

# Appendix

## Appendix A: System analysis using UML

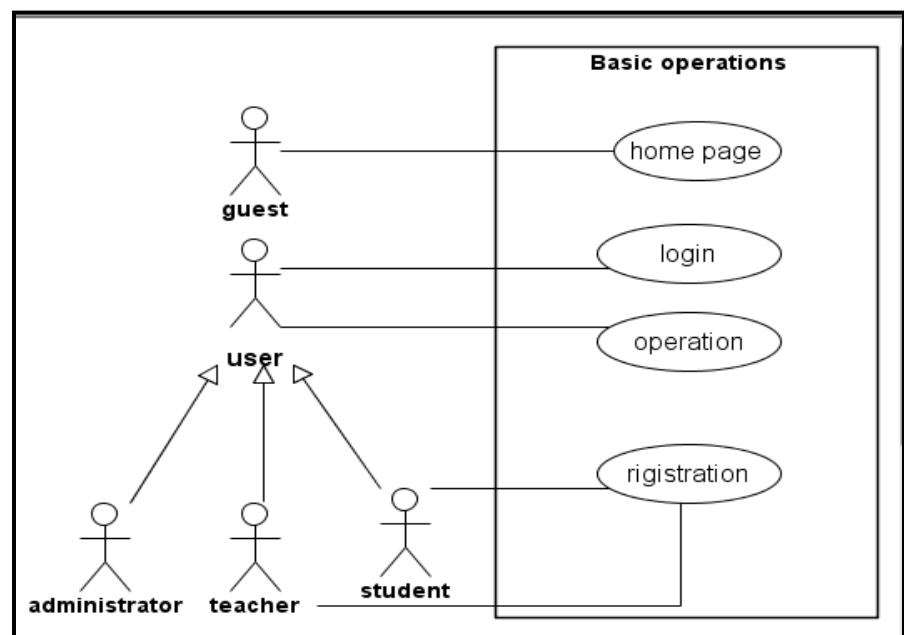
Is one of the tools for Object Oriented Analysis (OOA) used in the analysis is a tool and not systematic analysis, and contains a set of schemes, namely [32]:

1. Use-case Diagram: Shows actors, use-cases, and the relationships between them.
2. Class Diagram: Shows relationships between classes and pertinent information about classes themselves.
3. Object Diagram: Shows a configuration of objects at an instant in time.
4. Interaction Diagrams: Show an interaction between a group of collaborating objects. Two types: Collaboration diagram and sequence diagram
5. Package Diagram: Shows system structure at the library/package level.
6. State Diagram: Describes behavior of instances of a class in terms of states, stimuli, and transitions.
7. Activity Diagram: Very similar to a flowchart—shows actions and decision points, but with the ability to accommodate concurrency.
8. Deployment Diagram: Shows configuration of hardware and software in a distributed system.

### 1) Use case diagrams:

Where users of the system divided into three types according to their use of the system are:

1. System Administrator.
2. Teacher.
3. Student.

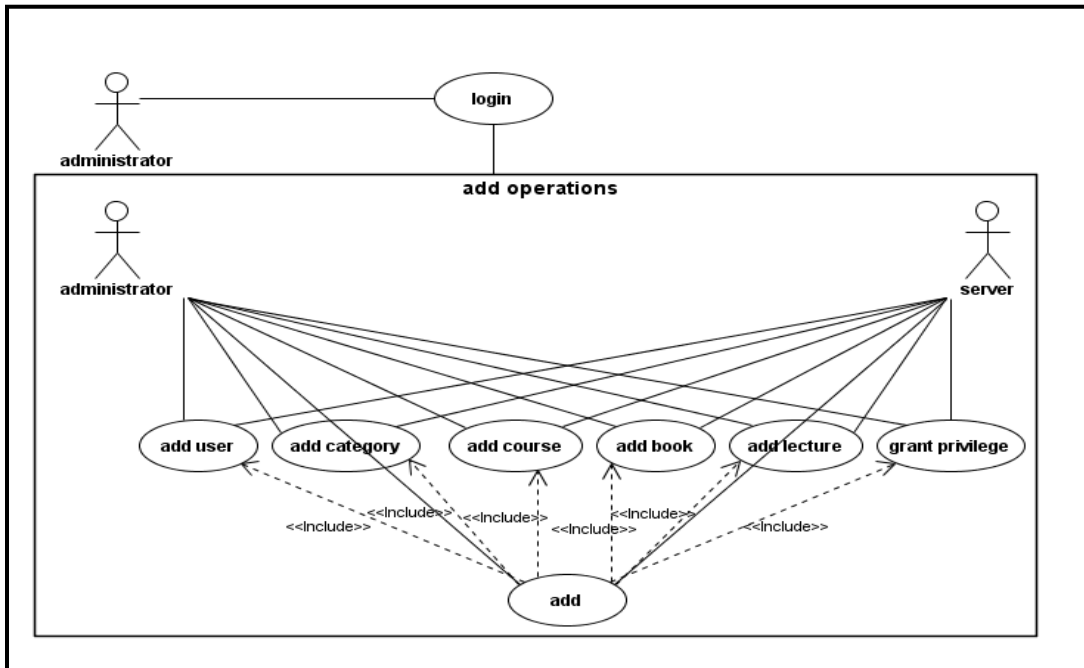


This Figure explains the types of users and their operations within the system

**a. System Administrator:** through the login process System Administrator login to the system to perform the following operations:

## First: a process added

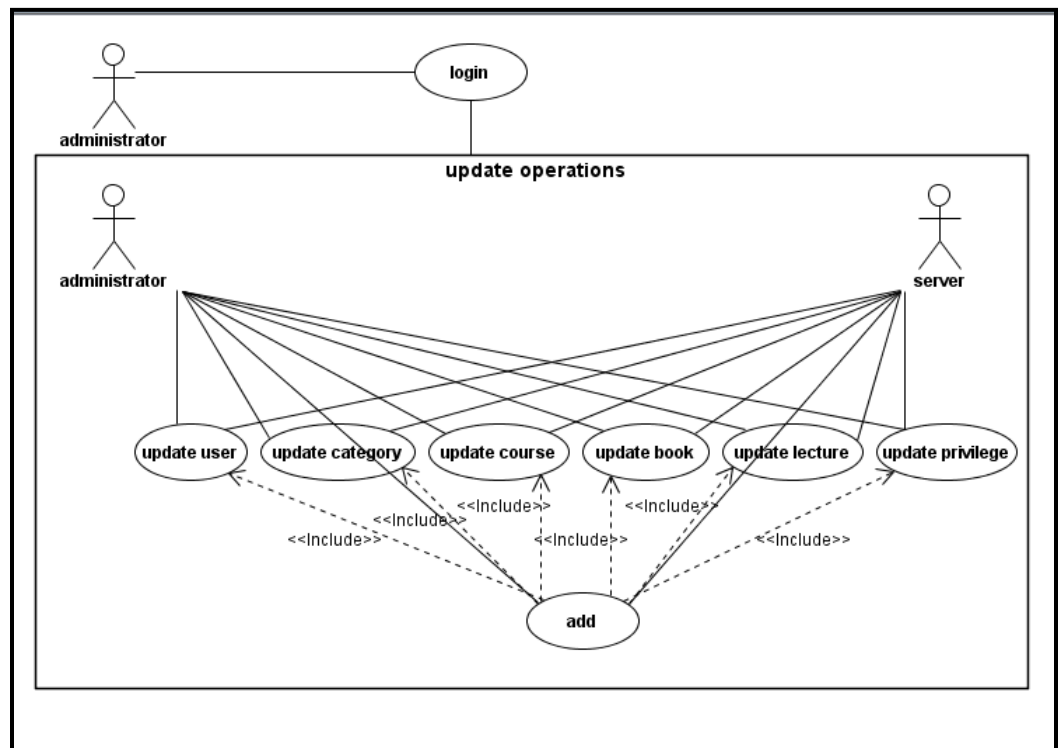
- Add user
- Add an educational resource category.
- Add course.
- Add a book.
- Add a lecture.



