

2.7 System Features

2.7.1 Modified Interface

The resulting interfaces are basically of two types and the user can choose which to use, they are loosely, flexible, movable widows arranged in an initial arrangement but the learner is free to move them around, this decision was made based on the survey study carried out which revealed that just like different people arrange their books while reading multiple numbers differently likewise each wished to view the video and slide arrangement according to their requirements, see results for Q3 in Appendix A. A Timeline window is also provided for the viewer in prototype 2 where he can view the entire lecture slide content in a timeline mode

2.7.2 Concept Map Tool Facility

The current “Synmark” window was changed to be used as a click and pop window so that it gave more space to the content of the lecture to be viewed see the diagrams in Appendix B where the system run shows the synmark window as a pop-up to the interface window. The concept map tool was researched to be more usable in a pop-up architecture, where it was at the user disposal to view the current concept location in the concept map, hence the concept map is added as part of the synmark window.

2.7.3 Note Sharing and Feedback Statistical Analysis Add On

Synote allows effective communication between the instructor and students:

The instructor is able to monitor student feedback via the easy categorization and pictorial view of the synmarks which have a flag added as part of the synmark framework.

The students have the facility to put flags (“questions”, “solutions” “comments”, “problem area”) which make their posts easy to read and attract the attention of the viewers and instructors to the relevant sections parts of lecture which are also displayed as a timeline for a quick glance at the feedback. This is a also a way of giving useful feedback to the instructor. This view gives a statistical analysis and the instructor can determine which parts of the lecture are causing the greatest confusion (depending on the frequency of ‘Problem Area’ flag synmark indicated on the timeline chart).

CHAPTER 3

SYSTEM ARCHITECTURE

3.1 Overview

The system follows the three-tier architectural style and is organized into three layers: the interface layer, application layer and the storage layer. The interface layer is the collection of web pages that allows the users to interact with the system. It is implemented using Java and Grails at large and contains the facility of not only synchronizing videos with slides but also student evaluation. The application layer contains the logic and rules for storing data in the database layer and also retrieving it in accordance with the user's needs. Finally, the storage layer stores the whole data in a database as required by the system which include the video and slide url's , as well the "synmarks" data.

3.2 Rationale

The three-tier architecture style is used because it not only separates the user interface and the stored data, but also provides an application logic layer. The application layer provides a middle layer that allows the data and the web interface to be loosely coupled. The application layer has to be modified if there are any changes to the format of the data files and the interface layer will need little or no modification. This makes it easy for clients of this software to modify the data file format and attributes for further research purposes if they wish to do so. This layer makes the system more maintainable and reusable and also hides the complexity of processing data from the users.

