

Fahim Khan (fk652)

CS 6083 Databases

4/3/19

Project: Part 1

I. Introduction

The following project is a web-based collaboration system called Snickr, which is similar to an existing system called Slack. A relational SQL database is used to store all the data and information pertaining to users, workspaces, channels, messages, etc. Queries and modification statements are made to the database to retrieve or edit information.

The first part of this project is focused on designing the relational schema of this database, and running some relevant test queries with some sample data. The web-based framework decision, front-end design, and anything else pertaining to building the user application will be made in the second part of this project.

II. Design Explanations

The system allows members of a team to build workspaces, create workspace channels, and write channel messages. There will also be login information and users will be able to invite other users to join certain workspaces or channels. These are the main ideas of this system, with more details given within the project guidelines and instructions.

So with these main ideas in mind, the following tables will be made:

- **User:** Contains basic login information like username and password, and other information about the users of this system.
 - Each user is uniquely identified by their email.
 - There is also a profile description which can be edited
 - Password will follow standard security requirements such as hashing
 - Will also track if users is logged in to prevent multiple logins on the same account, and a timeout for inactivity or forgetting to log out.
 - Users will also have a name, nickname, and contact information
 - Date the account was made

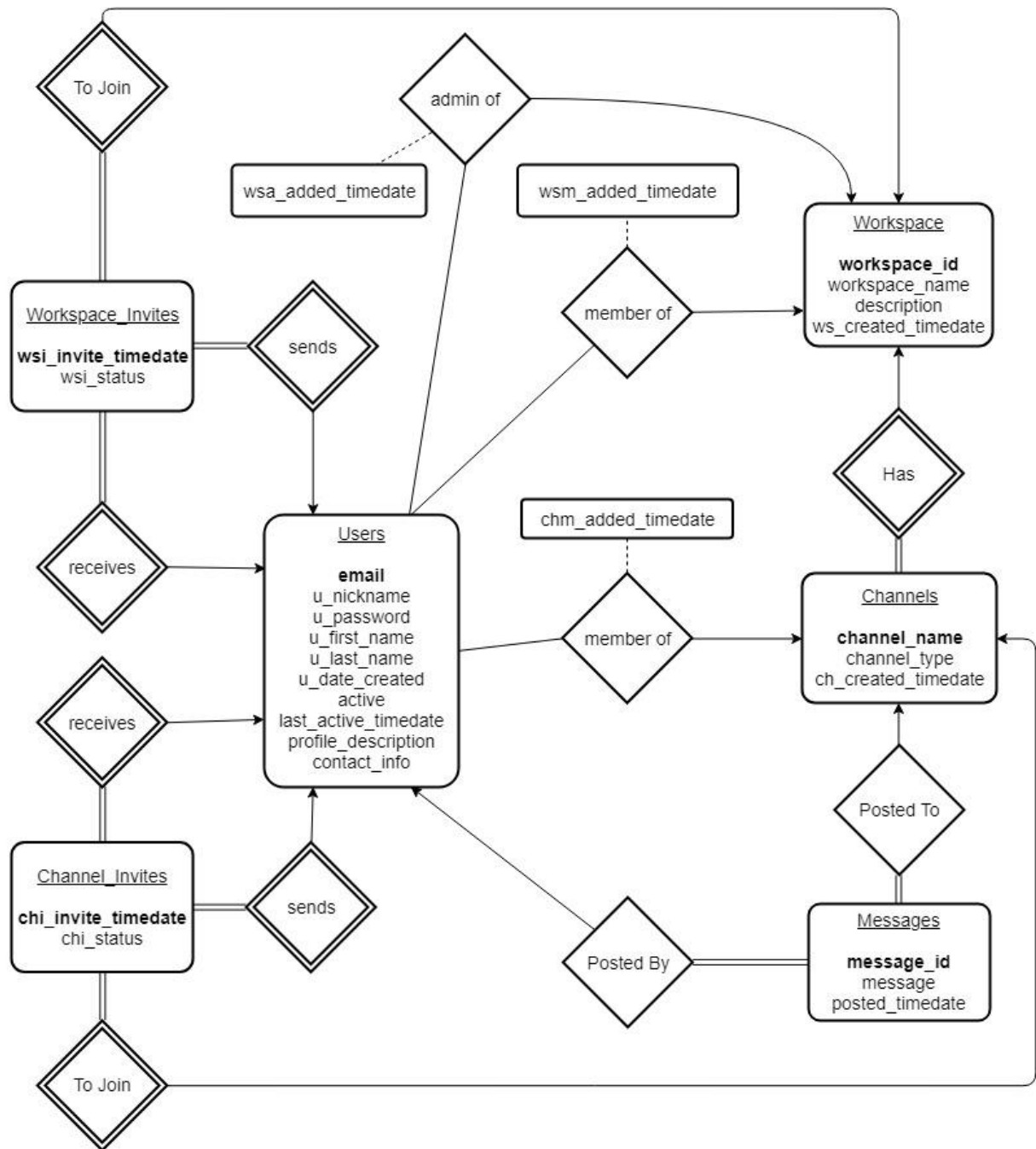
- **Workspace:** Contains information about workspaces created by users of the system.
 - Each workspace is uniquely identified by a number id which is assigned by the system during creation.
 - Workspaces have a name, description, owner email, and timestamp for when the workspace was created
 - During workspace creation, the owner will be added to the admin table as an admin of that workspace.
 - During workspace creation, the owner will be added to the workspace_members table as a member of that workspace.
 - Date the workspace was created
- **Workspace_Members:** Contains information of the members of each workspace.
 - Uniquely identified by a combination of the workspace_id and the member's email.
 - There will be a timestamp for when they joined the workspace
- **Workspace_Admins:** Contains informations about the admins of each workspace.
 - Uniquely identified by the workspace_id and admin email
 - There will also be a timestamp for when they became admin
 - Only owners of a workspace can add more admins
 - An admin can only be removed by the owner of the workspace
- **Channels:** Contains information about the channels in each workspace.
 - Uniquely identified by the workspace_id the channel belongs to and the channel's name.
 - Each workspace must have unique channel names
 - Channels can either be public, private, or direct.
 - Channels can only be made by admins of the system, (there might be an exception for direct channels)
 - There is a timestamp for when the channel was created, and a creator email for the workspace admin that made it