This Figure explains the additions made by the system administrator

## Second: to carry out the update:

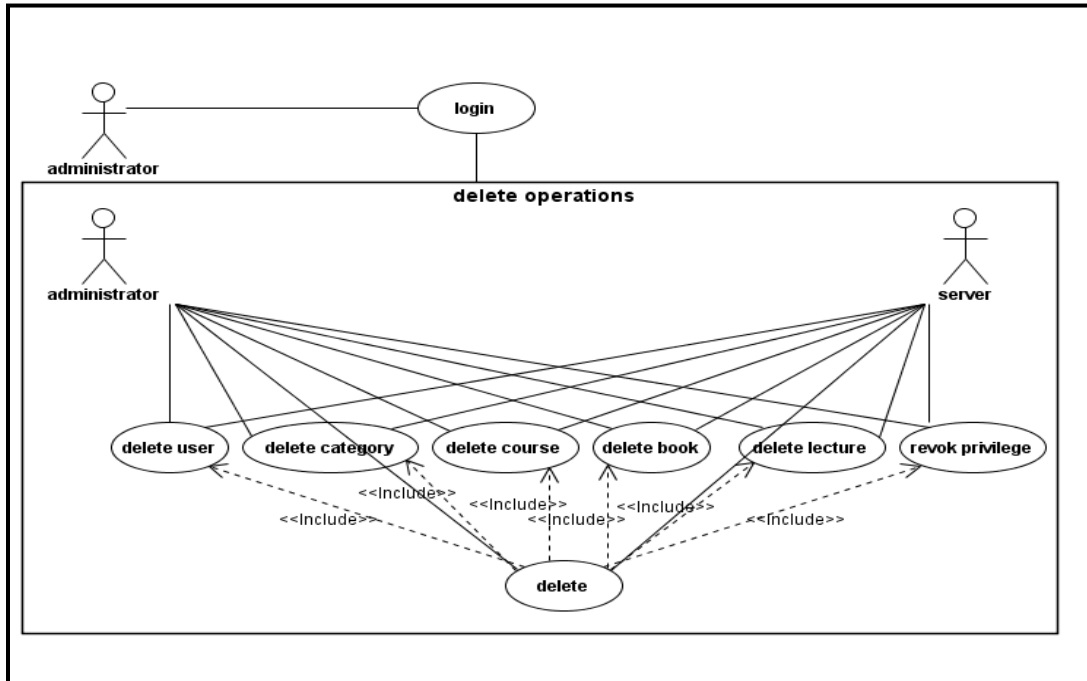
- update user.
- update the educational resource category.
- update the course.
- update a book.
- update lecture.



This Figure explains Operations update that carried out by the system administrator

### Third: deletion operations:

- Delete user.
- Delete an educational resource category.
- Delete course.
- Delete a book.
- Delete a lecture.

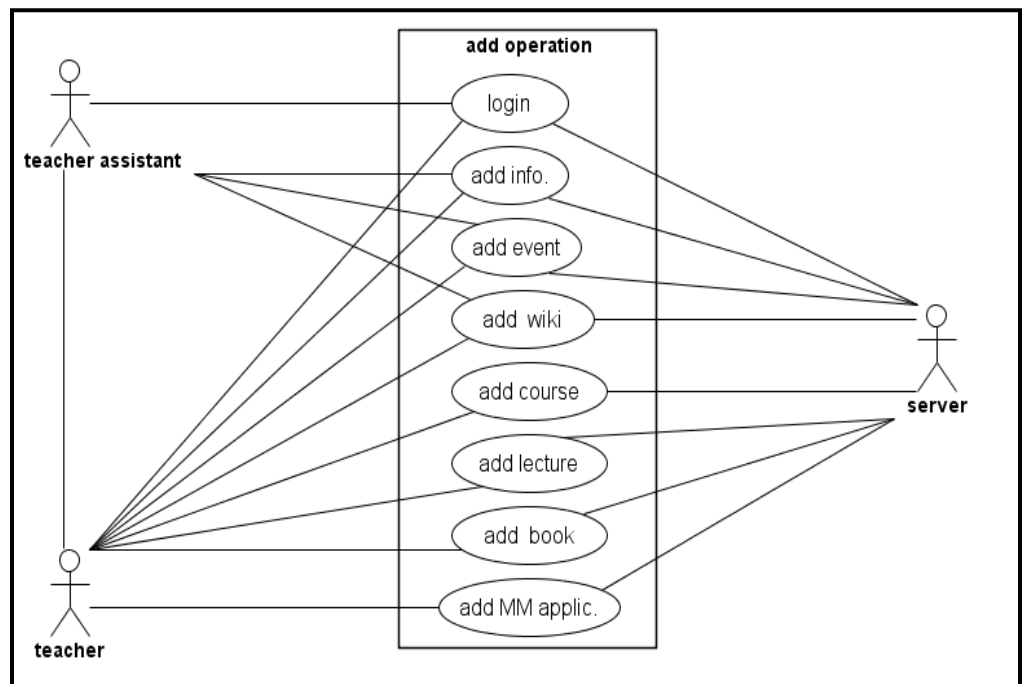


This Figure shows deletions by the system administrator

**b. Teacher:** through the login process the Teacher login to the system to carry out a set of operations authorized within the system, namely:

### First: conducting added

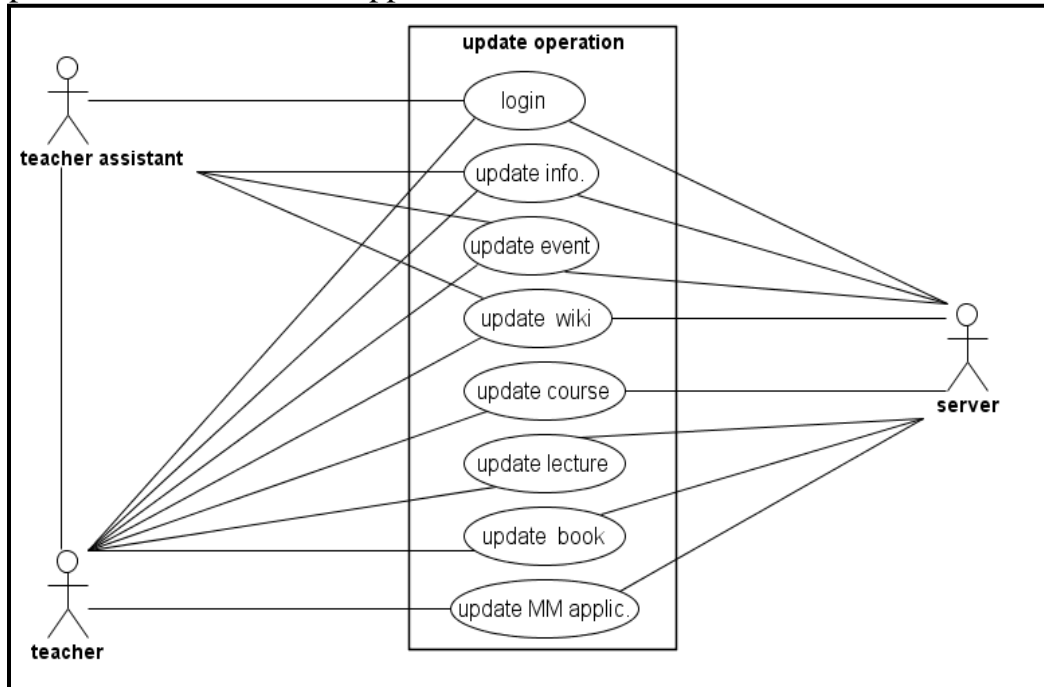
- Add information.
- Add Event.
- Add wiki.
- Add course.
- Add a lecture.
- Add a book.
- Add audible and visual applications.



This Figure shows operations additions by the teacher within the system

## Second: to carry out Update:

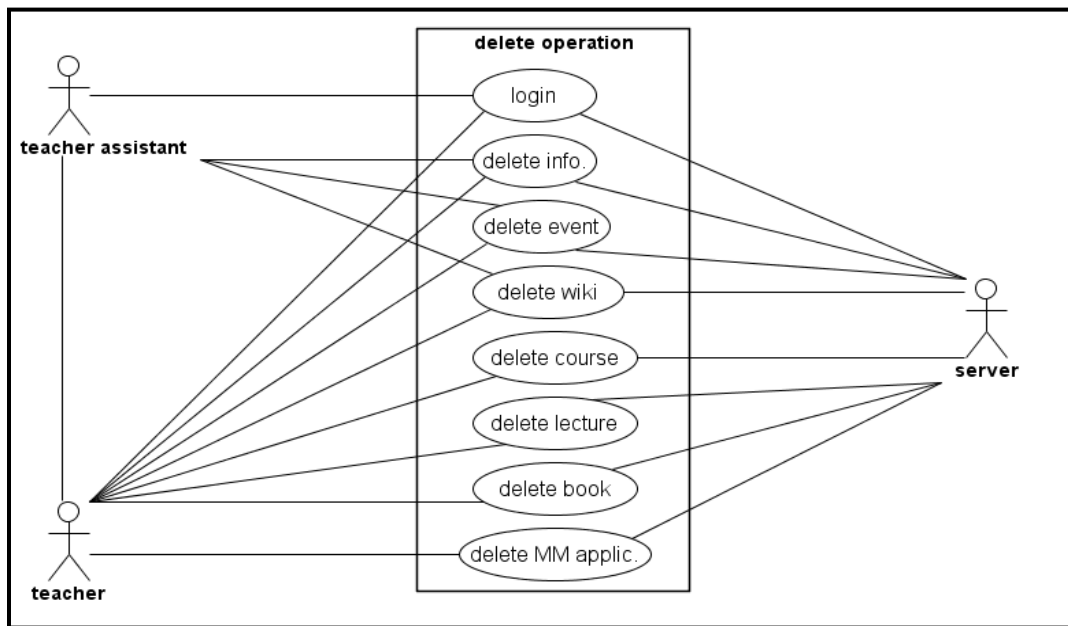
- Update information.
- Update Event.
- Update wiki.
- Update course.
- Update lecture.
- Update audible and visual applications.



