Databases Project Titlepage

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1 Section I

Section 1

2 Section II

Section 2

3 Section III: Description of Enterprise

Matthew Flickner wants build an application to help people manage their responsibilities within a group of friends. He wants to use it to make tasks like household chores easier and more convenient while holding each person accountable for their responsibilities. He needs a reliable database to support the application and store application and user data. Matt needs to store user information for login. There is also a need for keeping track of what users are in what groups and whom the users are friends with. He also needs to track what tasks are in what groups and which user is responsible for completing a given task. Tasks can also have deadlines for when they need to be completed by and users can get points for completing tasks. A user gets one point for completing a task if they are the responsible party and 2 points if they volunteer to complete the task. A user can pay 5 points to get out of doing a particular task. Each user has a their own points within a given group. When the task is completed, a new person responsible is assigned or the task is closed.
The following is an initial list of questions that the database for Matt's application will need to answer:

- What groups is user John Smith a member of?
- What tasks are in the group "House Stuff"?
- Who is the person responsible for completing the task, "Empty the Dishwasher," in the group, "House Stuff"?
- Is the "Wipe off the counters" a one-time task or a repeating task?
- How many points does user Logan Couture have allocated for completing the task "Take out the trash"?
- Does user Patrick Marleau have less or more points in the task "Take out the trash" than Logan Couture?
- Is Marshall Shady a friend of George Clooney?
- Who is in the group "Stuff to Do"?
- When does task "Clean Sink" in the group "Kitchen" need to be completed by?

4 Section IV

4.1 Input and Report Forms

User Creation Form

- First Name
- Last Name
- Username
- Password
- Email Address

User Login Form

- Username
- Password

Group Creation Form

- Group Name
- Group Members (usernames)

Task Creation Form

- Task Name
- Task Members
- Group That Task Belongs To
- Person Responsible For Completion

4.2 Assumptions

- Group Members and Task Members are not always the same list of people
- Person Responsible For Completion is one person in Task Members
- Usernames are unique
- Usernames contain must be between 4-16 characters and be composed only of letters and numbers
- Only one account is allowed per email address
- Passwords must be at least 6 characters
- 1 Point is awarded for the completion of the task when the user is the Person Responsible For Completion
- 2 Points are awarded for the completion of the task when the user volunteers to be the Person Responsible For Completion.

4.3 User-orientated data dictionary

Datum	Information Definition
user_id	The unique id given to a user
username	The unique identifier of a user
first_name	The first name of the user
last_name	The last name of the user
password	The password of the user
email_address	The email address of the user
group_id	The unique id given to a user
group_name	The name of a group
group_tasks	An array of the task_id's that belong to the group
group_members	An array of the usernames of the users that belong to the group
task_id	The unique id of a given task
task_name	The name of the task
task_members	A subset of group_members
desi	The username of the person responsible for completing a given task
user_task_points	The number of points a user has for a given task
user_task_is_desi	Boolean tells whether or not a person is responsible for a given task

Cross-reference table

List Size	Create Account Form	Login Form	Create Group Form	Create Task Form
user_id				
username	X	X		
first_name	X			
last_name	X			
password	X	X		
email_address	X			
group_id				
group_name			X	
group_tasks				X
group_members			X	
task_id				
task_name				X
task_members				X
desi				X
user_task_points				X
is_desi				X