- The channel creator is automatically added to the Channel_Members as a member of the channel
- **Channel_Members:** Contains information about the members of channels.
 - Uniquely identified by the workspace_id and channel name, and the email of the member.
 - The channel creator is automatically added to this table upon channel creation
 - For direct channels there can only be two members, the one who made the channel and the person invited.
 - There is also a timestamp for when the users joined the channel
- **Messages:** Contains information about the messages written in each channel.
 - Uniquely identified by a message id given by the database
 - Tracks the workspace_id, channel_name, the email of the person who wrote the message, and the timestamp of when the message was written.
 - Assume users can't post messages again at the exact same time
 - Checks will be made to make sure the user can view or post messages in certain channels and workspaces
- **Workspace_Invitations:** Contains information that keeps track of invitations to join a specific workspace.
 - Uniquely identified by the workspace_id, receiver, and invitation_timestamp
 - Sender not needed in order to keep this primary key minimal, and because only one invite should be sent per receiver to a workspace
 - Only one invitation for a workspace can be sent to a user (prevents spam)
 - Sender and receiver emails are kept track of, and also send date
 - Takes into account that users might be kicked out or leave a workspace, and then get invited to join again.
 - Users can't be invited to something they already joined, determined at the time the invitation is being created.
 - Status of an invitation can either be 1(joined) or 0(pending)

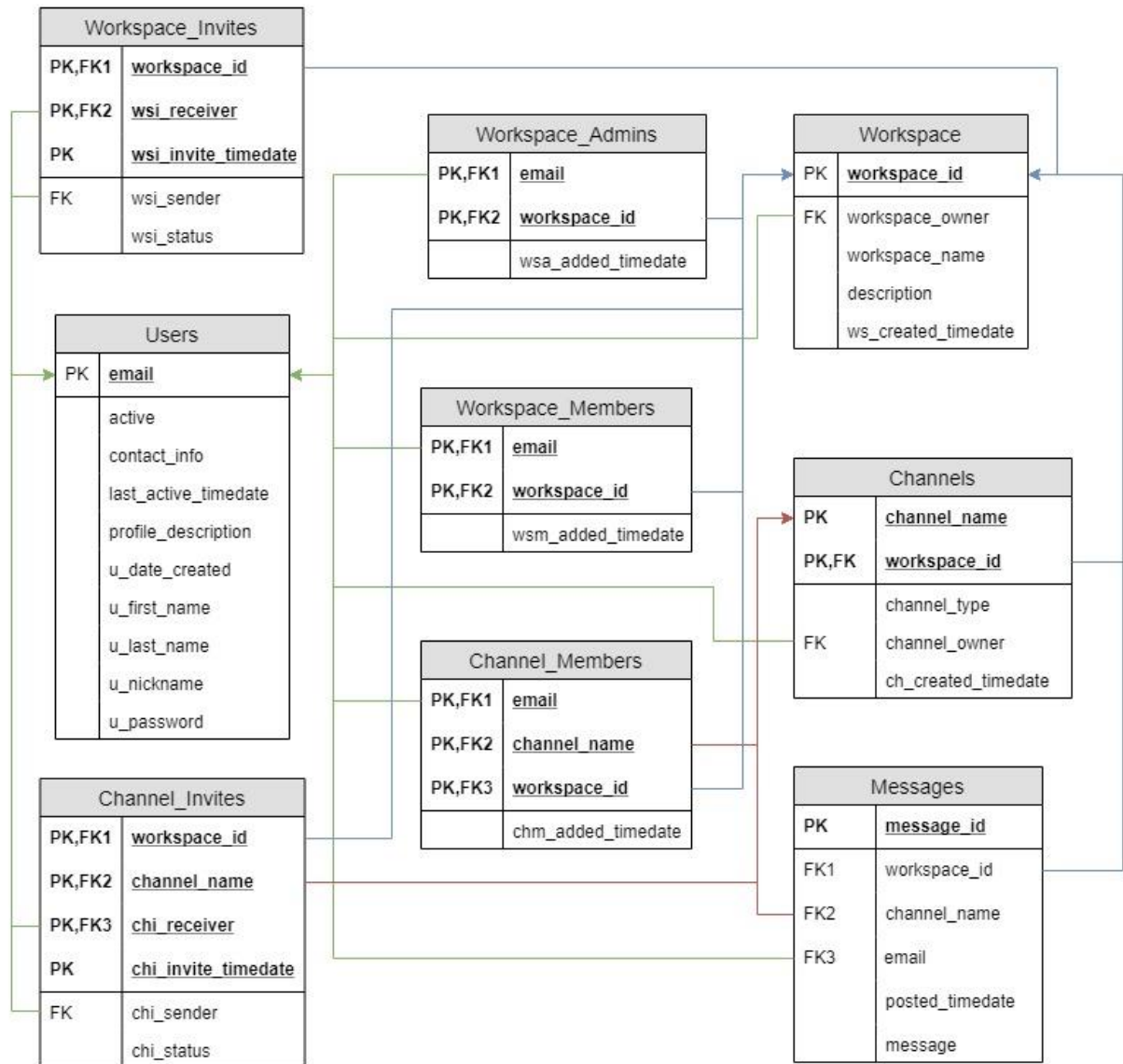
- **Channel_Invitations:** Contains information that keeps track of invitations to join a channel
 - Uniquely identified by the workspace_id, channel_name, receiver, and invitation_timestamptimestamp
 - Sender not needed in order to keep this primary key minimal, and because only one invite should be sent per receiver to a channel
 - Can send this kind of invite instead of a workspace invite, user will also be added to the workspace this way
 - Can only send one invitation to a user to a channel at a time
 - Sender and receiver emails are kept track of, and also sent date
 - Takes into account that users might be kicked out or leave a channel, and then get invited to join again.
 - Users can't be invited to something they already joined, determined at the time the invitation is being created.
 - Users can only be invited to a private channel by that channel's creator.
 - There can only be one invitation to a direct channel, between the creator and one other user they invite.
 - If a user joins a public channel themselves, there is no invitation. It's still possible to invite people to a public channel though.
 - Status of an invitation can either be 1(joined) or 0(pending)

More table information and details in the ER and schema diagrams.