This Figure shows operations update by the teacher within the system

## Third: deletion operations:

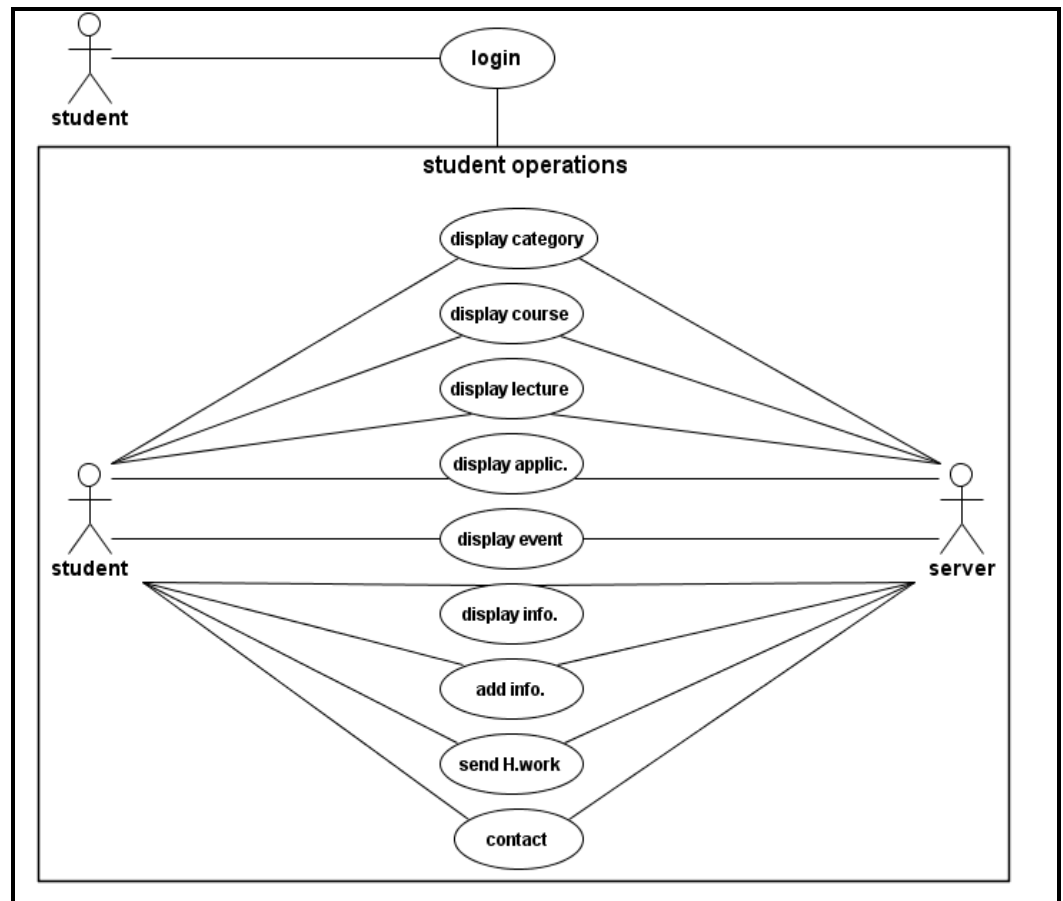
- Delete information.
- Delete an event.
- Delete wiki.
- Delete course.
- Delete a lecture.
- Delete a book.
- Delete audible and visual applications.



**This Figure shows operations delete by the teacher within the system**

**c. Student:** through the login process the student login to the system to carry out a set of operations authorized within the system.

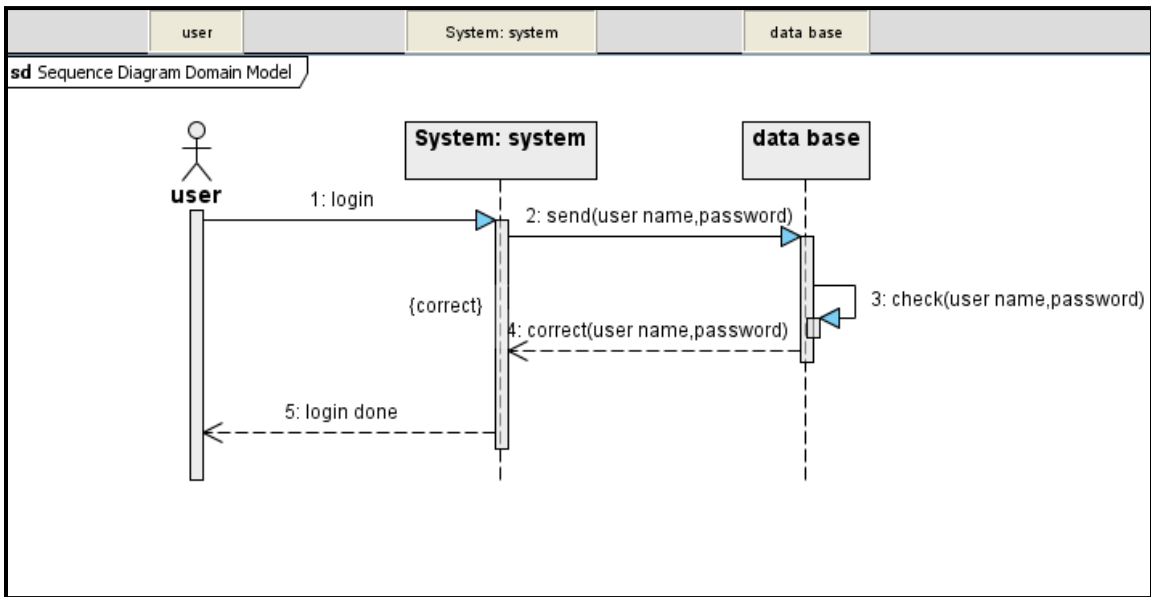
- Display category
- Display courses
- Display lectures
- Display applications
- Display events
- Display information
- Display work
- Add information
- contact



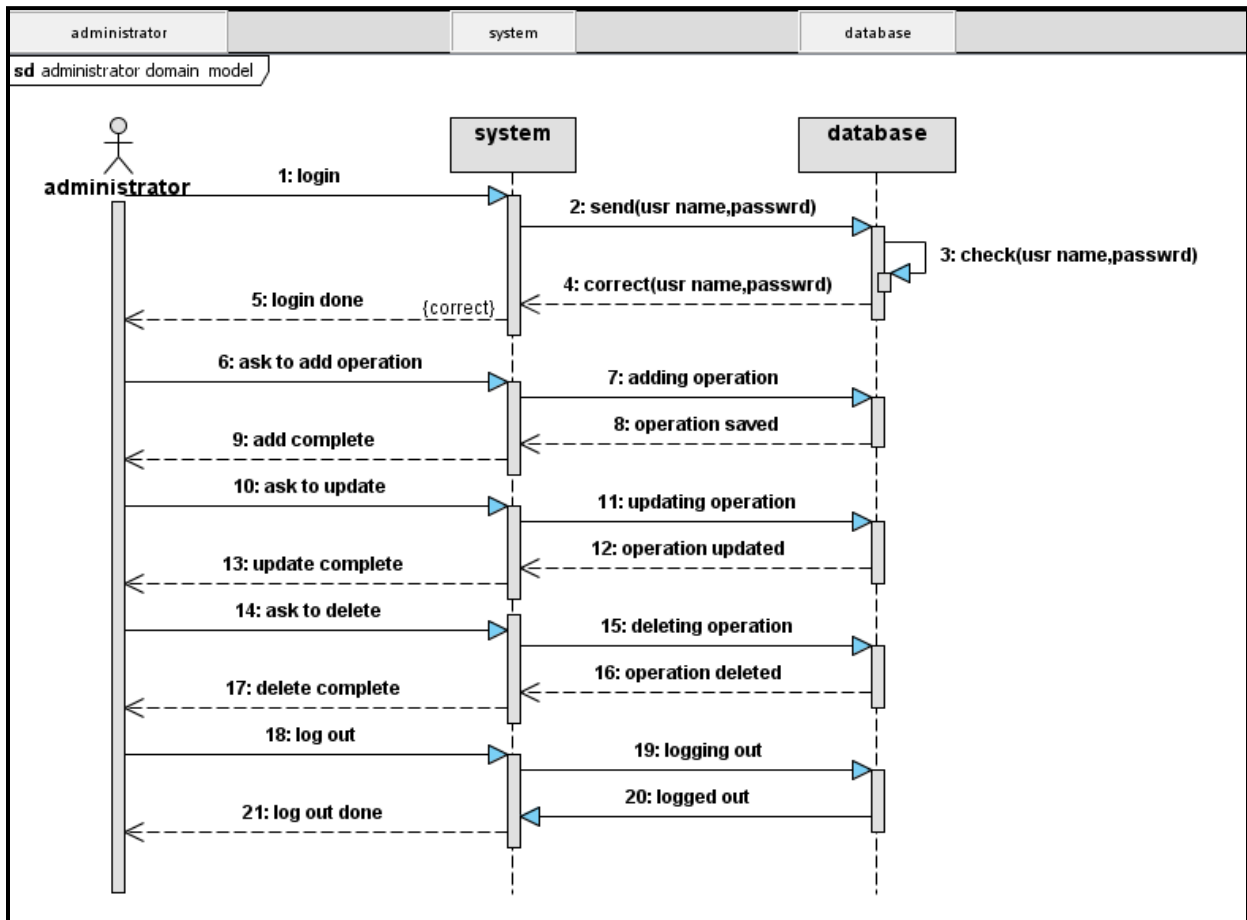
**This Figure Illustrates the operations carried out by the student within the system**