5 Section V

5.1 Logical Model of the Enterprise

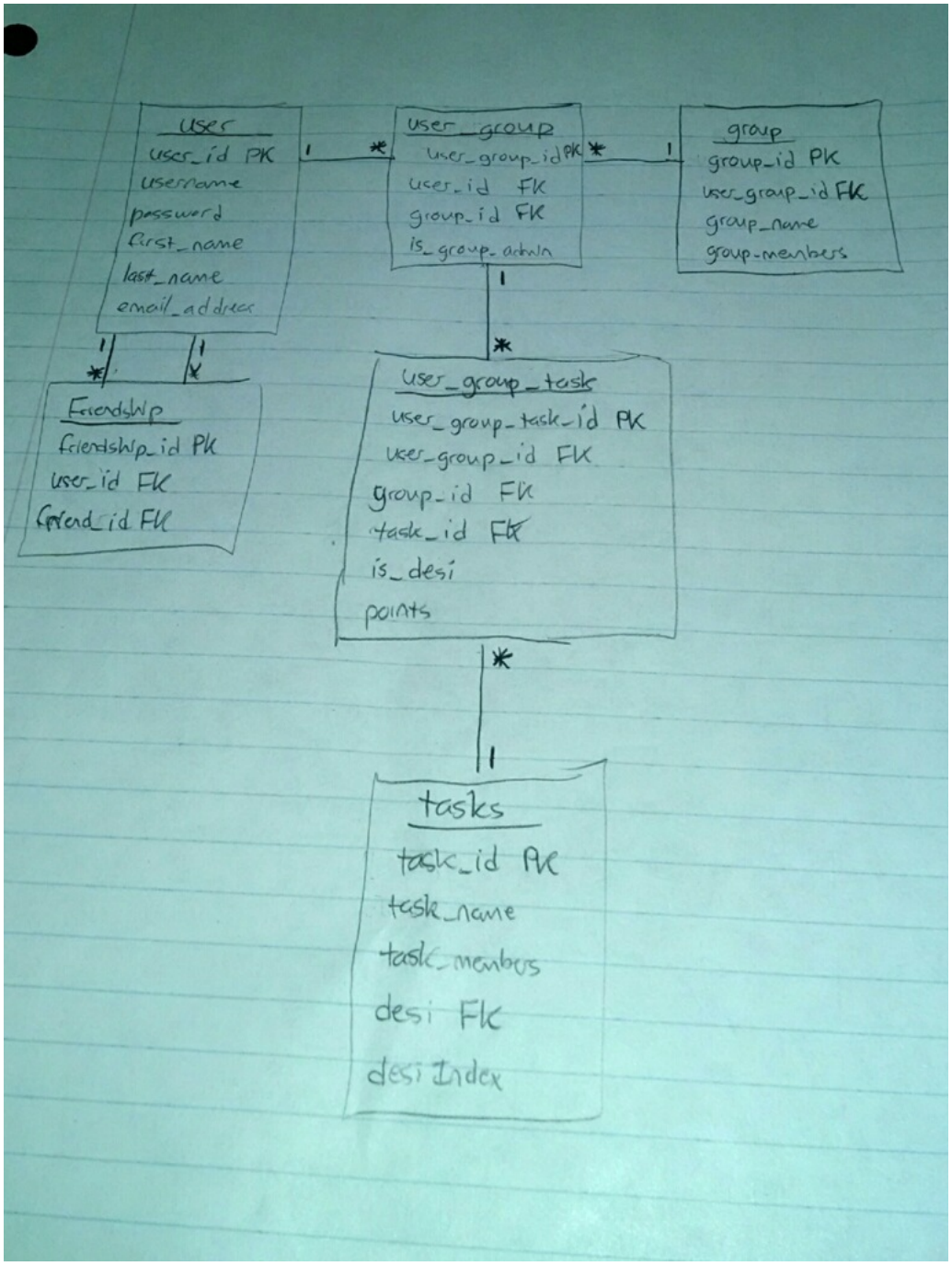
5.1.1 List of Entities and Attributes

Entity	**Attributes**
user	user_id(PK), date_created, date_modified, status, username, first_name, last_name, password, email_address
group	group_id(PK), date_created, date_modified, group_name, group_members
task	task_id(PK), date_created, date_modified, task_name, group_id, task_members, desi(FK), desi_index

5.1.2 List of Relationships and Attributes

Relationship	**Attributes**
user_group	user_group_id(PK), group_id(FK), user_id(FK), is_group_admin
user_group_task	user_group_task_id(PK), user_group_id(FK), task_id(FK), group_id(FK), is_desi, points
friendship	friendship_id(PK), user_id(FK), friend_id(FK)

5.1.3 Entity-Relationship Diagram of the Enterprise



5.2 Conceptual Model of the Enterprise

User	
user_id	PK, CK
username	CK
password	
first_name	
last_name	
email	CK
date_created	
date_modified	
status	

Table 1: My caption

Group	
group_id	PK, CK
group_name	
group_members	
date_created	
date_modified	

Task	
task_id	PK, CK
task_name	
task_members	
group_id	FK references group.group_id
desi	FK references user_group_task.user_group_task_id
desi_index	
date_created	
date_modified	

User_Group	
user_group_id	PK, CK
user_id	FK references user.user_id
group_id	FK references group.group_id
is_group_admin	

User_Group_Task	
user_group_task_id	PK, CK
user_group_id	FK references user_group.user_group_id
group_id	FK references group.group_id
task_id	FK references task.task_id
is_desi	
points	

Friendship	
friendship_id	PK, CK
user_id	FK references user.user_id
friend_id	FK references user.user_id

5.3 Table Dictionary

Table	Attributes	Description
User	user_id, username, first_name, last_name, password, date_created, date_modified, status	A user of the application.
Group	group_id, group_name, members, date_created, date_modified	A group of users that contains tasks.
Task	task_id, task_name, group_id, task_members, desi, date_created, date_modified	A task to be completed by a given user in a group.
User_Group	user_group_id, user_id, group_id, is_group_admin	Relationship between users and groups.
User_Group_Task	user_group_task_id, user_group_id, task_id, group_id, is_desi, points	Relationship between usergroups and tasks.
Friendship	friendship_id, user_id, friend_id	Relationship between two users.

5.4 Attribute Dictionary

Attribute	Description	Tables Found In
user_id	Primary key for users	User, User_Group (FK), Friendship (FK)
username	Unique identifier of a user	User
first_name	The first name of a user.	User
last_name	The last name of a user.	User
password	The password of a user.	User
email_address	The email of a user.	User
group_id	Primary key for groups.	Group, User_Group (FK), User_Group_Task (FK)
group_name	The name of a group.	Group
group_members	The members of a group.	Group
is_group_admin	Boolean that says whether a user is a group admin.	User_Group
user_group_id	Primary key for a user_group.	User_Group, User_Group_Task (FK)
user_group_task_id	Primary key for a user_group_task.	User_Group_Task
is_desi	Boolean that say whether a user is the person responsible for completing a given task.	User_Group_Task
task_name	The name of a task.	Task
task_id	The primary key of a task.	Task, User_Group_Task (FK)
task_members	The members of a task.	Task
points	Number of points a user has for a given task.	User_Group_Task
friendship_id	Primary key of a friendship.	Friendship
friend_id	User_id of a user's friend.	Friendship