III. ER Diagram



IV. Relational Schema



*blue lines = reference to workspace(workspace_id)

red lines = reference to channels(channel_name)

green lines = reference to users(email)

V. Primary Keys (9 total)

1. Users(email)
2. Workspace(workspace_id)
3. Channels(channel_name, workspace_id)
4. Messages(message_id)
5. Workspace_Members(email, workspace_id)
6. Channel_Members(email, channel_name, workspace_id)
7. Workspace_Invites(workspace_id, ws_invite_timedate)
8. Channel_Invites(workspace_id, channel_name, ch_invite_timedate)
9. Workspace_Admins(email, workspace_id)

VI. Foreign Key > References (20 total)

1. Workspace_Invites(sender) > Users(email)
2. Workspace_Invites(receiver) > Users(email)
3. Workspace_Invites(workspace_id) > Workspace(workspace_id)
4. Channel_Invites(sender) > Users(email)
5. Channel_Invites(receiver) > Users(email)
6. Channel_Invites(workspace_id) > Workspace(workspace_id)
7. Channel_Invites(channel_name) > Channel(channel_name)
8. Workspace_Members(email) > Users(email)
9. Workspace_Members(workspace_id) > Workspace(workspace_id)
10. Channel_Members(email) > Users(email)
11. Channel_Members(workspace_id) > Workspace(workspace_id)
12. Channel_Members(channel_name) > Channels(channel_name)
13. Workspace(workspace_owner) > Users(email)
14. Channels(workspace_id) > Workspace(workspace_id)
15. Channels(channel_owner) > Users(email)
16. Messages(workspace_id) > Workspace(workspace_id)
17. Messages(channel_name) > Channels(channel_name)
18. Messages(email) > Users(email)
19. Workspace_Admins(email) > Users(email)
20. Workspace_Admins(workspace_id) > Workspace(workspace_id)

VII. Assumptions, Constraints, Defaults, Procedures

- All user input will be checked before adding to the server, for security purposes

Users

- Users must sign up with at least an email, name, and password. Nickname and profile description can be entered and edited later.
- active will be 0 by default
- Last_active_timedate and u_date_created default will be the time the information is successfully added to the server
- Passwords will be hashed

Workspaces

- Workspaces must have an owner and name when created. Description can be added or edited later
- Any user can create a workspace. They will also be automatically added as the admin of that workspace.
- The created_timedate will default to the time the workspace was successfully added to the server
- Workspace_ID is assigned and auto incremented by the server

Workspace Admins

- Must have a user email and workspace_id
- wsa_added_timedate default will be the time the user is added to this table

Channels

- Must have a workspace, have a name, have an owner, and be designated a type
- Channel_type must be either private, direct, or public
- The created_timedate default is the time the channel was added to the server

Messages

- Messages can't be NULL or empty strings
- Messages must have a user that posted it, workspace_id, and channel_name
- Posted_timedate default will be the time the message is added to the server

Workspace Members

- Must have a user email and workspace_id
- A user can be kicked out or leave a workspace
- Joined_timedate default will be the time the user is added to this table

Channel Members

- Must have a user email, workspace_id, and channel_name
- A user can be kicked out or leave a channel
- Joined_timedate default will be the time the user is added to this table

Workspace Invites

- Invites can't be sent to users who already joined the workspace
- Assume a user can leave or be kicked out of a workspace, and then invited back again for whatever reason
- Must have a receiver, sender, and workspace_id
- status default will be 0 when sent
- inv_timedate will default to the time this invite was added to the server

Channel Invites

- Invites can't be sent to users who already joined the channel
- Assume a user can leave or be kicked out of a channel, and then invited back again for whatever reason
- Can't add more people to a direct channel if there are 2 people in it already
- Must have a receiver, sender, channel_name, and workspace_id
- status default will be 0 when sent
- inv_timedate will default to the time this invite was added to the server

VIII. SQL Sample Data

Users

1 • `SELECT * FROM snickr.users;`

email	u_name	nickname	u_password	logged_in	last_active_timestate	profile_description	contact_info
byek@gmail.com	Bayek	byek	password123	0	2019-04-10 18:11:17	the origin	4
cnkn@gmail.com	Connor Kenway	cnkn	america123	0	2019-04-10 18:11:17	assassin's creed: civil war	1
evfr@gmail.com	Evie Frye	evfr	london321	0	2019-04-10 18:11:17	the syndicate	3
ezau@gmail.com	Ezio Auditore	ezau	assassin123	0	2019-04-10 18:11:17	the legendary assassin	0
jbfr@gmail.com	Jacob Frye	jbfr	london123	0	2019-04-10 18:11:17	the syndicate	2
kada@gmail.com	Kassandra	kada	password123	0	2019-04-10 18:11:17	the odyssey	5
shjn@gmail.com	Shao Jun	shjn	password123	0	2019-04-10 18:11:17	another assassin	6
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Channel Invites