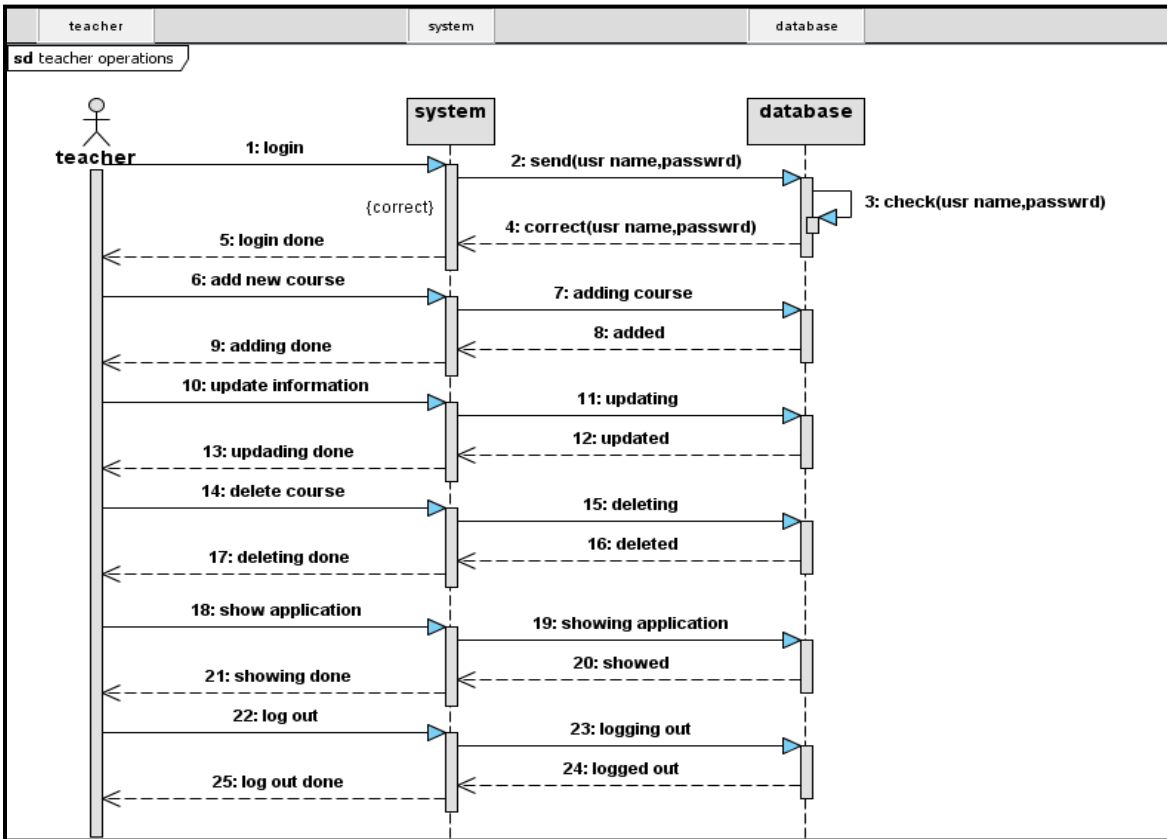
### 3) Sequence Diagrams:



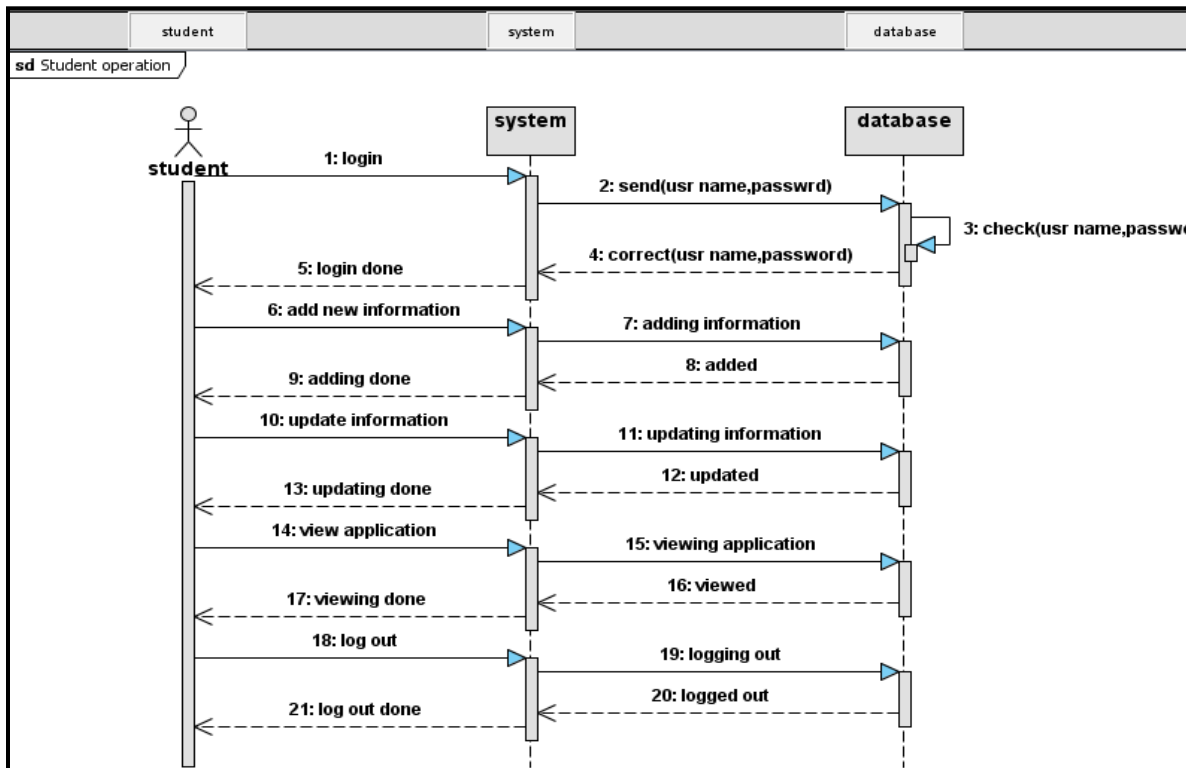
This Figure explains operations the system login by the user