3.3 Architectural View

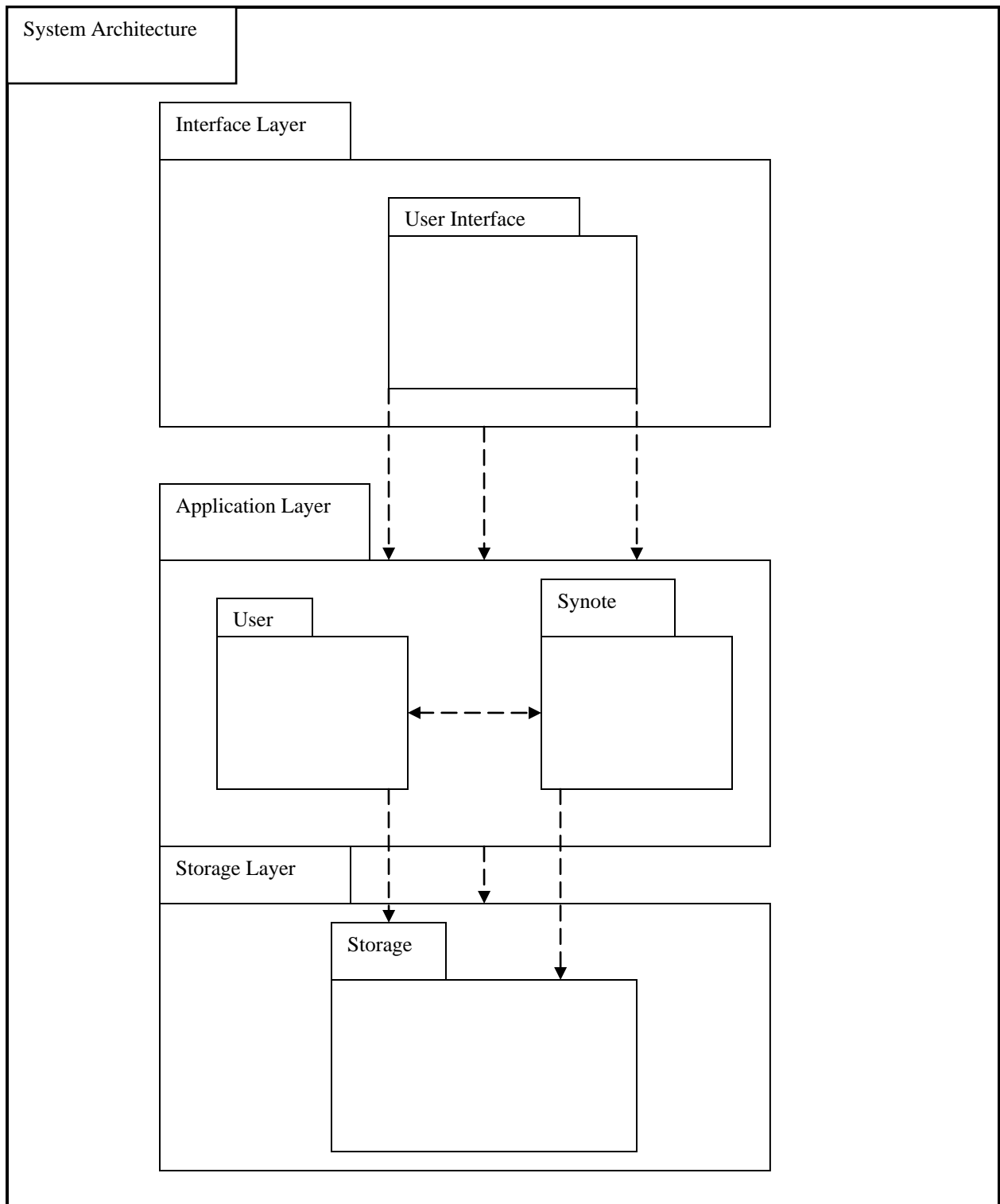


Figure 3.3.1 An Architectural View of Synote

CHAPTER 4

SYSTEM DESIGN & IMPLEMENTATION

4.1 Implementation Decisions and Design

The development was carried out using the Google Web Toolkit platform for website development and the language deployed was Groovy and Grails, the IDE used was notepad++ and the execution testing was done command-line, the database interaction was handled via hibernate and MySQL provided the underlying database functionality.