1 • `SELECT * FROM snickr.channel_invites;`

ch_sender	ch_receiver	workspace_id	channel_name	ch_inv_timestate	ch_status
ezau@gmail.com	jbfr@gmail.com	0	channel1	2010-10-13 11:00:00	1
ezau@gmail.com	kada@gmail.com	0	channel1	2018-11-10 11:00:00	1
ezau@gmail.com	shjn@gmail.com	0	channel1	2018-11-10 11:00:00	1
ezau@gmail.com	byek@gmail.com	0	channel2	2007-11-13 11:00:00	1
ezau@gmail.com	jbfr@gmail.com	0	channel2	2018-11-10 11:00:00	0
ezau@gmail.com	kada@gmail.com	0	channel2	2018-11-10 11:00:00	1
ezau@gmail.com	shjn@gmail.com	0	channel2	2018-11-10 11:00:00	1
ezau@gmail.com	byek@gmail.com	0	channel3	2013-10-23 11:00:00	1
ezau@gmail.com	cnkn@gmail.com	0	channel3	2009-11-13 11:00:00	1
ezau@gmail.com	evfr@gmail.com	0	channel3	2010-10-23 11:00:00	1
ezau@gmail.com	jbfr@gmail.com	0	channel3	2010-10-13 11:00:00	1
jbfr@gmail.com	evfr@gmail.com	1	channel4	2010-11-13 11:00:00	0
jbfr@gmail.com	shjn@gmail.com	1	channel4	2010-11-13 11:00:00	1
evfr@gmail.com	shjn@gmail.com	1	channel5	2010-11-13 11:00:00	1
shjn@gmail.com	byek@gmail.com	2	channel6	2018-12-13 11:00:00	1
shjn@gmail.com	cnkn@gmail.com	2	channel6	2018-11-13 11:00:00	1
shjn@gmail.com	ezau@gmail.com	2	channel6	2018-11-13 11:00:00	1
shjn@gmail.com	kada@gmail.com	2	channel6	2018-12-13 11:00:00	1
shjn@gmail.com	byek@gmail.com	2	channel7	2018-12-13 11:00:00	1
shjn@gmail.com	cnkn@gmail.com	2	channel7	2018-12-13 11:00:00	0
shjn@gmail.com	kada@gmail.com	2	channel7	2018-12-13 11:00:00	1
byek@gmail.com	cnkn@gmail.com	2	channel8	2018-12-13 11:00:00	1
byek@gmail.com	ezau@gmail.com	2	channel8	2018-12-13 11:00:00	1
byek@gmail.com	kada@gmail.com	2	channel9	2019-01-01 10:05:00	1
NULL	NULL	NULL	NULL	NULL	NULL




Channel Members



1 • `SELECT * FROM snickr.channel_members;`

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Result Grid

Filter Rows:

Edit:   

Export/Import:  

Wrap Ce

	email	workspace_id	channel_name	ch_joined_timedate
▶	byek@gmail.com	0	channel1	2013-11-13 11:20:00
	byek@gmail.com	0	channel2	2007-11-13 11:20:00
	byek@gmail.com	0	channel3	2013-11-13 11:20:00
	byek@gmail.com	2	channel6	2018-12-13 11:10:00
	byek@gmail.com	2	channel7	2018-12-13 11:10:00
	byek@gmail.com	2	channel8	2018-12-13 01:00:00
	byek@gmail.com	2	channel9	2019-01-01 10:00:00
	cnkn@gmail.com	0	channel1	2007-11-13 11:05:00
	cnkn@gmail.com	0	channel3	2009-11-13 11:05:00
	cnkn@gmail.com	2	channel6	2018-11-13 11:10:00
	cnkn@gmail.com	2	channel8	2018-12-13 11:10:00
	evfr@gmail.com	0	channel1	2010-11-13 11:15:00
	evfr@gmail.com	0	channel3	2010-11-13 11:15:00
	evfr@gmail.com	1	channel5	2010-11-13 10:10:00
	ezau@gmail.com	0	channel1	2007-11-13 11:00:00
	ezau@gmail.com	0	channel2	2007-11-13 10:30:00
	ezau@gmail.com	0	channel3	2009-11-13 10:00:00
	ezau@gmail.com	2	channel6	2018-11-13 11:05:00
	ezau@gmail.com	2	channel8	2018-12-13 11:05:00
	jbfr@gmail.com	0	channel1	2010-11-13 11:10:00
	jbfr@gmail.com	0	channel3	2010-11-13 11:10:00
	jbfr@gmail.com	1	channel4	2010-11-13 10:05:00
	kada@gmail.com	0	channel1	2018-11-13 11:25:00
	kada@gmail.com	0	channel2	2018-11-13 11:25:00
	kada@gmail.com	2	channel6	2018-12-13 11:15:00
	kada@gmail.com	2	channel7	2018-12-13 11:15:00
	kada@gmail.com	2	channel9	2019-01-01 10:05:00
	shjn@gmail.com	0	channel1	2018-11-13 11:30:00
	shjn@gmail.com	0	channel2	2018-11-13 11:30:00
	shjn@gmail.com	1	channel4	2010-11-13 11:10:00
	shjn@gmail.com	1	channel5	2010-11-13 11:10:00
	shjn@gmail.com	2	channel6	2018-11-13 10:00:00
	shjn@gmail.com	2	channel7	2018-12-13 11:00:00
*	NULL	NULL	NULL	NULL

Channels

1 • `SELECT * FROM snickr.channels;`

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Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: [IA](#)

	channel_name	workspace_id	channel_owner	channel_type	ch_created_timedate
▶	channel1	0	ezau@gmail.com	public	2007-11-13 11:00:00
	channel2	0	ezau@gmail.com	private	2007-11-13 10:30:00
	channel3	0	ezau@gmail.com	private	2009-11-13 10:00:00
	channel4	1	jbfr@gmail.com	public	2010-11-13 10:05:00
	channel5	1	evfr@gmail.com	private	2010-11-13 10:10:00
	channel6	2	shjn@gmail.com	public	2018-11-13 10:00:00
	channel7	2	shjn@gmail.com	public	2018-12-13 11:00:00
	channel8	2	byek@gmail.com	private	2018-12-13 01:00:00
	channel9	2	byek@gmail.com	direct	2019-01-01 10:00:00
*	NULL	NULL	NULL	NULL	NULL

Workspace

1 • `SELECT * FROM snickr.workspace;`

<

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: [IA](#)

	workspace_id	workspace_owner	workspace_name	description	ws_created_timedate
▶	0	ezau@gmail.com	The Creed	requiescat in pace	2007-11-13 10:00:00
	1	jbfr@gmail.com	The Syndicate	requiescat in pace	2010-11-13 10:00:00
	2	shjn@gmail.com	No Templars Allowed	requiescat in pace	2018-11-13 10:00:00
*	NULL	NULL	NULL	NULL	NULL