This Figure explains the operations carried out by the system administrator



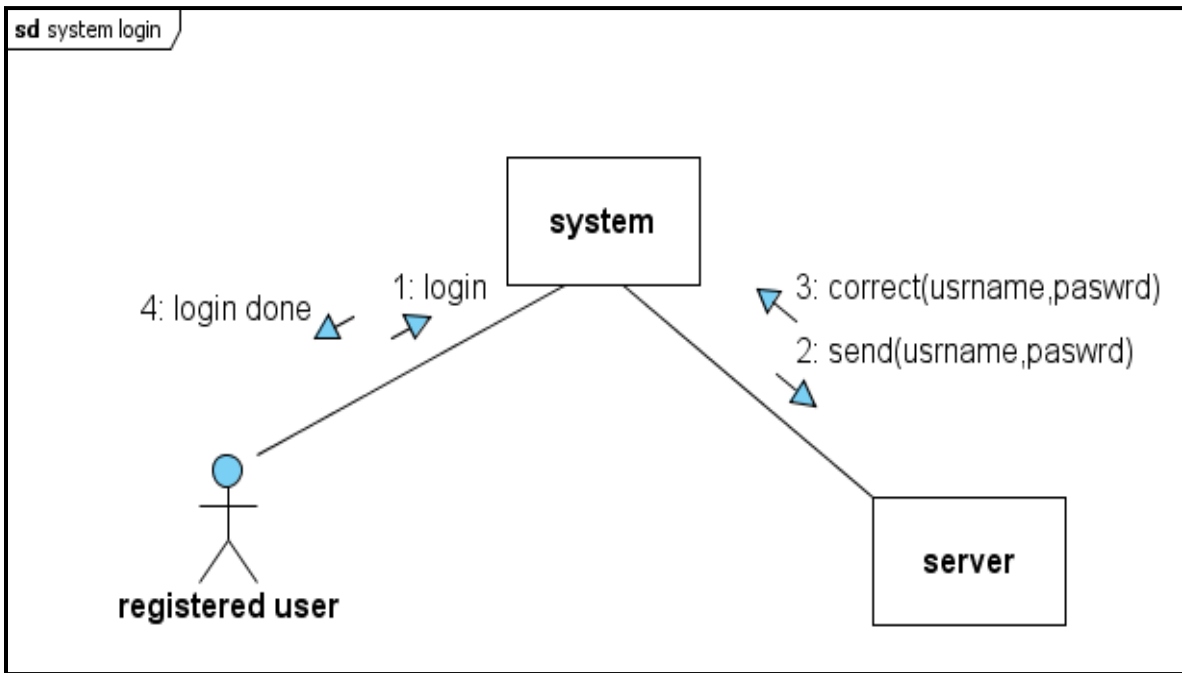
This Figure explains operations carried out by Teacher within the system



This Figure explains the operations carried out by the student within the system

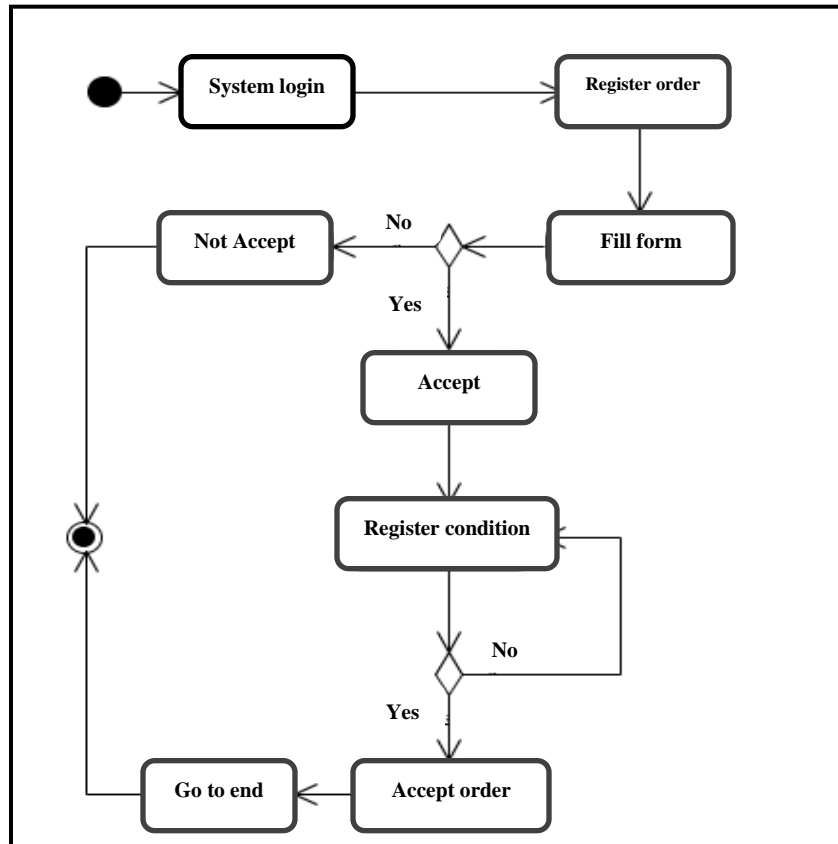


#### 4) Collaboration Diagram:

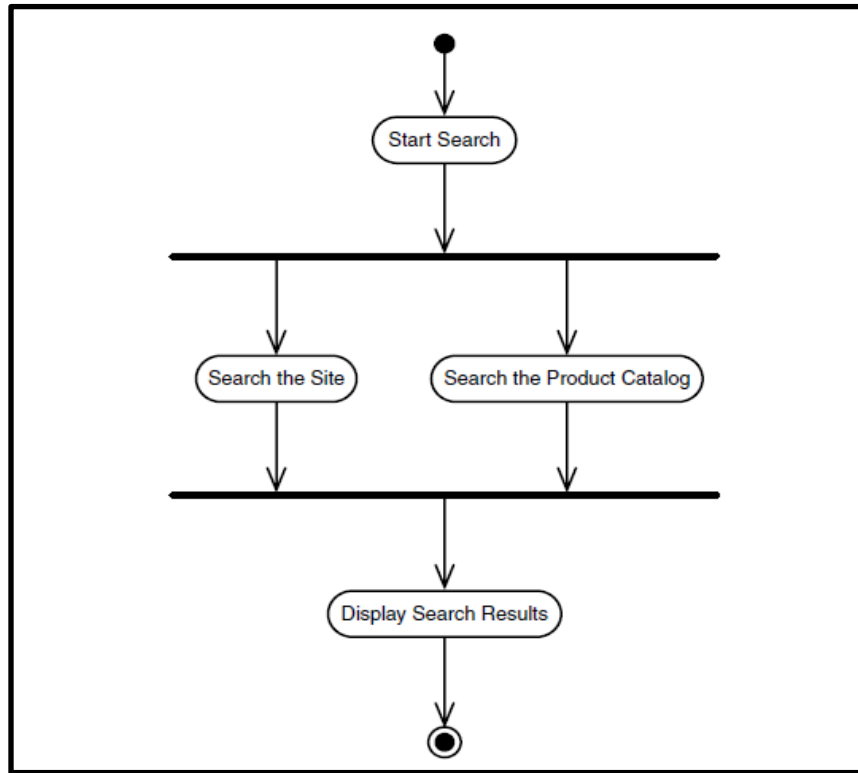


This Figure explains how access to the system for the registered user within the system

#### 5) Activity Diagram:

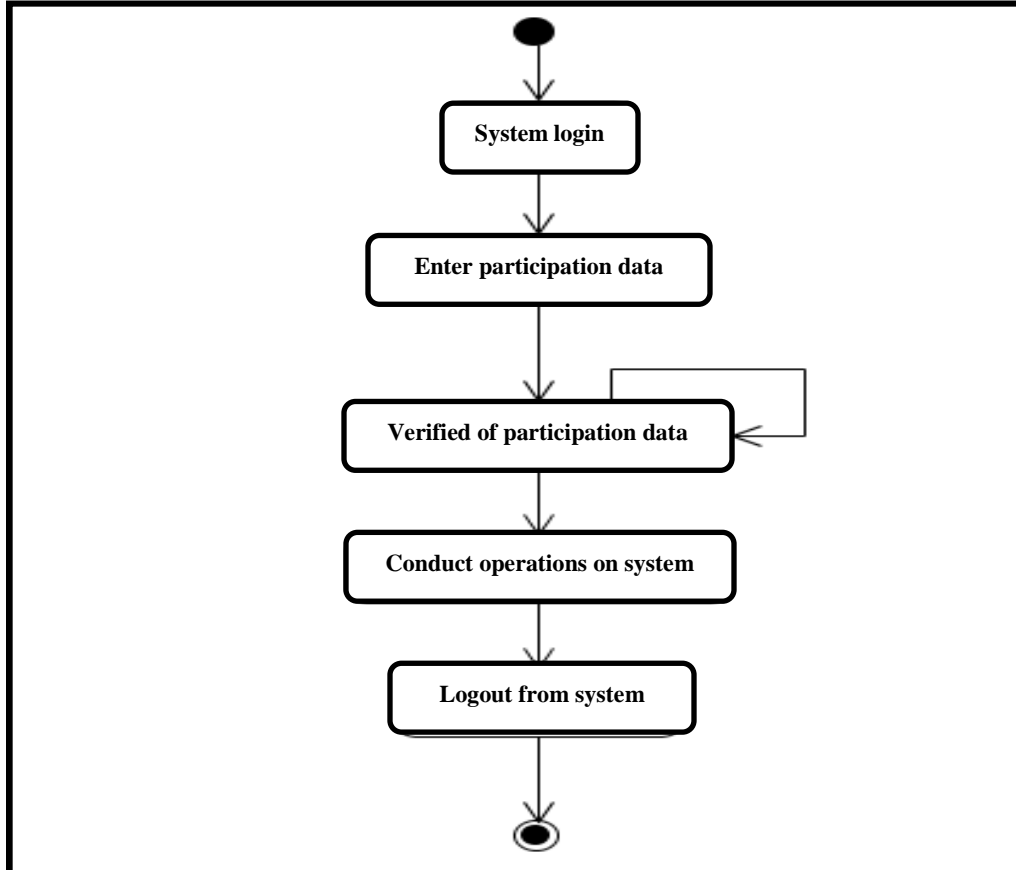


This Figure explains participation operations of the user within the system



This Figure explains search method for books and applications within the system

**6) State Diagram:**



This Figure explains participation procedures and participation operations of the user within the system

