ACCESS CONTROL IN A SOCIAL NETWORKING ENVIRONMENT

Advisor / Committee Members Dr. Chris Pollett, Dr. Sami Khuri, Dr. Teng Moh

> By Mallika Perepa

AGENDA

- About Project
- Introduction and preliminary work
- Features implemented in Yioop!
- Conclusion
- Demo

ABOUT PROJECT

- Creating groups dynamically is a popular and interesting feature in many web applications and social networking websites.
- Yioop! is an open source PHP based search engine
- Goal of the Project
 - Design and implement 'Manage Groups,' 'Blogs and Pages,' 'Anonymous Account Creation' features in Yioop
 - Enhance the usability of these features by adding access control techniques
- By adding these features along with the access control techniques
 - Yioop can be used as a traditional search engine as well as a searchable social networking web site

PRILIMINARY WORK

Grouping friends allows users to choose who can see what information and users can choose the access controls for these groups

To get an insight of how to design and implement Manage Groups feature in Yioop

- Compared how easy or hard it is to use groups feature between web applications and social networking web sites.
- The Group's feature as implemented by Facebook, Google Groups, Yahoo Groups, and Skype are compared
- Few important activities that were compared
 - Explored access control to different groups and users within a group
 - Tested the usability of creating groups
 - Analyzed the group privacy settings
 - Experimented with the group chat facility and the transfer of admin property within a group and between different users

COMPARISON OF THE GROUPS FEATURE

Web Application	Option to create a group	Number of clicks to go to create a group option	Group privacy option	Transfer admin property	Group email address	Display a picture for group	Group chat	No. Of clicks to delete a group	User Friendly	Different modes in a group
Skype	No	2	NO	NO	NO	NO	YES	1	Simple, nothing much to do	NO
Facebook	Yes	1	Yes	YES	YES	YES	YES	1	Easy to use, more popular, it also includes all the features	YES
Google Groups	Yes	1	Yes	NO	YES	YES	NO	1-2	More number of submissions to create a group (less popular)	YES
Yahoo Groups	Yes	1	Yes	NO	YES	YES	NO	1-2	More number of submissions to create a group (less popular)	YES

Table 1: Comparison of the Groups feature in different web applications.

• Out of all the web applications, the Groups feature in Facebook is the easier because

• Interface includes all the activities that a user like to have

• Shows detailed categorization scheme in which all the recent updates are displayed on the top of the page

YIOOP! ARCHITECTURE

• Yioop is a web application designed using it's own Model View Controller framework



Figure 1: Yioop! Architecture diagram

MANAGE GROUPS IN YIOOP!

- A Manage Groups feature is added to Yioop, which adds the ability to create social groups in Yioop
- Three new database tables have been added to the existing database
 - GROUPS
 - USER_GROUPS
 - GROUP_ROLE



Figure 2: Schema for the database tables: GROUPS, USER_GROUP, GROUP_ROLE

MANAGE GROUPS CONTD...

It includes activities like

- Add Group allows users to create a new group
- Delete Group allows users to delete existing groups
- View Groups allows users to view members of a group

Admin [Manage Groups]						
Activities	Add Group					
Manage Account	Name:	Submit				
Manage Users		Subinit				
Manage Roles	Delete Group	D				
Manage Groups	Name: Select Group 🗘	Submit				
Manage Crawl	View Groups	5				
Blogs and Pages	Name: Select Group					
Mix Crawls						

Figure 3: Manage Groups feature in Yioop

ADD GROUP

- Users can create a new group using add group activity
- 'Public' group All the users are added to Public group



Figure 4: Flow chart for 'Add Group' activity in Yioop

DELETE GROUP

 Once the user creates a group, the group is displayed in the list of the existing groups in the Delete Group option



Figure 5: Flow diagram and activity windows for 'Delete Group' activity

VIEW GROUPS

- View Groups feature in Yioop allows users to view every member of a group
- Two major activities in View groups
 - Add User New users can be added to a group
 - Add Role Roles can be added to a particular group

Admin [Manage Groups]						
Activities	Add Group					
Manage Account	Name: Submit					
Manage Users	Subint					
Manage Roles	Delete Group					
Manage Groups	Name: Select Group Submit					
Manage Crawl						
Blogs and Pages						
Mix Crawls						
Manage Classifiers	Add User: Select Name + Submit					
Page Options	root Transfer Admin					
Results Editor	Add Role: Select Role Submit					
Search Sources						
Manage Machines						

Figure 6: View Groups feature in Yioop

- Any member who belongs to the group can add a new user to the group, but only group owner can delete the users from a group
- Owner of the group can transfer admin rights of a group to a different user within the group

VIEW GROUPS CONTD...