Workspace Admins

1 • `SELECT * FROM snickr.workspace_admins;`

<

Result Grid | Filter Rows: | Edit: | Export/Import:

	email	workspace_id	wsa_added_timedate
▶	byek@gmail.com	2	2018-11-13 11:10:00
	evfr@gmail.com	1	2010-11-13 11:05:00
	ezau@gmail.com	0	2007-11-13 11:00:00
	ezau@gmail.com	2	2018-11-13 11:05:00
	jbfr@gmail.com	1	2010-11-13 11:00:00
	shjn@gmail.com	0	2018-11-13 11:30:00
	shjn@gmail.com	2	2018-12-13 11:00:00
*	NULL	NULL	NULL

Messages

1 • `SELECT * FROM snickr.messages;`

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: ☐

	posted_timedata	workspace_id	channel_name	email	message
▶	2007-11-14 10:30:00	0	channel2	ezau@gmail.com	requiescat in pace
	2007-11-14 10:35:00	0	channel2	ezau@gmail.com	how
	2007-11-14 11:20:00	0	channel2	byek@gmail.com	requiescat in pace
	2007-11-14 11:25:00	0	channel2	byek@gmail.com	is
	2009-11-14 10:00:00	0	channel3	ezau@gmail.com	requiescat in pace
	2009-11-14 10:05:00	0	channel3	ezau@gmail.com	what
	2009-11-14 11:05:00	0	channel3	cnkn@gmail.com	requiescat in pace
	2010-11-14 10:05:00	1	channel4	jbfr@gmail.com	requiescat in pace
	2010-11-14 10:10:00	1	channel4	jbfr@gmail.com	hmm
	2010-11-14 10:10:00	1	channel5	evfr@gmail.com	requiescat in pace
	2010-11-14 10:15:00	1	channel5	evfr@gmail.com	what's
	2010-11-14 11:10:00	0	channel3	jbfr@gmail.com	requiescat in pace
	2010-11-14 11:10:00	1	channel4	shjn@gmail.com	requiescat in pace
	2010-11-14 11:10:00	1	channel5	shjn@gmail.com	requiescat in pace
	2010-11-14 11:15:00	0	channel3	evfr@gmail.com	requiescat in pace
	2010-11-14 11:15:00	0	channel3	jbfr@gmail.com	is
	2010-11-14 11:15:00	1	channel4	shjn@gmail.com	ok...
	2010-11-14 11:15:00	1	channel5	shjn@gmail.com	up?
	2013-11-14 11:20:00	0	channel3	byek@gmail.com	requiescat in pace
	2013-11-14 11:25:00	0	channel3	byek@gmail.com	this
	2018-11-14 10:00:00	2	channel6	shjn@gmail.com	requiescat in pace
	2018-11-14 10:05:00	2	channel6	shjn@gmail.com	good
	2018-11-14 11:00:00	0	channel1	ezau@gmail.com	when
	2018-11-14 11:01:00	0	channel1	ezau@gmail.com	requiescat in pace
	2018-11-14 11:02:00	0	channel1	ezau@gmail.com	is

	posted_timedata	workspace_id	channel_name	email	message
	2018-11-14 11:03:00	0	channel1	cnkn@gmail.com	requiescat in pace
	2018-11-14 11:04:00	0	channel1	cnkn@gmail.com	the
	2018-11-14 11:05:00	0	channel1	cnkn@gmail.com	requiescat in pace
	2018-11-14 11:05:00	2	channel6	ezau@gmail.com	requiescat in pace
	2018-11-14 11:06:00	0	channel1	cnkn@gmail.com	assassination
	2018-11-14 11:07:00	0	channel1	jbfr@gmail.com	requiescat in pace
	2018-11-14 11:08:00	0	channel1	jbfr@gmail.com	happening?
	2018-11-14 11:09:00	0	channel1	jbfr@gmail.com	requiescat in pace
	2018-11-14 11:10:00	0	channel1	jbfr@gmail.com	It
	2018-11-14 11:10:00	2	channel6	cnkn@gmail.com	requiescat in pace
	2018-11-14 11:11:00	0	channel1	evfr@gmail.com	requiescat in pace
	2018-11-14 11:12:00	0	channel1	evfr@gmail.com	is
	2018-11-14 11:13:00	0	channel1	evfr@gmail.com	requiescat in pace
	2018-11-14 11:14:00	0	channel1	evfr@gmail.com	happening
	2018-11-14 11:15:00	0	channel1	byek@gmail.com	requiescat in pace
	2018-11-14 11:16:00	0	channel1	byek@gmail.com	at
	2018-11-14 11:17:00	0	channel1	byek@gmail.com	requiescat in pace
	2018-11-14 11:18:00	0	channel1	byek@gmail.com	8:00pm
	2018-11-14 11:19:00	0	channel1	kada@gmail.com	requiescat in pace
	2018-11-14 11:20:00	0	channel1	kada@gmail.com	in
	2018-11-14 11:21:00	0	channel1	kada@gmail.com	requiescat in pace
	2018-11-14 11:22:00	0	channel1	kada@gmail.com	the
	2018-11-14 11:23:00	0	channel1	shjn@gmail.com	requiescat in pace
	2018-11-14 11:24:00	0	channel1	shjn@gmail.com	market
	2018-11-14 11:25:00	0	channel1	shjn@gmail.com	requiescat in pace