4.2 Conceptual View

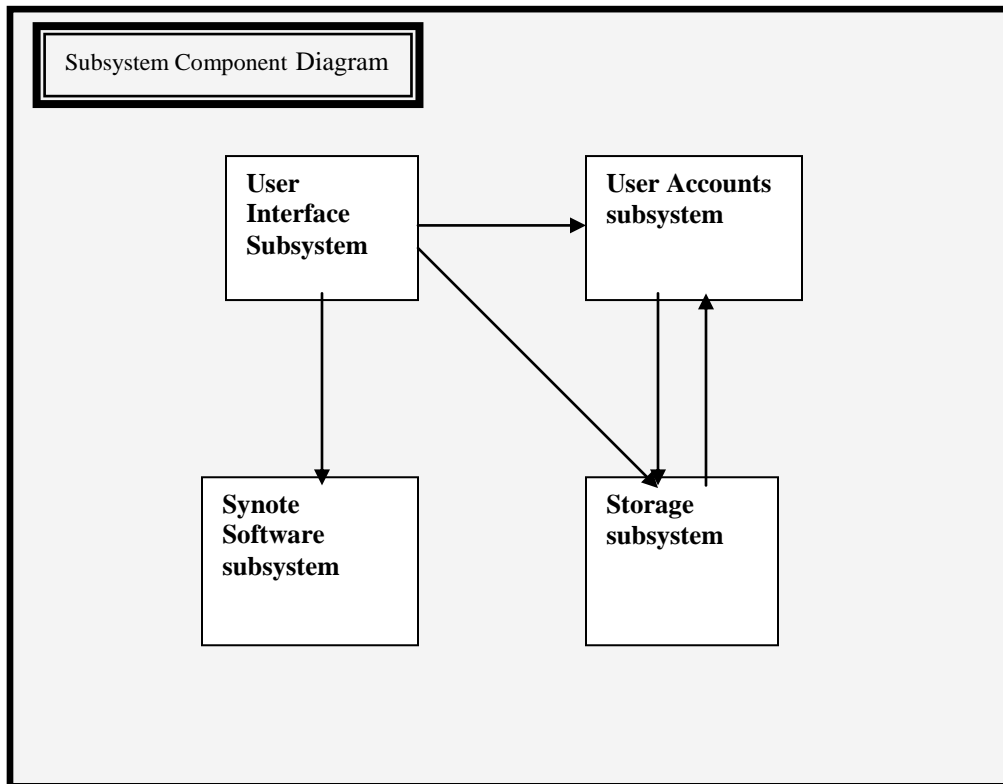


Fig 4.2.1 The Conceptual View for the Synote System

4.3 Physical View

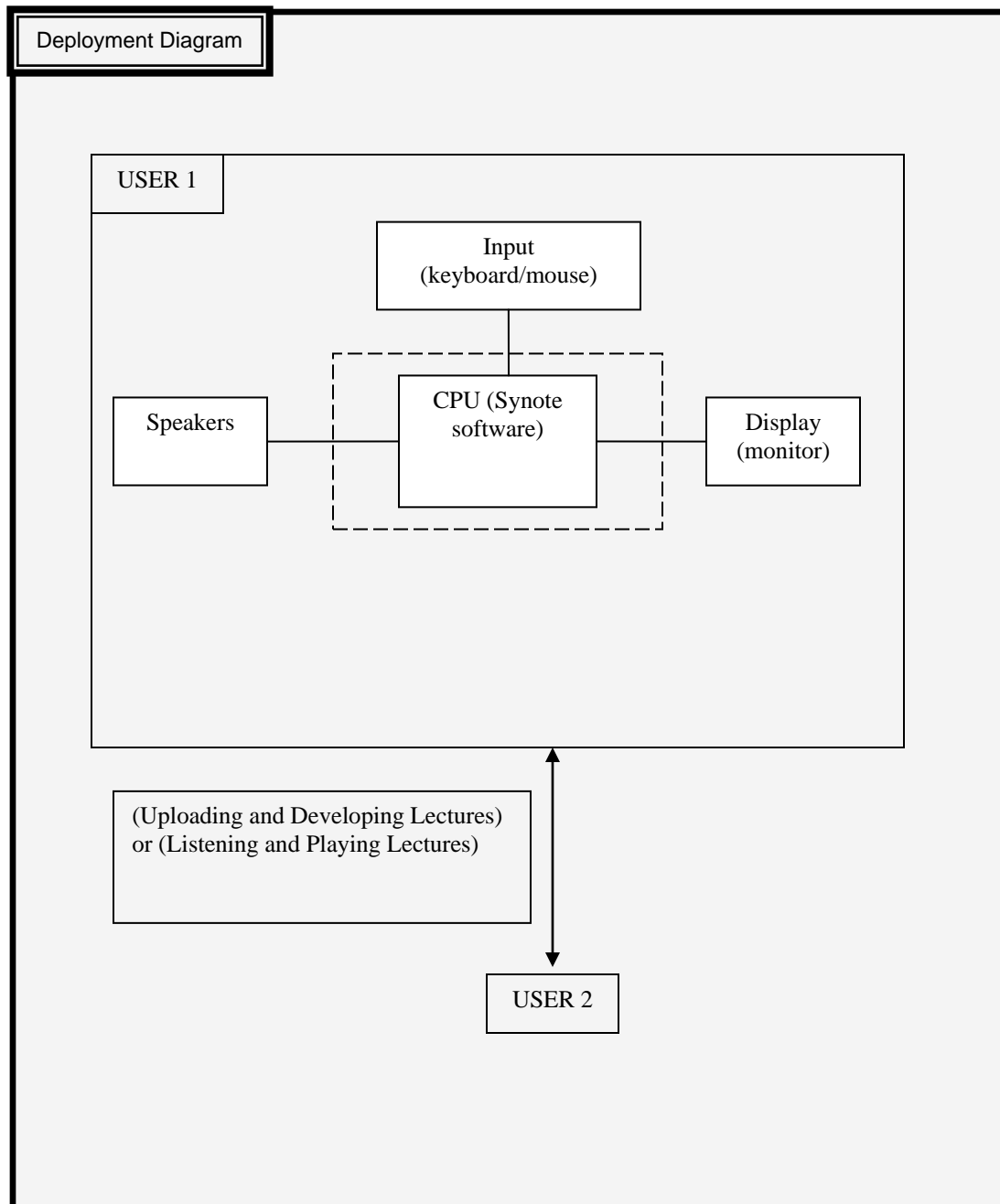


Fig 4.3.1 The Deployment Diagram for the Synote System

4.4 Low Level Design

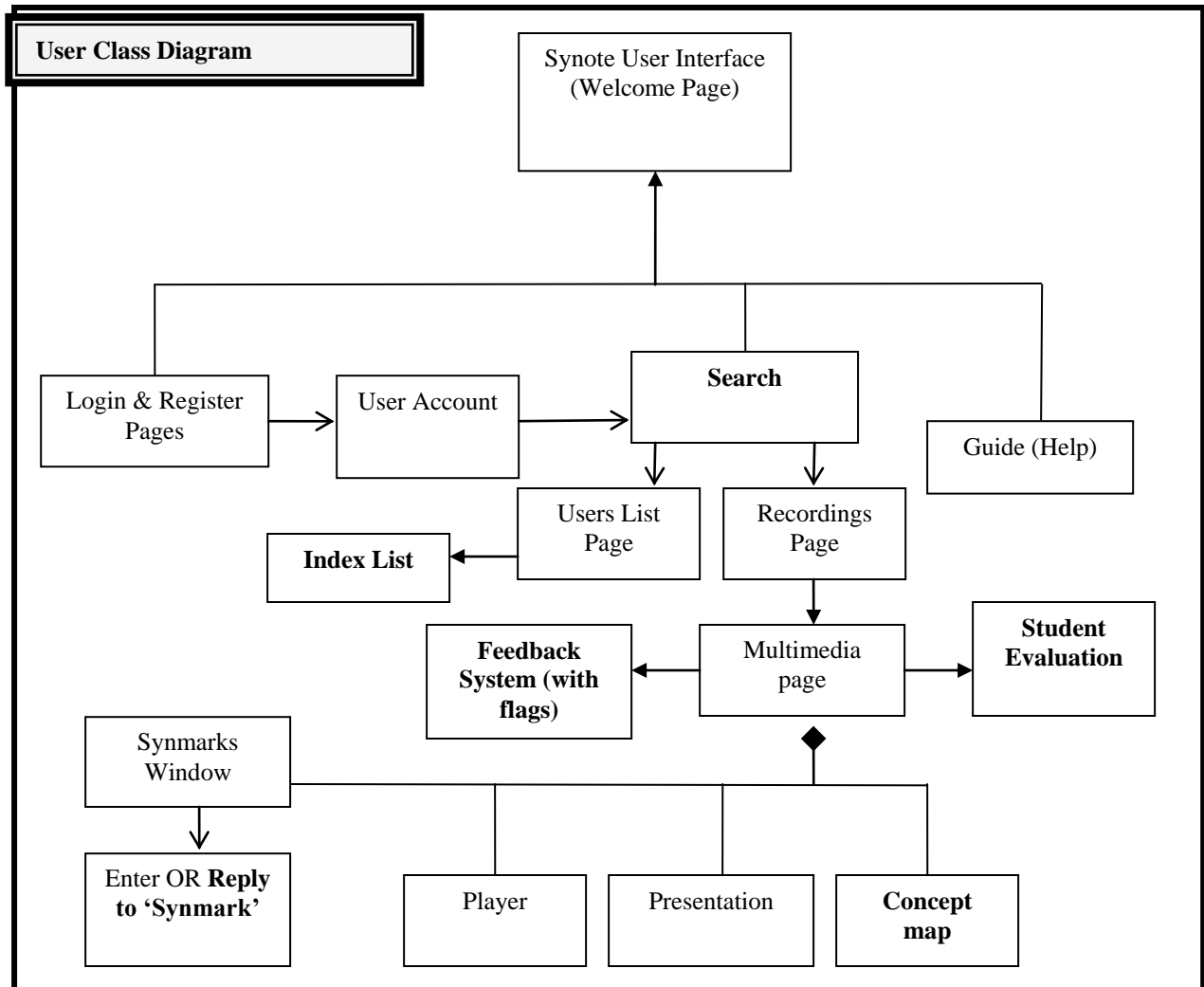


Fig 4.4.1 The Synote User Webpages (bolded one to be implemented or enhanced)

