ACCESS CONTROL IN A SOCIAL NETWORKING ENVIRONMENT

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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

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

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

- 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 its own Model View Controller framework

Figure 1: Yioop! Architecture diagram
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

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

Any member who belongs to the group can add a new user to the group, but only the 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.

Figure 6: View Groups feature in Yioop
VIEW GROUPS CONTD...

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

![Tables used to implement Blogs and Pages feature](image)

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.

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

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...

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.
COMPARISON 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.

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

<table>
<thead>
<tr>
<th>GROUPS PRIVACY OPTIONS</th>
<th>ADD USERS TO GROUP</th>
<th>DELETE USERS FROM GROUP</th>
<th>TRANSFER ADMIN RIGHTS TO OTHER USERS IN THE GROUP</th>
<th>TYPES OF USERS IN A GROUP</th>
<th>ADD ROLES TO USERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMINISTRATOR</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>ADMIN, USERS</td>
<td>YES</td>
</tr>
<tr>
<td>YIOOP</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>ADMIN, USERS</td>
<td>YES</td>
</tr>
<tr>
<td>FACEBOOK</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>ADMIN, MEMBERS</td>
<td>YES</td>
</tr>
<tr>
<td>GOOGLE</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>OWNER, MANAGER, MEMBER</td>
<td>YES</td>
</tr>
<tr>
<td>YAHOO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>OWNER, MEMBER, MODERATORS</td>
<td>YES</td>
</tr>
</tbody>
</table>
COMPARISON OF ACCESS CONTROL METHODS

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

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

<table>
<thead>
<tr>
<th>BLOGGING FEATURE</th>
<th>Create Blogs</th>
<th>Delete Blogs</th>
<th>Edit Blogs</th>
<th>Add Entries to a blog</th>
<th>Add comments to a blog entry</th>
<th>Edit/Delete Blog entry</th>
<th>Blog Privacy Options</th>
<th>Adding Groups to a Blog</th>
</tr>
</thead>
<tbody>
<tr>
<td>YIOOP</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>BLOGGER</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

- 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
DEMO
THANK YOU