posted_timedate	workspace_id	channel_name	email	message
2018-11-14 11:25:00	0	channel2	kada@gmail.com	requiescat in pace
2018-11-14 11:26:00	0	channel1	shjn@gmail.com	Also why are we typing out sentences this way?
2018-11-14 11:30:00	0	channel2	kada@gmail.com	it
2018-11-14 11:30:00	0	channel2	shjn@gmail.com	requiescat in pace
2018-11-14 11:35:00	0	channel2	shjn@gmail.com	qoing?
2018-12-13 01:00:00	2	channel8	byek@gmail.com	requiescat in pace
2018-12-13 01:05:00	2	channel8	byek@gmail.com	where
2018-12-13 01:10:00	2	channel8	byek@gmail.com	is
2018-12-13 11:00:00	2	channel7	shjn@gmail.com	requiescat in pace
2018-12-13 11:05:00	2	channel7	shjn@gmail.com	Good
2018-12-13 11:05:00	2	channel8	ezau@gmail.com	requiescat in pace
2018-12-13 11:10:00	2	channel7	byek@gmail.com	requiescat in pace
2018-12-13 11:10:00	2	channel8	cnkn@gmail.com	requiescat in pace
2018-12-13 11:10:00	2	channel8	ezau@gmail.com	it?
2018-12-13 11:15:00	2	channel7	byek@gmail.com	job
2018-12-13 11:15:00	2	channel7	kada@gmail.com	requiescat in pace
2018-12-14 11:10:00	2	channel6	byek@gmail.com	requiescat in pace
2018-12-14 11:15:00	2	channel6	byek@gmail.com	bye
2018-12-14 11:15:00	2	channel6	kada@gmail.com	requiescat in pace
2019-01-01 10:00:00	2	channel9	byek@gmail.com	requiescat in pace
2019-01-01 10:05:00	2	channel9	byek@gmail.com	lets
2019-01-01 10:05:00	2	channel9	kada@gmail.com	requiescat in pace
2019-01-01 10:10:00	2	channel9	byek@gmail.com	do
2019-01-01 10:10:00	2	channel9	kada@gmail.com	this
2019-01-01 10:15:00	2	channel9	kada@gmail.com	now
NULL	NULL	NULL	NULL	NULL

Workspace Invites

1 • `SELECT * FROM snickr.workspace_invites;`

Result Grid

Filter Rows:

Edit:

Export/Import:

Wrap Cell Content:

	ws_sender	ws_receiver	workspace_id	ws_inv_timedate	ws_status
▶	ezau@gmail.com	cnkn@gmail.com	0	2007-11-13 11:00:00	1
	ezau@gmail.com	evfr@gmail.com	0	2010-11-10 11:00:00	1
	ezau@gmail.com	jbfr@gmail.com	0	2010-11-13 11:00:00	1
	ezau@gmail.com	byek@gmail.com	0	2013-11-10 11:00:00	1
	ezau@gmail.com	kada@gmail.com	0	2018-11-10 11:20:00	1
	ezau@gmail.com	shjn@gmail.com	0	2018-11-10 11:20:00	1
	jbfr@gmail.com	cnkn@gmail.com	1	2010-11-13 11:00:00	0
	jbfr@gmail.com	evfr@gmail.com	1	2010-11-13 11:00:00	1
	jbfr@gmail.com	ezau@gmail.com	1	2010-11-13 11:00:00	0
	jbfr@gmail.com	shjn@gmail.com	1	2010-11-13 11:00:00	1
	shjn@gmail.com	byek@gmail.com	2	2018-11-13 11:00:00	1
	shjn@gmail.com	cnkn@gmail.com	2	2018-11-13 11:00:00	1
	shjn@gmail.com	evfr@gmail.com	2	2018-11-13 11:00:00	0
	shjn@gmail.com	ezau@gmail.com	2	2018-11-13 11:00:00	1
	shjn@gmail.com	jbfr@gmail.com	2	2018-11-13 11:00:00	0
	shjn@gmail.com	kada@gmail.com	2	2018-12-13 11:05:00	1
*	NULL	NULL	NULL	NULL	NULL

Workspace Members

1 • `SELECT * FROM snickr.workspace_members;`

<

Result Grid

Filter Rows:

Edit:

Export/Import

	email	workspace_id	ws_joined_timedate
▶	byek@gmail.com	0	2013-11-13 11:20:00
	byek@gmail.com	2	2018-11-13 11:10:00
	cnkn@gmail.com	0	2007-11-13 11:05:00
	cnkn@gmail.com	2	2018-11-13 11:10:00
	evfr@gmail.com	0	2010-11-13 11:15:00
	evfr@gmail.com	1	2010-11-13 11:05:00
	ezau@gmail.com	0	2007-11-13 11:00:00
	ezau@gmail.com	2	2018-11-13 11:05:00
	jbfr@gmail.com	0	2010-11-13 11:10:00
	jbfr@gmail.com	1	2010-11-13 11:00:00
	kada@gmail.com	0	2018-11-13 11:25:00
	kada@gmail.com	2	2018-12-13 11:15:00
	shjn@gmail.com	0	2018-11-13 11:30:00
	shjn@gmail.com	1	2010-11-13 11:10:00
	shjn@gmail.com	2	2018-12-13 11:00:00
•	NULL	NULL	NULL

IX. SQL Queries on Sample Data

1) Adding a new user

\$email_Input = fk652@gmail.com, \$nickname_Input = fk652,

\$name_Input = Fahim Khan, \$password_Input = password123

*The email check should return nothing

```
2
3 -- (1)
4 -- this would be one transaction statement
5 -- note that we would pass in php variables for the values statement
6 -- password would also go through encryption before being passed in
7
8 -- do a check to see if the email is taken
9 • SELECT email
10 FROM Users
11 WHERE email = 'fk652@gmail.com';
12
```

Result Grid

email
NULL

*The user is successfully added, (logged_in will be 0 by default in the actual system)

```
13 -- if ($email != $email_check) then
14 • INSERT INTO Users (email, nickname, u_name, u_password) value
15 ("fk652@gmail.com", "fk652", "Fahim Khan", "password123");
16
17 • SELECT * FROM Users;
18
```