CHAPTER 8

APPENDIX

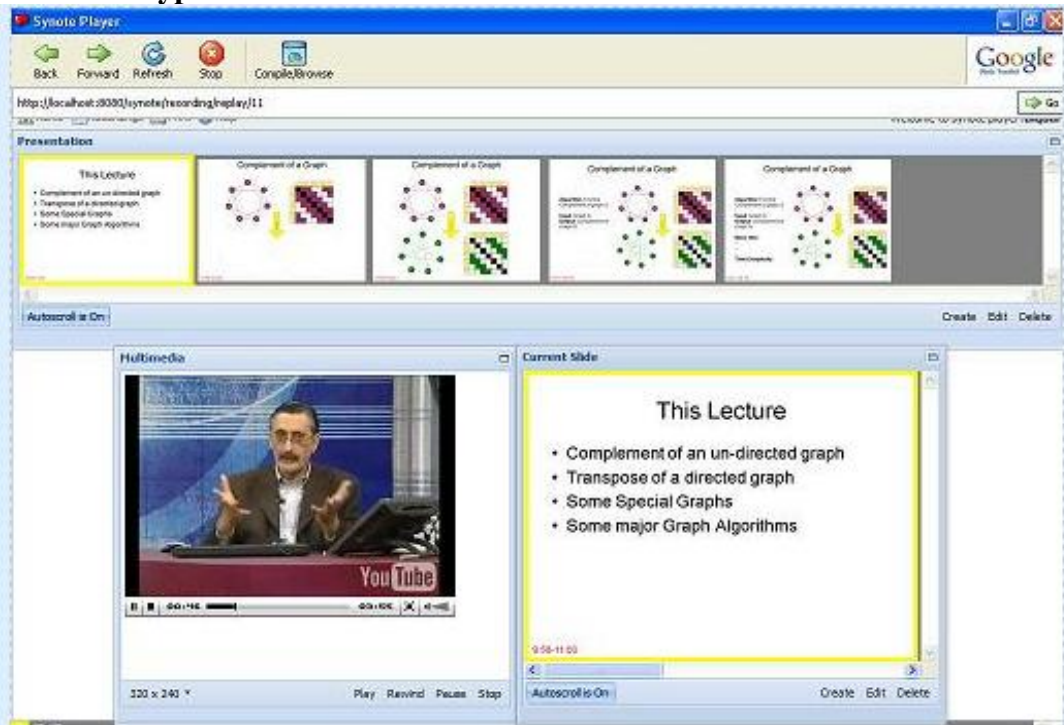
APPENDIX A

Research Results

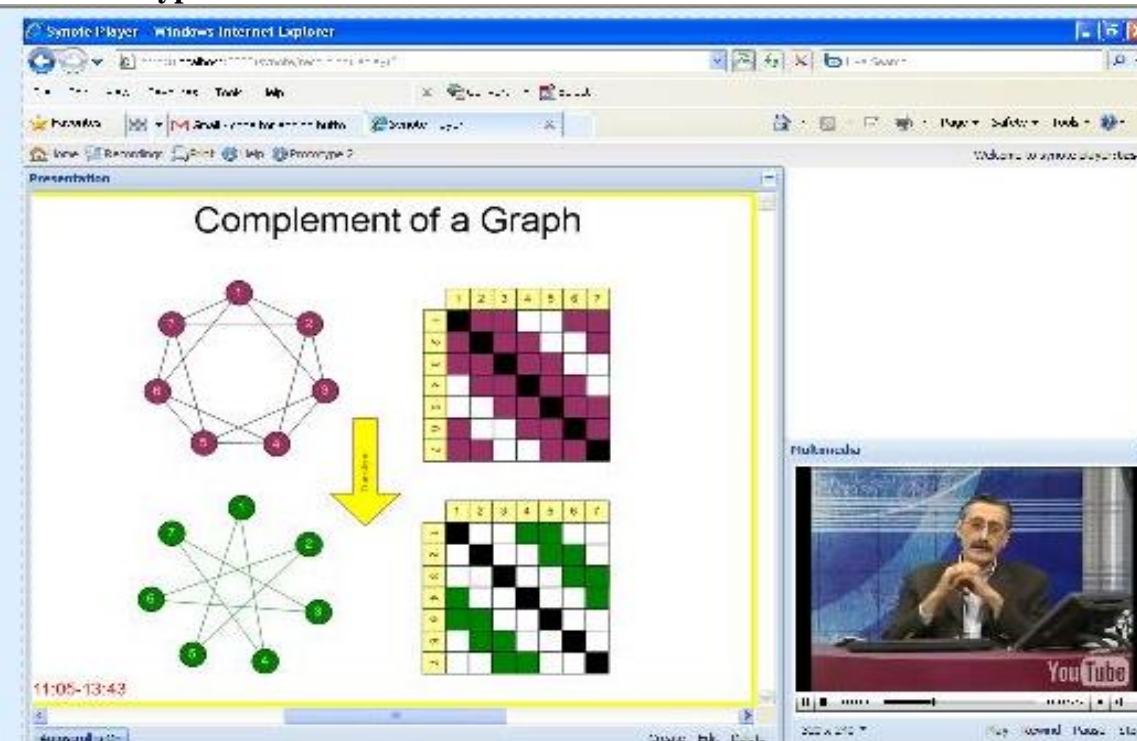
APPENDIX B

8.1 Screenshots

8.1.1 Prototype A



8.1.2 Prototype B



8.1.1 Student Evaluation and Testing

Take Test
Students take tests here and the results are automatically calculated

Make Test
You can create Test Questions here which are bind to a particular lecture