## Appendix B: Table's structures

### - System administrator table:

Field name	Alias name	Field type	Field length	Constraints	Notices
Name	username	Char	16	Primary key	
Password	password	Char	16		

### - Teachers table:

Field name	Alias name	Field type	Field length	Constraints	Notices
Name	<u>username</u>	varchar	40	Primary key	
Password	password	varchar	20		
Track	specialist	varchar	30		
qualified	tedig	varchar	30		
address	teaddr	varchar	30		

### - Students table:

Field name	Alias name	Field type	Field length	Constraints	Notices
Name	<u>stname</u>	varchar	40	Primary key	
Password	stpass	varchar	20		
Track	specialist	varchar	30		
Level	stclass	varchar	30		
address	st_addr	varchar	30		

### - Educational resources table:

Field name	Alias name	Field type	Field length	Constraints	Notices
Resource no	<u>Catid</u>	int	10	Primary key	
Resource name	catname	char	40		
Type	cattype	char	30		
Track	specialist	char	30		
Date	Catdate	Date	10		

### - Educational courses table:

Field name	Alias name	Field type	Field length	Constraints	Notices
Course no	<u>Coursid</u>	int	10	Primary key	Reference to resources table
Course name	Coursname	char	40		
Teacher	Teacher	char	30		
Track	Specialist	char	30		
Level	Class	char	30		
Date	Coursdate	date	10		

### - Educational lectures table:

Field name	Alias name	Field type	Field length	Constraints	Notices
Lecture no	<u>Lecid</u>	int	10	Primary key	Reference to courses table
Lecture name	Lecname	char	40		
Teacher	Teacher	char	30		
Track	Specialist	char	30		
Level	Class	char	30		
Date	Coursdate	date	10		

### - Educational books table:

Field name	Alias name	Field type	Field length	Constraints	Notices
Book no	<u>isbn</u>	int	10	Primary key	Reference to courses and lectures
Book name	title	char	40		
Author	author	char	30		
Track	specialist	char	30		
Size	description	float	30		
Version	version	date	10		

**- Educational applications table:**

Field name	Alias name	Field type	Field length	Constraints	Notices
Application no	<u>Appid</u>	int	10	Primary key	Reference to courses and lectures
Application name	Apptitle	char	40		
Type	Apptype	char	30		
Track	Specialist	char	30		
Size	Size	float	30		
Date	Appdate	date	10		

**- Announcements and events table:**

Field name	Alias name	Field type	Field length	Constraints	Notices
Search no	<u>no</u>	int	10	Primary key	Reference to teachers and assistances
Search text	text	char	80		
Teacher	tename	char	30		
Track	specialist	char	30		
Level	class	char	30		
Date	date	date	10		

# Appendix C: Design screen

## 1. Check list for design the system

- **Navigation**
  - Every page is given a title.
  - Direct access to user-specified area within the learning module.
  - Index to topics is provided.
  - Search function for topics is provided.
- **Security**
  - The user of the system (teachers, students, administrator) have username and password.
  - Allow to guest use the main pages.
- **Memorability**
  - Semantic meaning of text link is unambiguous.
  - The use of metaphor for the graphic icon is predictable by user.
  - Label is provided for every graphical icon.
- **Reliability**
  - Freedom in tasks is provided.
  - The system takes to recover from errors.
- **Learner Activity**
  - Reflective thinking is provided.
  - Use of primary data sources.
  - The learning material that support student activity being interesting.
- **Goal Orientation**
  - Explicit goals.
  - Usefulness of goals.
- **Consistency**
  - Delivered in user-spoken language.
  - Consistent languages, terminology.
  - Layout, font and style for every page are consistent.
  - Follow the usual convention of the web, such as changing color for visited link, location of navigation bar.

## 2. Development

The systematic use of scientific and technical knowledge to meet specific objectives or requirements of web based system [44].

Here present the tools that used for development of the system like database language and implementation language and others tools used in this phase.

I used the tools below to develop my system:

- PHP & MySQL
- Macromedia Dreamweaver
- Adobe Photoshop

### 3. Design screen

#### 1, Main screen

The screenshot shows the main interface of the University of Kassala's e-learning system. The browser address bar indicates the URL is localhost/mysite/indexseng.php. The page title is "University of Kassala Faculty of Computer Science and Information Technology Electronic System to Manage Educations Resources". The navigation menu includes "Main", "Login", "Search resource", "announcements", and "Contact Service". The sidebar contains links for "About Faculty", "E-Leraning", "Learning Resource", "Learning service", "User Guidelinc", "New Events", "About Us", and "Relevant Website". The main content area features a "Welcome to the site of elect" message, a section on "Educational resources" with a detailed paragraph, an image of a classroom, and a calendar for April 2013. The footer states "All CopyRight saved to It Department 2012".

**University of Kassala**  
Faculty of Computer Science and Information Technology

**Electronic System to Manage Educations Resources**

Main Login Search resource announcements Contact Service

**About Faculty**  
**E-Leraning**  
**Learning Resource**  
**Learning service**  
**User Guidelinc**  
**New Events**  
**About Us**  
**Relevant Website**

*Welcome to the site of elect*

**Educational resources:**

The learner's need to a broad base of information that contribute to the promotion of specialization has become possible by the present time and through e-learning. systems created by recent trends in educational technology called systems of e-learning, which depends on the employment of computers and the Internet and means interactive multi-various kinds in the teaching process. Has also provided this technology to the field of educational tools and instruments played a major role in the development of teaching and learning methods in recent years, is in the provision of digital learning resources that lead to facilitate individual and collective learning through computers and the Internet, allowing students to look at and listen and watch, in light of the objectives of educational please be achieved in a good environment is designed, implemented and evaluated to guide the educational process. The benefits that accrue to any educational institution of the electronic system for the management of the educational process can not be limited...

**Calendar (April 2013):**

Sat	Fri	Thu	Wed	Tue	Mon	Sun
6	5	4	3	2	1	
13	12	11	10	9	8	7
20	19	18	17	16	15	14
27	26	25	24	23	22	21
				30	29	28
2013 / 4						

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This screen represent the main interface of the system, which starts off into the system in order to take advantage of the internal system resources, sources of educational courses and books, lectures and other educational files contained in the system.

## 2. Student registration login screen:

The screenshot shows a web browser window displaying the login page for the University of Kassala. The browser's address bar shows the URL `localhost/mysite/usrlogineng.php`. The page header includes the university name, faculty name, and a logo. A navigation menu contains links for Main, Login, Search resource, announcements, and Contact Service. A sidebar on the left lists various services like About Faculty, E-Learning, Learning Resource, etc. The main content area is titled "resource website" and contains a welcome message, a "student login" section with input fields for "User Name" and "Password", and buttons for "Login", "New Register", and "Guest". A calendar widget on the right shows the date as Thursday, 4th of the month in 2013.

University of Kassala  
Faculty of Computer Science and Information Technology

Electronic System to Manage Educations Resources

Main Login Search resource announcements Contact Service

About Faculty  
E-Leraning  
Learning Resource  
Learning service  
User Guideline  
New Events  
About Us  
Relevant Website

resource website

Dear learner...!

