**BUSA8090 Data and Visualisation for Business**

**Business Analytics R**eport

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***Introduction***

By offering gardening services, lawn mowing services, and lawn mowing subsidies, "Easy Care Gardening" aims to assist elderly people and eligible people with disabilities in remaining in their own homes and maintaining their independence. A great form of therapy is gardening. Numerous studies indicate that gardening has significant psychological advantages for senior citizens that cut across socioeconomic, educational, and cultural boundaries. ECG is a non-profit organisation. Every single gardener is a volunteer.

This database system's objective is to ease the administrative burden of overseeing recently registered users of the online platform. The purpose of the database's design is to facilitate more effective user management. On the other hand, the user data also offers clever suggestions for handling business problems.

***SQL queries for business problems***

In this section, eight basic business problems(cases) have been solved by using SQL queries.

1) The business aims to allocate volunteers to a task in a certain time interval without spending much time.

Solution:

When the time interval known, an SQL query can be used as the example below;

select `volunteers`.`id` as `volunteerId`, `volunteers`.`given\_name` as `volunteerName`, `volunteers`.`family\_name` as `volunteerFamilyname`, `volunteers`.`mobile` as `volunteerMobile`, `volunteers`.`email` as `volunteerEmail`, `volunteers`.`address` as `volunteerAddress` from `availability` inner join `volunteers` on `availability`.`volunteer\_id` = `volunteers`.`id` where `availability`.`half\_day\_morning` = 1 and `availability`.`tuesday` = 1;

2). The business also wants to create teams from the available volunteers more efficiently

Solution:

How to make a team of the available volunteers for the same case as mentioned above(case 1)

Having the list of available volunteers on Tuesday in the morning, run an insert query in “teams” table with volunteer id who to be added in team with a name of new team.

Example query:

INSERT INTO `teams` (`team\_name`, `volunteers`, `updated\_at`, `created\_at`) VALUES ('Team B', '14,15,19,22', current\_timestamp(), current\_timestamp());

3). The business then wants to assign this new teams to the clients who requested gardening services at a particular time interval.

Solution:

How to assign the team to any client with the above newly formed team

For assigning team to required client, A query which will add volunteers to the clients should be run.

Example The business wants to assign their team A (team id : 21) to client id: 40. Additionally, start and end date should be determined.

INSERT INTO `team\_client` (`**client\_id**`, `**team\_id**`, `**volunteers**`, `start\_date`, `end\_date`, `updated\_at`, `created\_at`) VALUES (**'43'**, **'23'**, **'14,15,19,22',** '2022-09-27', '2022-09-28', current\_timestamp(), current\_timestamp());

4). The business sometimes needs to see all volunteer who has been registered.

Solution: For getting the list of all registered volunteers, the following query should be run:

SELECT `volunteers`.`id` as `volunteerId`, `volunteers`.`given\_name` as `volunteerName`, `volunteers`.`family\_name` as `volunteerFamilyName`, `volunteers`.`address` as `volunteerAddress`, `volunteers`.`mobile` as `volunteerMobile`, `volunteers`.`email` as `volunteerEmail` FROM `volunteers`;

5) The business sometimes needs to see all volunteer who has been assigned to a team

Solution: For getting the list of all teams with their team id, team name and volunteer id, this below query should be run:

select `teams`.`id` as `teamId`, `teams`.`team\_name` as `teamName`, `teams`.`volunteers` as `VolunteersIDs`, GROUP\_CONCAT(volunteers.given\_name) as volunteerName from `teams` left join `volunteers` on FIND\_IN\_SET(volunteers.id,teams.volunteers) > '0' group by `teams`.`id`;

6) The business wants to see all the tables in SQL so that they can see before exporting the table into spreadsheets

Solution (run separately): fetching all the tables.

select \* from `volunteers`;

select \* from `client`;

select \* from `teams`;

select \* from `availability`;

select \* from `areas`;

select \* from `volunteer\_references`;

select \* from `team\_client`;

***Description of the table***

This database consists of different tables to organize the workflow of the system as described below:

**VOLUNTEERS:** Volunteer table will consist of all the details of volunteers, like personal details, their availability in team, their availability for work, physically disabled, if having a car, their experience for volunteering, ready for police verification or not. We will also fetch volunteer id from this table. Also, this table will have the details of activities and reasons for volunteering.

**CLIENT:** Client table will consist of all the personal details of the clients, area in which they are residing.

**AREAS:** Area table will have the name of all areas and their id. This area id will be used to assign the area of the client and will be used to assign teams to their work.

**AVAILABILITY:** Availability table will be used for assigning the availability of the volunteers and it will relate to volunteers by volunteer id.

**VOLUNTEER REFERENCES:** The Volunteer reference table will store the reference for the new prospect who can join as a new volunteer. These references will be provided by the volunteers. Also, this table will relate to volunteer table by their id.

**TEAMS:** Team table will consist of the name of teams and the id of volunteers who are in same team.

**TEAM CLIENT:** Team client table will have team id, client id, start date of the work and the end date of the work with volunteers id.

***Conclusion***

When a business problem is solved or a process made more efficient, another business problem may raise as there is always a place for improvement. In our case, If there would be not enough volunteers, then it would be hard to create teams for a certain time in a certain area. SQL queries help us create a database system for business needs and improve and organise business operations much more efficiently. Since it was a dummy project for our study, it is hard to test and improve the database system. However, in reality, database systems can always be improved.