Result Grid

email	u_name	nickname	u_password	logged_in	last_active_timedate	profile_description	contact_info
cnkn@gmail.com	Connor Kenway	cnkn	america123	0	2019-04-07 18:39:33	assassin's creed: civil war	1
evfr@gmail.com	Evie Frye	evfr	london321	0	2019-04-07 18:39:33	the syndicate	3
ezau@gmail.com	Ezio Auditore	ezau	assassin123	0	2019-04-07 18:39:33	the legendary assassin	0
fk652@gmail.com	Fahim Khan	fk652	password123	0	2019-04-07 18:39:45	NULL	NULL
jbfr@gmail.com	Jacob Frye	jbfr	london123	0	2019-04-07 18:39:33	the syndicate	2
kada@gmail.com	Kassandra	kada	password123	0	2019-04-07 18:39:33	the odyssey	5
shjn@gmail.com	Shao Jun	shjn	password123	0	2019-04-07 18:39:33	another assassin	6

2) adding new workspace

\$email_Input = ezau@gmail.com, \$workspace_ID_Input = 0,

\$channel_name_Input = channel

*This check should return one row with the user's email (to prove it's an admin)

```
19 -- (2)
20 -- this would be one whole transaction statement
21 -- other channel types could be handled differently
22 -- also note we would pass in PHP variables, like the current workspace_id, into the queries
23
24 -- finding if the user is an admin of the workspace
25 -- would also pass in php variables in the where clause
26 • SELECT *
27 FROM workspace_admins
28 WHERE email = 'ezau@gmail.com' AND workspace_id = 0;
```

email	workspace_id	wsa_added_timestamp
ezau@gmail.com	0	2007-11-13 11:00:00

*This check should return nothing

```
30 -- do a check to see if the channel name is taken
31 • SELECT channel_name
32 FROM channels
33 WHERE (workspace_id = 0) AND (channel_name = "channelx");
```

channel_name

*channelx is successfully added

```
35 -- would also pass in PHP variables into the values statement
36 -- if ($privilege == "admin") AND ($channel_name != $channel_check) then
37 • INSERT INTO Channels(channel_name, workspace_id, channel_type, channel_owner, ch_created_timestamp) values
38 ("channelx", 0, "public", "ezau@gmail.com", current_timestamp());
39
40 • SELECT * FROM Channels;
```

channel_name	workspace_id	channel_owner	channel_type	ch_created_timestamp
channel7	2	shjn@gmail.com	public	2018-12-13 11:00:00
channel8	2	byek@gmail.com	private	2018-12-13 01:00:00
channel9	2	byek@gmail.com	direct	2019-01-01 10:00:00
channelx	0	ezau@gmail.com	public	2019-04-07 17:35:24

*ezau is successfully added as a member of this new channel

```
42 -- could also add a trigger which auto adds the creator as a member
43 • INSERT INTO Channel_Members(email, channel_name, workspace_id, ch_joined_timestamp) value
44 ("ezau@gmail.com", "channelx", 0, current_timestamp());
45
46 • SELECT * FROM Channel_Members;
```

email	workspace_id	channel_name	ch_joined_timestamp
ezau@gmail.com	0	channelx	2019-04-07 17:36:52
jbfr@gmail.com	0	channel1	2010-11-13 11:10:00

3) list all admins for each workspace

No php inputs needed here

```
48 -- (3)
49 • SELECT workspace.workspace_id, workspace.workspace_name, workspace_admins.email, users.u_name
50 FROM workspace JOIN workspace_admins
51     ON (workspace.workspace_id = workspace_admins.workspace_id)
52     JOIN users ON (workspace_admins.email = users.email)
53 ;
```

workspace_id	workspace_name	email	u_name
0	The Creed	ezau@gmail.com	Ezio Auditore
0	The Creed	shjn@gmail.com	Shao Jun
1	The Syndicate	evfr@gmail.com	Evie Frye
1	The Syndicate	jbfr@gmail.com	Jacob Frye
2	No Templars Allowed	byek@gmail.com	Bayek
2	No Templars Allowed	ezau@gmail.com	Ezio Auditore
2	No Templars Allowed	shjn@gmail.com	Shao Jun

4) List # of users who didn't accept invite for a certain channel over 5 days ago

\$workspace_ID_Input = 0

```
56 -- (4)
57 • SELECT chi.channel_name, COUNT(chi.ch_receiver) as '#users'
58 FROM channel_invites chi JOIN channels ch
59     ON ((chi.workspace_id = ch.workspace_id) AND (chi.channel_name = ch.channel_name))
60 WHERE ch.channel_type = 'public' AND ch.workspace_id = 0 AND chi.ch_status = 0
61     AND (datediff(current_timestamp(), chi.ch_inv_timedate) >= 5)
62 GROUP BY chi.channel_name
63 ;
```

channel_name	#users
channel2	1

5) List all messages in a channel in chronological order

\$workspace_ID_Input = 0, \$channel_name = channel1

```
62 -- (5)
63 • SELECT posted_timedate, nickname, message
64 FROM messages JOIN users ON (messages.email = users.email)
65 WHERE workspace_id = 0 AND channel_name = 'channel1'
66 ORDER BY posted_timedate ASC;
```

posted_timedate	nickname	message
2018-11-14 11:00:00	ezau	when
2018-11-14 11:01:00	ezau	requiescat in pace
2018-11-14 11:02:00	ezau	is
2018-11-14 11:03:00	cnkn	requiescat in pace
2018-11-14 11:04:00	cnkn	the
2018-11-14 11:05:00	cnkn	requiescat in pace
2018-11-14 11:06:00	cnkn	assassination
2018-11-14 11:07:00	jbfr	requiescat in pace
2018-11-14 11:08:00	jbfr	happening?
2018-11-14 11:09:00	jbfr	requiescat in pace
2018-11-14 11:10:00	jbfr	It
2018-11-14 11:11:00	evfr	requiescat in pace
2018-11-14 11:12:00	evfr	is
2018-11-14 11:13:00	evfr	requiescat in pace
2018-11-14 11:14:00	evfr	happening
2018-11-14 11:15:00	byek	requiescat in pace
2018-11-14 11:16:00	byek	at
2018-11-14 11:17:00	byek	requiescat in pace
2018-11-14 11:18:00	byek	8:00pm
2018-11-14 11:19:00	kada	requiescat in pace
2018-11-14 11:20:00	kada	in
2018-11-14 11:21:00	kada	requiescat in pace
2018-11-14 11:22:00	kada	the
2018-11-14 11:23:00	shjn	requiescat in pace
2018-11-14 11:24:00	shjn	market
2018-11-14 11:25:00	shjn	requiescat in pace
2018-11-14 11:26:00	shjn	Also why are we typing out sentences this way?