Welcome to the site management of electronic educational resources to the faculty of Computer Science and Information Technology - University of Kassala ..To take advantage of this site from educational sources Please sign in below:

student login

User Name

Password

Login

[New Register](#)

[Guest](#)

Sat	Fri	Thu	Wed	Tue	Mon	Sun
6	5	4	3	2	1	
13	12	11	10	9	8	7
20	19	18	17	16	15	14
27	26	25	24	23	22	21
				30	29	28

2013 / 4

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in this screen recording data entry student of the user name and password if the student account already in the system, but if the new user who shall choose the link hyperlinks (not verified) for the purpose of recording data up within the system to take advantage of the system resources of the Interior, If The user guest who shall enter the main interface of the system directly to find out information about this system.

### 3. New student registration screen:

The screenshot shows a web browser window displaying the 'New Student' registration page of the University of Kassala. The browser's address bar shows 'localhost/mysite/a7eng.php'. The page header includes the university's name, faculty, and a logo. A navigation menu contains 'Main', 'Login', 'Search resource', 'announcements', and 'Contact Service'. A sidebar on the left lists various services like 'About Faculty', 'E-Learning', and 'Learning Resource'. The main content area features a registration form with the following fields:

Field	Input Type
University number	Text input
Student name	Text input
Password	Text input
Faculty	Dropdown menu (select from menu)
Track	Dropdown menu (select from menu)
Level	Dropdown menu (select from menu)
E-mail Address	Text input
Date	Dropdown menu

Below the form is an 'Insert' button. To the right of the form is a calendar widget for the month of April 2013, showing the date '4' selected.

*tional resource website*

**New Student**

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In this screen a student enters data registration and subscription in order to get an account within the system to take advantage of the internal system resources.



#### 4. System administrator login:

The screenshot shows a web browser window with the URL localhost/mysite/logineng.php. The page header features the University of Kassala logo and the text 'Faculty of Computer Science and Information Technology' and 'Electronic System to Manage Educations Resources'. A navigation bar includes buttons for 'Main', 'Login', 'Search resource', 'announcements', and 'Contact Service'. A sidebar on the left contains buttons for 'About Faculty', 'E-Leraning', 'Learning Resource', 'Learning service', 'User Guideline', 'New Events', 'About Us', and 'Relevant Website', along with a 'Login Now' button. The main content area is titled 'Teachers and Administrators Login' and includes a 'Login as' dropdown menu set to 'select from menu' and a 'GoTo' button. Below this is a 'System Administrator' login form with fields for 'username:' and 'password:', and a 'login' button. A calendar widget on the right shows the date 4th of the month. The footer contains the text 'All CopyRight saved to It Department 2012'.

this screen Describe login system manager and it was selected from a list of options and click on the Go button and then enter your user name (system administrator) and password in order to access the window main control where everyone group operations carried out by the system administrator.

## 5. Basic operations of Teacher screen

The screenshot shows a web browser window with the URL `localhost/mysite/teachereng.php`. The page header features the University of Kassala logo and the text "University of Kassala Faculty of Computer Science and Information Technology". Below the header is a navigation menu with buttons for "Main", "Login", "Search resource", "announcements", and "Contact Service". The main content area is titled "Basic operation to teacher" and contains a grid of icons and labels for various functions: "Add Lectures", "Add Educational Resource", "Educational Resources", "Add multimedia applications", "Students management", "Add Books", "Events management", "Show participation messages", and "Other applications". A "Registration logout" link is located below the grid. The footer of the page states "All CopyRight saved to It Department 2012".

This screen is a window control of key processes carried out by Teacher within the system.

## 6. Basic operations Screen for the system administrator:

The screenshot shows a web browser window with the URL `localhost/mysite/admineng.php`. The page header features the University of Kassala logo and the text "University of Kassala Faculty of Computer Science and Information Technology Electronic System to Manage Educations Resources". A navigation bar includes buttons for "Main", "Login", "Search resource", "announcements", and "Contact Service".

The main content area is titled "Basic Operations to System Administrator" and contains a central panel with a computer monitor background. This panel includes the following options:

- Educational Resources** (with a house icon)
- Add educational resource** (with a computer monitor icon)
- Add books and lectures** (with an open book icon)
- Students management** (with an icon of two people)
- show participations messages** (with an envelope icon)
- Edit system administrator password** (with a notepad icon)

At the bottom of the panel is a **LOGOUT** button. A footer at the very bottom of the page reads "All CopyRight saved to It Department 2012".

This screen is a window control system for the home and where everyone group operations carried out by the system administrator.

## 7. Teaching assistant operations screen

The screenshot shows a web browser window with the URL `localhost/mysite/teasiseng.php`. The page header features the University of Kassala logo and the text "University of Kassala Faculty of Computer Science and Information Technology". Below this is a navigation bar with buttons for "Main", "Login", "Search resource", "announcements", and "Contact Service". The main content area is titled "Basic operations for a teaching assistant" and contains several interactive icons: "Multimedia addition", "Add scientific encyclopedia", "Learning Resources", "Student Information", "Event Management", and "Add other applications". A "Logout" link is also present. The footer of the page reads "All Copyright saved to IT Department 2012".

This screen is a window control of key processes carried out by the teaching assistant within the system.

## 8. Search screen in system:

The screenshot shows a web browser window with the URL `localhost/mysite/bookseng.php`. The page header includes the University of Kassala logo and the text "University of Kassala Faculty of Computer Science and Information Technology". The main navigation bar contains buttons for "Main", "Login", "Search resource", "announcements", and "Contact Service".

The left sidebar contains the following menu items:

- About Faculty
- E-Learning
- Learning Resource
- Learning service
- User Guideline
- New Events
- Contact Us
- Relevant Website

The main content area features a search interface with the text "search for books on system". A search box contains the text "d", and a search button is visible. Below the search box, a dropdown menu displays suggestions: "Moodle", "JavaScript Methods", and "database".

On the right side, there is a calendar for April 2013, showing the following dates:

Sat	Fri	Thu	Wed	Tue	Mon	Sun
6	5	4	3	2	1	
13	12	11	10	9	8	7
20	19	18	17	16	15	14
27	26	25	24	23	22	21
				30	29	28

The footer of the page contains the text: "All CopyRight saved to It Department 2012".

This is the screen as the main window to search for educational resources, books, lectures, files and data inside the system, and when you enter a particular character progress window suggestions for material to be searched for in order to facilitate access to these terms available and selecting the desired ones.

## 9. Services contact screen:

The screenshot shows a web browser window displaying the contact page of the University of Kassala. The browser address bar shows 'localhost/mysite/contactuseng.php'. The page header includes the university name and faculty, along with a logo. A navigation menu contains links for 'Main', 'Login', 'Search resource', 'announcements', and 'Contact Service'. A sidebar on the left lists various services like 'About Faculty', 'E-Learning', and 'Relevant Website'. The main content area features a 'contact us' form with fields for 'Date', 'sender', 'Email address', 'log as', 'topic', and 'message text', and a 'send' button. A calendar widget is visible in the bottom right corner, showing the date 4th of the month. At the bottom, there is a copyright notice: 'All CopyRight saved to It Depatment 2012'.

University website: <http://www.kassalauni.edu.sd>  
faculty page: <http://www.kassalauni.edu.sd/ccollege.html>  
system administrator: [anas\\_alie@yahoo.com](mailto:anas_alie@yahoo.com)

Sat	Fri	Thu	Wed	Tue	Mon	Sun
6	5	4	3	2	1	
13	12	11	10	9	8	7
20	19	18	17	16	15	14
27	26	25	24	23	22	21
				30	29	28
2013 / 4						

Using this screen is common in the system by typing messages, suggestions and posts and sent to manage the system. And also links to access the faculty page or university or the system administrator.

## 10. Educational resources screen:

University of Kassala  
Faculty of Computer Science and Information Technology  
Electronic System to Manage Educational Resources




Main Login Search resource announcements Contact Service

**Educational Resources**

Welcom: [\[sign out hhh\]](#)

Select Department

Computer Science Department

No	Educational Resource name	Level
4	 محاضرات	الرابعة
25	 Data base	الثالثة
30	 أستاذ عبد الحفيظ	الخامسة

[Main Page](#)

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This screen displays reports from all sources within the educational system by departments or disciplines in the faculty which includes inside a series of books, lectures, courses, and is accessed after logging system.