Edit Test
You can delete and change questions from here

The screenshot shows a web browser window displaying the Synote Multimedia List. The browser's address bar shows the URL: `http://localhost:8000/synote/multimediaResourceList_sessionId=109va1v0572u`. The Synote logo is prominently displayed in the center. Below the logo is a 'Recording List' table with three rows of data. The table has columns for Id, Title, Owner, Public Permission, and a set of action buttons. The action buttons for each row are 'Replay', 'Take Test', 'Make Test', 'Edit Test', and 'Print'. The 'Take Test', 'Make Test', and 'Edit Test' buttons are circled in red, and red arrows point from the corresponding text labels above to these buttons. The footer of the page indicates it is © 2008 University of Southampton and provides links for Contact Us, Legal, Accessibility, About Synote, and Synote News.

Id	Title	Owner	Public Permission	Replay	Take Test	Make Test	Edit Test	Print
1	Bugs Bunny	test	ANNOTATE	Replay	Take Test	Make Test	Edit Test	Print
5	Complement of a Graph	test	ANNOTATE	Replay	Take Test	Make Test	Edit Test	Print
13	Graph's Complement	test	WRITE	Replay	Take Test	Make Test	Edit Test	Print

8.1.2 Testing Module (Take Test)

Show Test

Back Forward Refresh Stop Compile/Browse

http://localhost:8080/synote/recording/test2/13

Home Recordings Users Groups Guide test Edit Profile Log Out

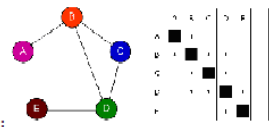
synote Search Search Help

STUDENT TEST

Test Instructions:
For each multiple choice question, please choose one answer.

Question:1 Look at the diagram and pick out the best option

Representing an un-directed graph?



The diagram shows an undirected graph with 5 nodes labeled A, B, C, D, and E. Node A is pink, B is orange, C is blue, D is green, and E is red. The edges are: A-B, A-C, B-C, B-D, C-D, and D-E. To the right of the graph is an adjacency matrix:

	A	B	C	D	E
A	1	1	1	0	0
B	1	1	1	1	0
C	1	1	1	1	0
D	0	1	1	1	1
E	0	0	0	1	1

a: ☐ Undirected
b: ☐ Directed
c: ☐ Undeterminable

8.1.3 Edit Test

Edit Test

Back Forward Refresh Stop Compile/Browse

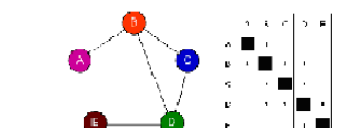
http://localhost:8080/synote/recording/edittest/13

test Edit Profile Log Out

Edit Test Instructions:
Select the Question you want to remove from your Test
We have the Option of Modifying the Question by selecting one Question and then writing its modified version below

Delete Me: ☐
Edit Me: ☐

Question:1.
diagram URL: http://profile.ak.fbcdn.net/v229/1409/31/n1451423742_6663.jpg



The diagram shows an undirected graph with 5 nodes labeled A, B, C, D, and E. Node A is pink, B is orange, C is blue, D is green, and E is red. The edges are: A-B, A-C, B-C, B-D, C-D, and D-E. To the right of the graph is an adjacency matrix:

	A	B	C	D	E
A	1	1	1	0	0
B	1	1	1	1	0
C	1	1	1	1	0
D	0	1	1	1	1
E	0	0	0	1	1

diagram:
a: Komal Ashraf
b: Sameera Ghayyur
c: Sammy
d: Samina

Input Question:
Input Choice 1:

8.1.4 Create Test

The screenshot shows a web browser window titled "Create Test". The address bar displays "http://localhost:8080/synote/recording/uploadtest/13". The browser's toolbar includes buttons for Back, Forward, Refresh, Stop, and Compile/Browse, along with a Google Web Toolkit logo. The main content area features the "synote" logo, a search bar, and a "Search Help" link. Below the logo, the text "STUDENT TEST" is displayed in purple. A red heading "Create Test Instructions:" is followed by red text: "Input your Question , you have the option of uploading a diagram , give URL in the last field and For the input choices either enter the choice or leave blank if dont want to use it" and "when you done with one question click on \"Next\" else click on \"Finish\"". The form contains several input fields: "Input Question:", "Input Choice 1:", "Input Choice 2:", "Input Choice 3:", "Input Choice 4:", "Correct choice:" (with a dropdown menu showing "1"), "Diagram:", and "Diagram Height:". The browser's status bar at the bottom shows "Done".