6) List all messages a user ever posted in the system

\$email_Input = ezau@gmail.com

```
69 -- (6)
70 • SELECT workspace_name, channel_name, posted_timedate, nickname, message
71 FROM workspace JOIN messages ON (workspace.workspace_id = messages.workspace_id)
72 JOIN users ON (messages.email = users.email)
73 WHERE messages.email = 'ezau@gmail.com'
74 ORDER BY messages.workspace_id, channel_name, posted_timedate ASC;
75
```

workspace_name	channel_name	posted_timedate	nickname	message
The Creed	channel1	2018-11-14 11:00:00	ezau	when
The Creed	channel1	2018-11-14 11:01:00	ezau	requiescat in pace
The Creed	channel1	2018-11-14 11:02:00	ezau	is
The Creed	channel2	2007-11-14 10:30:00	ezau	requiescat in pace
The Creed	channel2	2007-11-14 10:35:00	ezau	how
The Creed	channel3	2009-11-14 10:00:00	ezau	requiescat in pace
The Creed	channel3	2009-11-14 10:05:00	ezau	what
No Templars Allowed	channel6	2018-11-14 11:05:00	ezau	requiescat in pace
No Templars Allowed	channel8	2018-12-13 11:05:00	ezau	requiescat in pace
No Templars Allowed	channel8	2018-12-13 11:10:00	ezau	it?

7) Keyword search for a user, but only messages they can access

\$email_Input = ezau@gmail.com

*Note that there was no message with “perpendicular” in my sample data

```
77 -- (7)
78 • SELECT workspace_name, channel_name, posted_timedate, nickname, message
79 FROM workspace JOIN messages ON (workspace.workspace_id = messages.workspace_id)
80 JOIN users ON (messages.email = users.email)
81 WHERE message LIKE '%perpendicular%'
82 AND(messages.workspace_id, messages.channel_name) IN
83 (SELECT workspace_id, channel_name
84 FROM channel_members
85 WHERE email = 'ezau@gmail.com')
86 ORDER BY messages.workspace_id, channel_name, posted_timedate ASC;
87
```

workspace_name	channel_name	posted_timedate	nickname	message
----------------	--------------	-----------------	----------	---------

*But to show this keyword search works, here is an example with the keyword as ‘pace’

```
77 -- (7)
78 • SELECT workspace_name, channel_name, posted_timedate, nickname, message
79 FROM workspace JOIN messages ON (workspace.workspace_id = messages.workspace_id)
80 JOIN users ON (messages.email = users.email)
81 WHERE message LIKE '%pace%'
82 AND(messages.workspace_id, messages.channel_name) IN
83 (SELECT workspace_id, channel_name
84 FROM channel_members
85 WHERE email = 'ezau@gmail.com')
86 ORDER BY messages.workspace_id, channel_name, posted_timedate ASC;
87
```

workspace_name	channel_name	posted_timedate	nickname	message
The Creed	channel1	2018-11-14 11:01:00	ezau	requiescat in pace
The Creed	channel1	2018-11-14 11:03:00	cnkn	requiescat in pace
The Creed	channel1	2018-11-14 11:05:00	cnkn	requiescat in pace
The Creed	channel1	2018-11-14 11:07:00	jbfr	requiescat in pace
The Creed	channel1	2018-11-14 11:09:00	jbfr	requiescat in pace
The Creed	channel1	2018-11-14 11:11:00	evfr	requiescat in pace
The Creed	channel1	2018-11-14 11:13:00	evfr	requiescat in pace
The Creed	channel1	2018-11-14 11:15:00	byek	requiescat in pace
The Creed	channel1	2018-11-14 11:17:00	byek	requiescat in pace
The Creed	channel1	2018-11-14 11:19:00	kada	requiescat in pace
The Creed	channel1	2018-11-14 11:21:00	kada	requiescat in pace
The Creed	channel1	2018-11-14 11:23:00	shjn	requiescat in pace
The Creed	channel1	2018-11-14 11:25:00	shjn	requiescat in pace
The Creed	channel2	2007-11-14 10:30:00	ezau	requiescat in pace
The Creed	channel2	2007-11-14 11:20:00	byek	requiescat in pace
The Creed	channel2	2018-11-14 11:25:00	kada	requiescat in pace
The Creed	channel2	2018-11-14 11:30:00	shjn	requiescat in pace
The Creed	channel3	2009-11-14 10:00:00	ezau	requiescat in pace
The Creed	channel3	2009-11-14 11:05:00	cnkn	requiescat in pace
The Creed	channel3	2010-11-14 11:10:00	jbfr	requiescat in pace
The Creed	channel3	2010-11-14 11:15:00	evfr	requiescat in pace
The Creed	channel3	2013-11-14 11:20:00	byek	requiescat in pace
No Templars All...	channel6	2018-11-14 10:00:00	shjn	requiescat in pace
No Templars All...	channel6	2018-11-14 11:05:00	ezau	requiescat in pace
No Templars All...	channel6	2018-11-14 11:10:00	cnkn	requiescat in pace
No Templars All...	channel6	2018-12-14 11:10:00	byek	requiescat in pace
No Templars All...	channel6	2018-12-14 11:15:00	kada	requiescat in pace
No Templars All...	channel8	2018-12-13 01:00:00	byek	requiescat in pace
No Templars All...	channel8	2018-12-13 11:05:00	ezau	requiescat in pace
No Templars All...	channel8	2018-12-13 11:10:00	cnkn	requiescat in pace