## 11. Books and Lectures screen:



The screenshot shows a web browser window displaying the website of the University of Kassala, Faculty of Computer Science and Information Technology. The page features a header with the university's name and logo, and a navigation menu with buttons for 'Main', 'Login', 'Search resource', 'announcements', and 'Contact Service'. Below the navigation menu is a table listing educational resources. The table has six columns: 'no', 'address', 'teacher', 'level', 'date', and 'size'. The table contains four rows of data, each representing a different resource. At the bottom of the page, there is a footer that reads 'All Copy Right saved to It Department 2012'.

no	address	teacher	level	date	size
3	<a href="#">تعليم MySQL و PHP</a>	أسكاذ أنس	الأولى	2011-08-10	200kb
2	<a href="#">أساليب البرمجة</a>	أسكاذ عوض علي	الثانية	2011-02-11	400kb
666	<a href="#">مبادئ قواعد البيانات</a>	أسكاذ مختار محمد	الأولى	2011-03-12	250kb
4	<a href="#">حماية ملفات الويب</a>	أسكاذ أنس علي	الخامسة	2011-05-15	150kb

This screen displays all reports books, lectures and courses and various applications files within the educational resources by disciplines and levels, which are accessed by users within the system.



## 12. Teacher login screen:

The screenshot shows a web browser window displaying the login page for the University of Kassala. The browser's address bar shows the URL `localhost/mysite/techlogineng.php`. The page header includes the university's name, faculty, and logo. A navigation menu contains links for Main, Login, Search resource, announcements, and Contact Service. A sidebar on the left lists various site sections. The main content area features a login form for teachers, including a dropdown menu for user selection, a 'GoTo' button, and input fields for 'user name' and 'password'. A 'Login' button is positioned below the password field. A 'New Register' link is also visible. A calendar widget is located in the bottom right corner, showing the month of April 2013.

**University of Kassala**  
Faculty of Computer Science and Information Technology

**Electronic System to Manage Educations Resources**

Main Login Search resource announcements Contact Service

About Faculty  
E-Leraning  
Learning Resource  
Learning service  
User Guideline  
New Events  
About Us  
Relevant Website

Welcome to the site of administration of educ  
teachers and administrators Login

Login as select from menu GoTo

**Teacher**

user name  
password  
Login

[New Register](#)

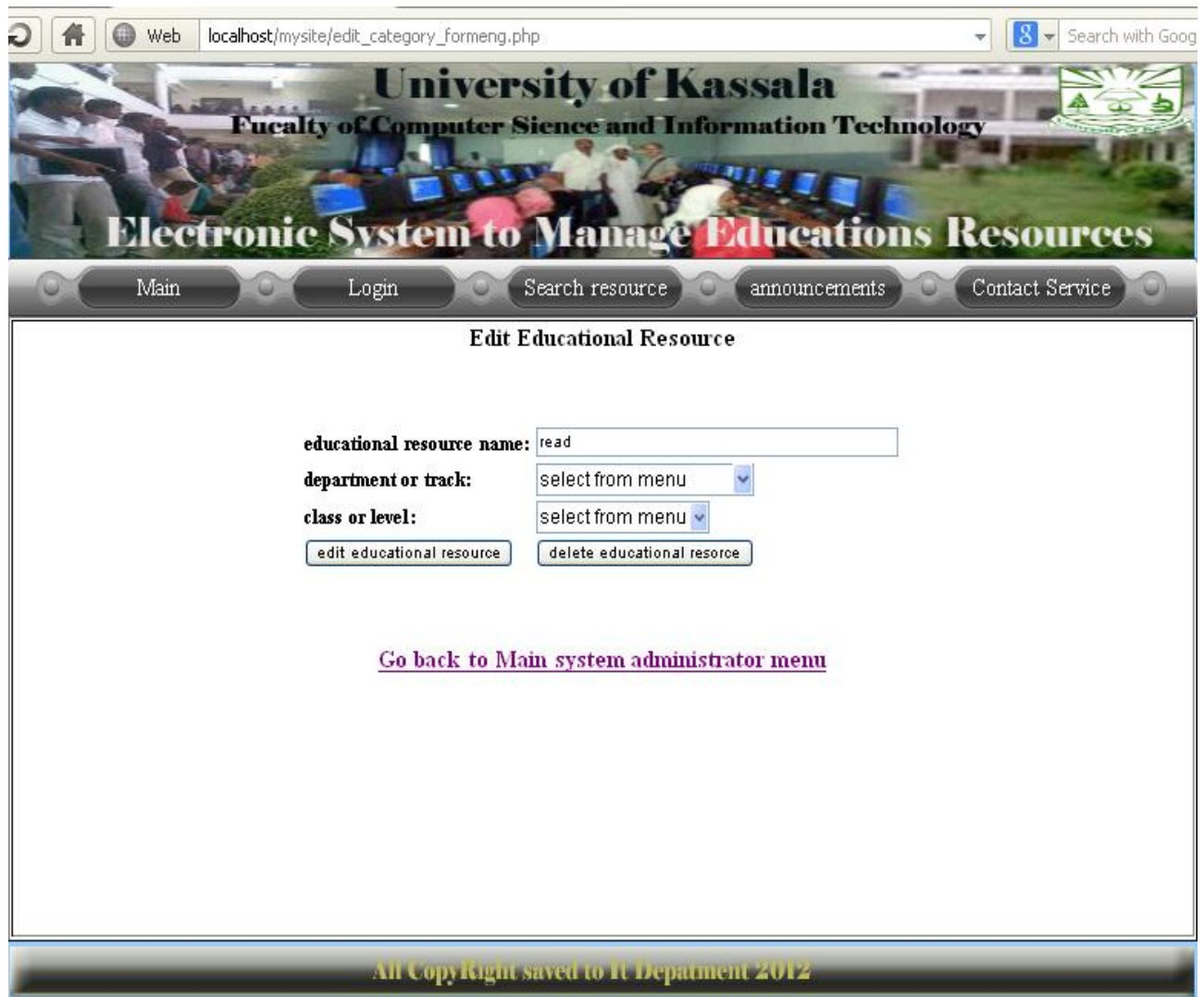
Sat	Fri	Thu	Wed	Tue	Mon	Sun
6	5	4	3	2	1	
13	12	11	10	9	8	7
20	19	18	17	16	15	14
27	26	25	24	23	22	21
				30	29	28

2013 / 4

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this screen Describe Login teacher of the system as it was selected from a list of options and click on the Go button and then enter your user name and password in order to access the main window control where everyone group operations carried out by teacher within the system.

### 13. Edit Educational resources screen:



This screen represents a model for the management of educational resources for the purpose of conducting modification and deletion of existing educational resources within the system.

## 14. Student management screen:

The screenshot shows a web browser window with the URL `localhost/mysite/admin_iteng.php`. The page header features the University of Kassala logo and the text "University of Kassala Faculty of Computer Science and Information Technology". Below the header is a navigation menu with buttons for "Main", "Login", "Search resource", "announcements", and "Contact Service". The main content area is titled "student administrator page" and includes a "department" dropdown menu set to "select from menu" and a "GoTo" button. Below this is the "Information Technology Department" section, which contains a table of student data. The table has columns for NO, Name, Address, track, Level, registration date, edit, and delete. A single row of data is visible. Below the table is a link labeled "add new student". The footer of the page states "All CopyRight saved to It Depatment 2012".

NO	Name	Address	track	Level	registration date	edit	delete
22454	alaa aldeen	yardah@hotmail.com	IT	2	0000-00-00		

This screen displays reports on student data subscribers in the system by disciplines or departments, as well as the operations control data of students by teachers or the system administrator to make additions and deletions and the amendment to this data.

## 15. Event management screen

University of Kassala  
Faculty of Computer Science and Information Technology

Electronic System to Manage Educations Resources

Main Login Search resource announcements Contact Service

**event management page**

Welcome to the Manage Ads page in order to make adjustments and deletions and new ads

No	Date	track	Level	Ads	edit	delete
1	2011-08-16	CS	3rd	E-learning Lec. on wednesday at 02:00pm		
2	2011-08-07	IT	4th	Data base Lec. on sunday at 04:00pm		
3	2011-08-07	IS	3rd	Information System Lec. on wednesday at 02:00pm		

[Add New](#)

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This screen displays data reports events and advertising targeted to college students in the system by disciplines and levels, as well as control operations in the event data and declarations by teachers or the system administrator to make additions and deletions and the amendment to this data.

## 16. Screen messages from participants:

University of Kassala  
Faculty of Computer Science and Information Technology

Electronic System to Manage Educations Resources

Main Login Search resource announcements Contact Service

**Incoming messages from callers**

Date	:2011-08-01
from sender	:anas
address	:anas@yahoo.com
attribute	:teacher
topic	:how r u
text message	:welcome in your site
	<a href="#">delete</a>
Date	:2011-08-01
from sender	:moh
address	:moh@yahoo.com
attribute	:student
topic	:HW
text message	:الحمد لله الذي هدانا لهذا وما كنا لنهتدي لولا أن هدانا الله
	<a href="#">delete</a>

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This screen displays reports for messages and proposals received from individual users within the system and directed to a system administrator or teachers, as well as control processes these messages and proposals by the teachers or the system administrator to perform the deletion.