	● root ⊙ John		
Add Group	submit cancel	dmin [Ma	The page at localhost says: Are you sure you want to transfer the admin rights?
Delete Group	Submit	Add Gr	Cancel OK
Name: Select Group 🗘 Sub	mit	Delete Grou	p
View Groups		Name: Select Group \$	Submit
Name: My_Group		Name: My_Group	S]
Add User: Select Name	ubmit	Add User: Select Nan	ne 🗧 Submit
root Transfer Admin		root Transfer Ad	dmin

UUUU - Aamin [wanage Groups]

Activities	Add Group
Manage Users	Name [.] Submit
Manage Roles	Subint
Manage Groups	Delete Group
Manage Groups	Name: Select Group Cubmit
	View Groups
	Name: My_Group
	Add User: Select Name Submit
	root John <u>Delete</u>
	Add Role: Select Role 🗘 Submit

Figure 7: Transfer Admin activity in Yioop

SUMMARY

- The design and implementation of the user interface and the database schema is kept simple and efficient.
- Based on the activities performed by the user in the 'Manage Groups' feature, changes are made in the database tables and accordingly the information is displayed.
- Manage Groups feature makes it easy for a user to connect with different sets of people based on interests.
- Access control can be provided to the members of a group based on the user role within a group (group owner vs. user)

BLOGS AND PAGES IN YIOOP

- Similar to Manage Groups the user interface of the Blogs and Pages feature is simple and easy to use
- For this feature, two new databases have been added to the existing Yioop database

ACCESS	BLOG_DESCRIPTION
NAME: VARCHAR	TIMESTAMP: INT
TYPE: VARCHAR	DESCRIPTION: VARCHAR

FEED_ITEM	MEDIA_SOURCE		
GUID: VARCHAR	TIMESTAMP: INT		
TITLE: VARCHAR	NAME: VARCHAR		
LINK: varchar	TYPE: VARCHAR		
DESCRIPTION: VARCHAR	SOURCE_URL: VARCHAR		
PUBDATE:INT	THUMB_URL: VARCHAR		
SOURCE_NAME: varchar	LANGUAGE: VARCHAR		

Figure 8: Tables used to implement Blogs and Pages feature

BLOGS AND PAGES CONTD...

- It includes activities like
 - Creating and finding a blog or a page
 - Searching, editing, and deleting a blog
 - Adding and deleting groups to or from a blog
 - Transfer admin rights of a blog to a different user
 - Adding, editing, and deleting blog entries to a particular blog.

Admin [Blogs and Pages]							
Activities	Manage Blogs and Page	S					
Manage Account		•					
Manage Users	Enter Blog or Page name	Find or Create					
Manage Roles							
Manage Groups							
Manage Crawl							
Blogs and Pages							
Mix Crawls							
Manage Classifiers							
Page Options							
Results Editor							

Figure 9: Blogs and Pages feature in Yioop

Details about the activities will be shown during the demo

ANONYMOUS ACCOUNT CREATION

- This feature allows a user to create his or her own account.
- An option to enable and disable anonymous account creation is made available in Yioop

Blogs and Pages	Profile Settings			
Mix Crawls	[Toggle Advanced Settings]			
Manage Classifiers	7			
Page Options	Default Language: العربية Deutsch			
Results Editor	English Español			
Search Sources	Delana Diselan			
Manage Machines	□ Debug Display			
Manage Locales				
Configure	User Accounts			
	Email Registration			
	-Search Access			
	Web RSS API			

Figure 10: Web interface displaying an option to create an account

• By enabling this option, a user can create their own account that is, he or she need not go through the administrative account and use Yioop as searchable social networking site.

ANONYMOUS ACCOUNT CREATION CONTD...

Signin	- Create an Account
	Firstname:
Username:	Lastname:
Password:	Username:
Login	Email Address:
Lögin	Password:
Return to Yioop New User? Create an Account	Re-type Password:
	Create Account
	Return to Yioop

Figure 11: User interface to create an account

 If the option to create anonymous account is disabled, user can use Yioop as a traditional search engine.

COMAPARISON OF ACCESS CONTROL METHODS

• After implementing 'Manage Groups' along with the access control techniques in Yioop, experiments were conducted to compare different access control techniques used in the Groups feature between all these web applications.

GROUPS PRIVACY OPTIONS ADMINISTRATOR	ADD USERS TO GROUP	DELETE USERS FROM GROUP	TRANSFER ADMIN RIGHTS TO OTHER USERS IN THE GROUP	TYPES OF USERS IN A GROUP	ADD ROLES TO USERS
YIOOP	YES	YES	YES	ADMIN, USERS	YES
FACEBOOK	YES	YES	YES	ADMIN, MEMBERS	YES
GOOGLE	YES	YES	YES	OWNER, MANAGER, MEMBER	YES
УАНОО	YES	YES	NO	OWNER, MEMBER, MODERATORS	YES

Table 2: Comparison of the access control techniques Group's feature in different

COMAPARISON OF ACCESS CONTROL METHODS

• Blogs and Pages feature in Yioop has been compared to that of the blogging feature in the existing Blogger website.

BLOGGING FEATURE	Create Blogs	Delete Blogs	Edit Blogs	Add Entries to a blog	Add comments to a blog entry	Edit/Delete Blog entry	Blog Privacy Options	Adding Groups to a Blog
YIOOP	YES	YES	YES	YES	YES	YES	YES	YES
BLOGGER	YES	YES	YES	YES	YES	YES	YES	NO

Table 3: Comparison of the Blogs feature between Yioop and Blogger website

- The 'Manage Groups' and 'Blogs and Pages' features on Yioop are easy to use because of its simple and clean interface.
- These activities includes all the basic activities that a user likes to have when he or she is using a groups or blogs feature on a website.

CONCLUSION

- Designed and implemented Manage Groups feature, Blogs and Pages feature, and Anonymous account creation in Yioop
- Adding these features in Yioop improves the capability of performing searches in Yioop search engine by allowing users to search blogs and share them with members of different groups
- These features can be used both as social activities in Yioop as well as to perform searches in Yioop search engine unlike other popular social networking websites
- Implementing access control techniques in Yioop improved the usability of each one of these features
- The design and implementation of the user interface and the database schema is simple and efficient



THANK YOU