Create Test

Back Forward Refresh Stop Compile/Browse

Google Web Toolkit

http://localhost:8080/synote/recording/uploadtest/13 Go

synote Search Search Help

STUDENT TEST

Create Test Instructions:

Input your Question , you have the option of uploading a diagram , give URL in the last field and For the input choices either enter the choice or leave blank if dont want to use it

when you done with one question click on "Next" else click on "Finish"

Input Question:

Input Choice 1:

Input Choice 2:

Input Choice 3:

Input Choice 4:

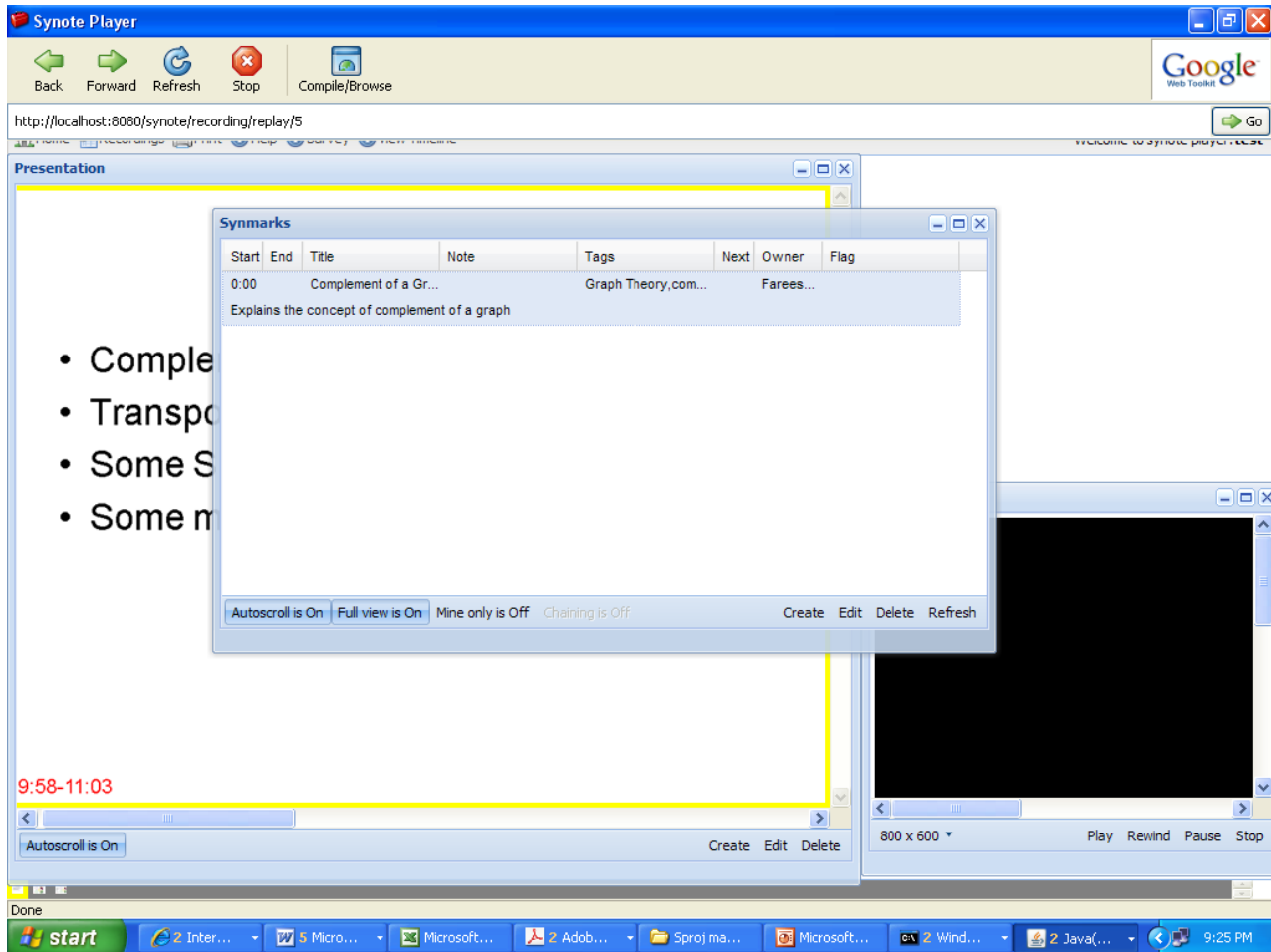
Correct choice:

Diagram:

