DBS211 Final Project

Prepared By:
Bhanu Rakshita Paul - 143428217
Aryan Khurana – 145282216

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INTRODUCTION:
In this era of digitalization, there are many softwares that offer high standard communication services. However, all of these softwares function differently and are meant for different target audiences with varying features. Applications such as Whatsapp have revolutionized the way we interact with each other via text channels, but at the same time it doesn't offer streaming services and the ability to create large communities consisting of thousands of people online. Facebook and instagram focus more on personal branding wherein people are more self oriented in their approach to being social. Facebook and instagram don't offer streaming services as well.

Discord on the other hand is like a compilation of all the features that other social media platforms have to offer. Discord is a VoIP (Voice over internet protocol) and instant messaging social platform. Users have the ability to communicate with voice calls, video calls, text messaging, media and files in private chats or as part of communities called "servers". Discord has grown in popularity and has evolved from being a tool for gamers into a full-fledged service for anyone looking to chat or join online communities. Users can even start their own communities, aka servers, and invite users to join.

Advantages:
- Joining a server is as easy as one URL which works on a majority of web browsers and on the client itself.
- Creating a server and maintaining it is completely free and it doesn't need searching for a server, Discord itself has the server.
- It has separate Text channels and Voice channels in servers that could be easily switched in between and managed. Plus, if one doesn't want to deal with server stuff, there is a direct message feature and other users can be directly called as if it's Skype with the weight of Teamspeak.
- Lastly, contacts can be synced with a wide variety of social media, making finding friends in Discord extremely smooth and easy.

PROBLEM STATEMENT:

A database stores and manages a large amount of data on a daily basis. This holds true for applications such as 'Discord' as well. Information available in a database is guaranteed to be correct in most cases. As these applications need to update data frequently, databases allow easy updation of data using various Data Manipulation languages (DML) available. Databases can have various methods to ensure security of data. Discord in particular has to manage a lot of data such as user data, server data and a variety of other data generated by low level processes and all of this would require a database for the storage of information.

//This is ensured in databases by using various constraints for data. Data integrity in databases makes sure that the data is accurate and consistent in a database. It is very easy to access and research data in a database.
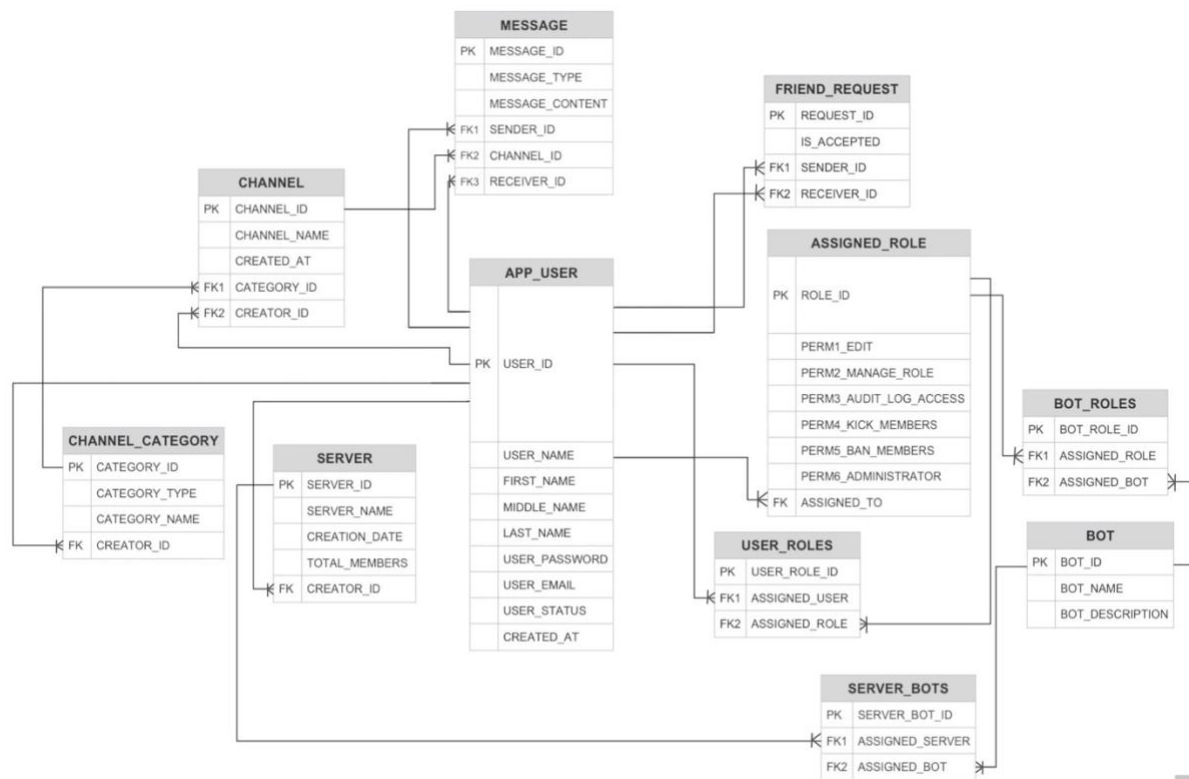
SOLUTION:

Requirements:
- Users (People who use the application)
- Servers (Discord has an option to create severs which are basically a group of multiple users)
- Channel Categories (Every server has channels and channels are grouped under channel categories)
- Channels
- Messages (The interaction of the users in servers and amongst each other)
- Friend Requests (This entity keeps a track of friend requests sent by the users to each other)
- Bots (These are third party software that aid in different tasks in servers)
- Roles (The duties assigned to each user in servers)

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ERD Diagram:

Data Dictionary:

TABLE: **APP_USER**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
USER_ID	Integer	4		PK	Y	1-9999	0001	This is the unique tag name automatically generated for a user
USER_NAME	String	25			Y		"John123"	
FIRST_NAME	String	25			Y		"John"	
MIDDLE_NAME	String	25			N		"R"	
LAST_NAME	String	25			Y		"Mckenzie"	
USER_PASSWORD	String	25			Y		"Hello@123"	
USER_EMAIL	String	25			Y			
USER_STATUS	String	10	"online"		Y		"Online"	Status can be 'online', 'offline', 'idle', 'do not disturb' or 'hidden'
CREATED_AT	Date				Y		23-10-2020	

TABLE: **CHANNEL_CATEGORY**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
CATEGORY_ID	Integer	4		PK	Y	1-9999	1234	Autonumbered identity
CATEGORY_TYPE	String	10			Y		"text"	
CATEGORY_NAME	String	20			Y		"text-channel"	
CREATOR_ID	Integer	11		FK	Y	1-9999	0001	

TABLE: **CHANNEL**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
CHANNEL_ID	Integer	4		PK	Y	1-9999	4321	Autonumbered identity
CHANNEL_NAME	String	20			Y		"general"	
CREATED_AT	Date				Y		19-5-2009	
CATEGORY_ID	Integer	4	0000	FK	Y	1-9999	1345	
CREATOR_ID	Integer	4	0000	FK	Y	1-9999	1855	

TABLE: **MESSAGE**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
MESSAGE_ID	Integer	4		PK	Y	1-9999	1234	Autonumbered identity

MESSAGE_TYPE	String	10			Y		"text"	Can be "text", "voice", "image", "video", "gif", etc
MESSAGE_CONTENT	String	250			Y		"Hi there"	
SENDER_ID	Integer	4			Y	1-9999	0987	
CHANNEL_ID	Integer	4	0	FK	N	1-9999	2345	
RECEIVER_ID	Integer	4	0		N	1-9999	5678	

TABLE: **BOT**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
BOT_ID	Integer	4		PK	Y	1-9999	1234	
BOT_NAME	String	20			Y		"Groovy"	
BOT_DESCRIPTION	String	25	NULL		N		"Play music that matches your mood"	

TABLE: **FRIEND_REQUEST**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
REQUEST_ID	Integer	4		PK	Y	1-9999	1234	Autonumbered identity
IS_ACCEPTED	Number	1			Y	-1, 0 or 1	1	
SENDER_ID	Integer	4			Y	1-9999	4321	
RECEIVER_ID	Integer	4		FK	Y	1-9999	1234	

TABLE: **SERVER**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
SERVER_ID	Integer	4		PK	Y	1-9999	1234	
SERVER_NAME	String	25			Y		"Bob"	
CREATION_DATE	Date	25			Y		"McKenzie"	
TOTAL_MEMBERS	Integer	3			Y	0-250	17	
CREATOR_ID	Integer			FK				

TABLE: **ASSIGNED_ROLE**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
ROLE_ID	Integer	4		PK	Y	1-9999	1234	Autonumbered identity
PERM1_EDIT	Number	1	NULL		N	-1, 0 or 1	1	
PERM2_MANAGE_ROLE	Number	1	NULL		N	-1, 0 or 1	1	
PERM3_AUDIT_LOG_ ACCESS	Number	1	NULL		N	-1, 0 or 1	1	
PERM4_KICK_MEMBERS	Number	1	NULL		N	-1, 0 or 1	1	
PERM5_BAN_MEMBERS	Number	1	NULL		N	-1, 0 or 1	1	

PERM6_ADMINISTRATOR	Number	1	NULL		N	-1, 0 or 1	1	
ASSIGNED_TO	Integer	4	NULL	FK	N	1-9999	1234	

TABLE: **USER_ROLES**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
USER_ROLE_ID	Integer	4		PK	Y	1-9999	1234	Autonumbered identity
ASSIGNED_USER	Integer	4		FK	Y	1-9999	2345	
ASSIGNED_ROLE	Integer	4		FK	Y	1-9999	3456	

TABLE: **SERVER_BOTS**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
SERVER_BOT_ID	Integer	4		PK	Y	1-9999	1234	Autonumbered identity
ASSIGNED_SERVER	Integer	4		FK	Y	1-9999	2345	
ASSIGNED_BOT	Integer	4		FK	Y	1-9999	2345	

TABLE: **BOT_ROLES**

Column	Data Type	Size, Precision	Default	PK/FK	Required	Range	Sample Data	Notes
BOT_ROLE_ID	Integer	4		PK	Y	1-9999	1234	Autonumbered identity
ASSIGNED_ROLE	Integer	4		FK	Y	1-9999	2345	
ASSIGNED_BOT	Integer	4		FK	Y	1-9999	2345	

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Completed milestone 3 and uploaded to blackboard.