Analysis
- ✓ Process Modelling
- ✓ Data Flow Diagram
- ✓ Data Modelling (Entity Relationship Diagram)
- ✓ System Design
- ✓ Architecture Design
- ✓ User Interface Design
- ✓ Program Design
- ✓ Data Storage Design (Database)
- ✓ Implementation (Testing)
- ✓ Transition to the New System
- ✓ Object Oriented Techniques & Unified Modeling Language

RESOURCES

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- Implementing CASE technology, computer technology research group, 1990
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حضور مداوم در کلاس بدون یک جلسه غیبت

پروژه طراحی سیستم

ترجمه / مقاله انفرادی و یا ۲ نفره

میان ترم ۱

میان ترم ۲

میان ترم ۳

پایان ترم

موفق باشید