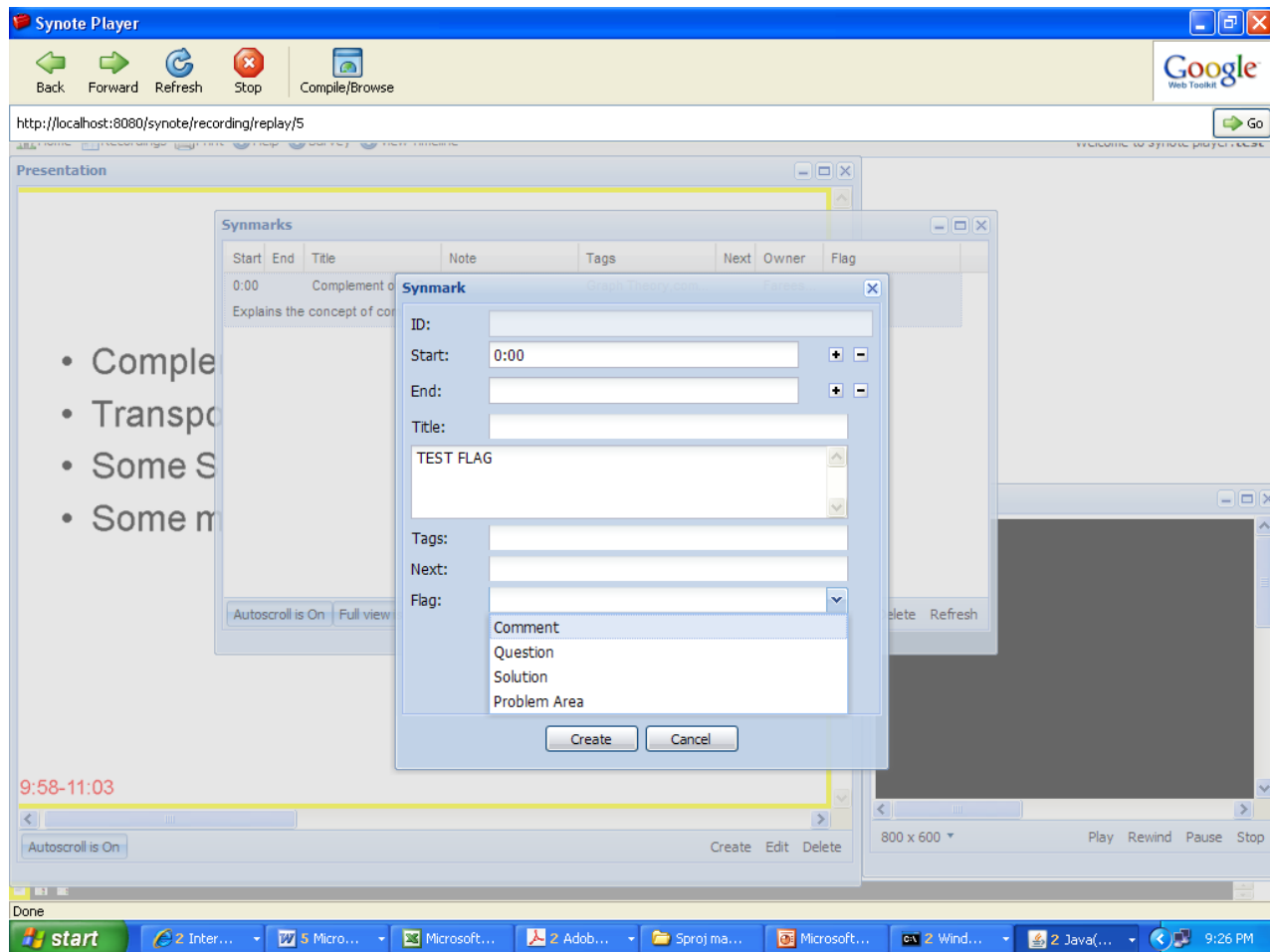
Diagram Height:

Done

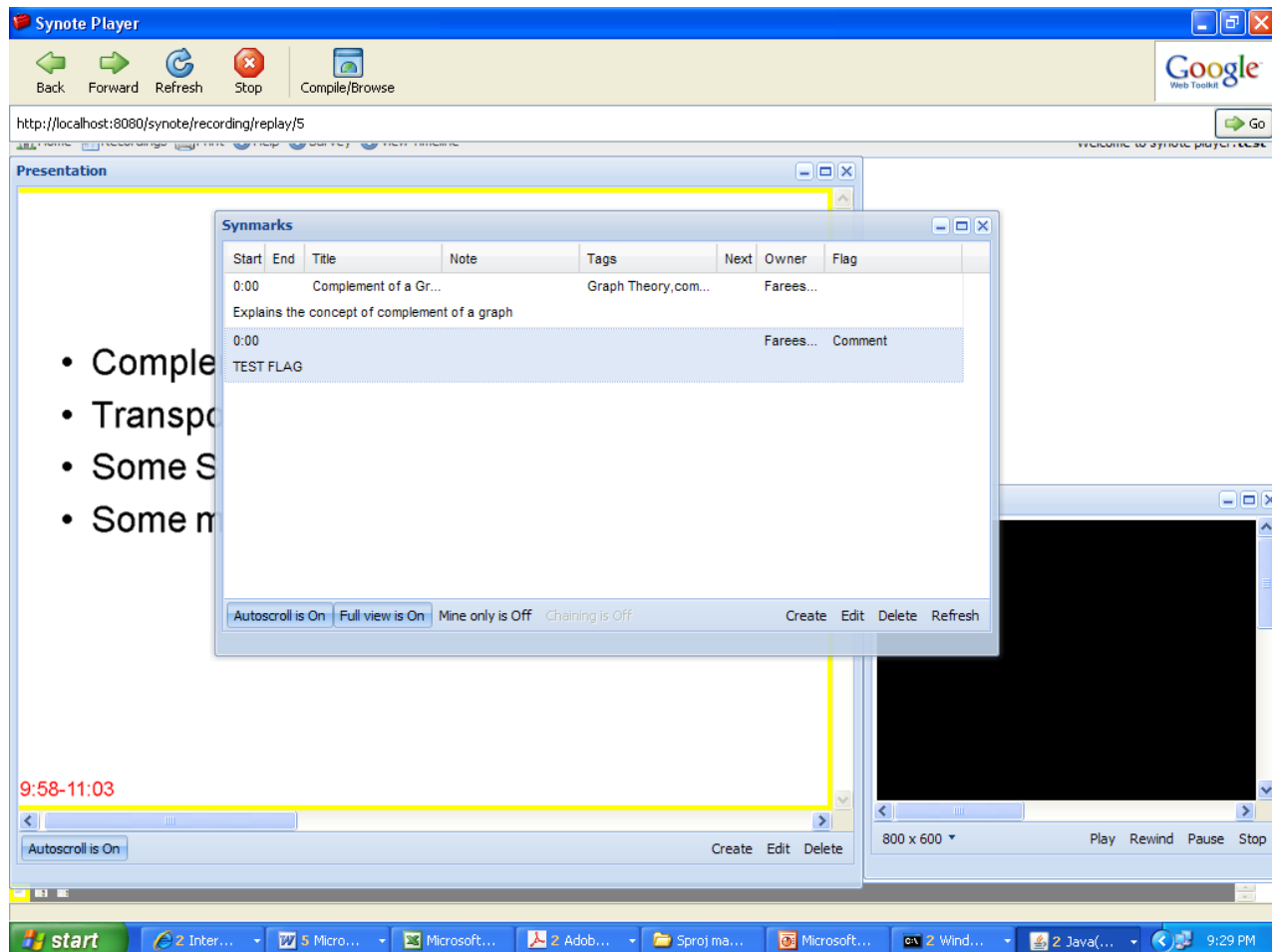
8.1.5 Symark



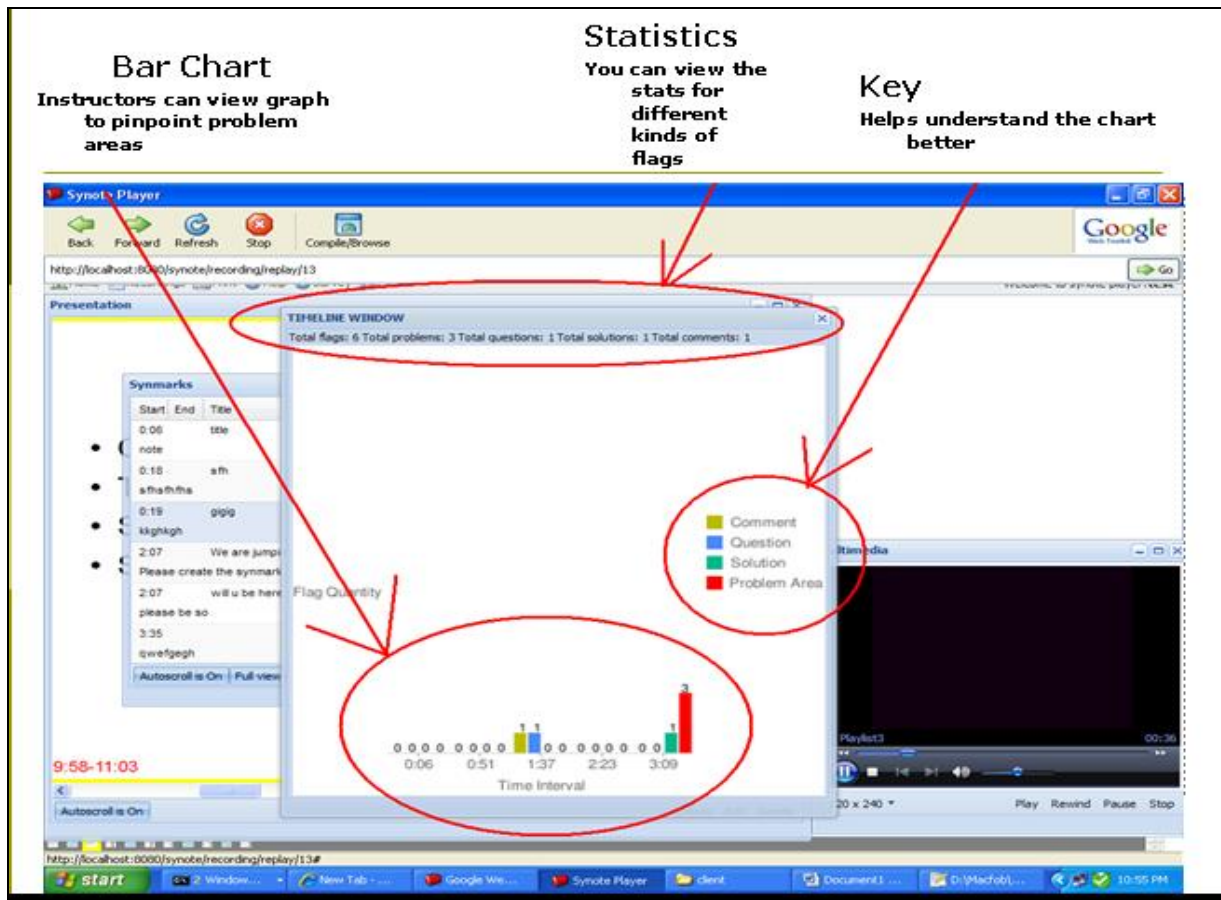
8.1.6 Flag selected from drop-down list



8.1.7 New Synmark



8.1.8 Timeline for flags



8.1.6 Concept Map for student to flip through in his own pace

The screenshot displays the Synote Player interface within a Windows Internet Explorer browser window. The address bar shows the URL <http://synote.org/synote/recording/replay/6621>. The interface is divided into several sections:

- Multimedia:** On the left, there is a video player showing a man speaking, with a 'YouTube' logo at the bottom. Below the video are playback controls (Play, Rewind, Pause, Stop) and a 'Transcript' section that states 'No transcript is available'.
- Synmarks:** The main area displays a concept map titled 'Compliment of a Graph'. The map is structured as follows:
 - Root: Compliment of a Graph
 - Level 1: Types of Graph
 - Level 2: Directed Graph, Undirected Graph
 - Level 3 (under Undirected Graph): Represented by
 - Level 4: Adjacency List, Adjacency Matrix
- Transcript:** Below the Synmarks, there is a transcript section with the following entries:
 - 0:42 I do not know what is going on? (User: Ashraf I)
 - 0:49 This is very informative (User: Ashraf I)
- Controls:** At the bottom of the transcript section, there are checkboxes for 'Autoscroll is On', 'Full view is On', 'Mine only is Off', and 'Sharing is Off'. There are also buttons for 'Create', 'Edit', 'Delete', and 'Refresh'.