**Supported Queries:**

* Add/ Remove/ Update records for volunteers and donors.
* Add/ Remove/ Update records for drives and needy\_circles.
* Finding the number of volunteers in Kothrud area.
* Finding the number of donors in Deccan area.
* Find the total food distributed by donor by donor\_id=09.
* Find the attendance of volunteer by “Abhishek”.
* Find total points of volunteer “Akash”.
* Display total number of drives conducted in circle MIT.
* List the donors in katraj.
* and so on

**Design of the schema:**

In this section, the major entities will be identified along with the possible attributes. Further the relationships within these entities will be modeled.

**Entities and Relationships:**

Entity: member.

Whenever a new volunteer is joined, a unique member\_id is generated after storing the name, address, dob ect of member.

Attributes:

* member\_id
* fname
* mname
* lname
* gender
* joindate
* dob
* email
* state
* city
* country
* points
* phone
* alternat\_phone

**Key(member\_id).**

Entity: donor.

Whenever a new donor is joined, a unique donor\_id is generated after storing the name, address, dob ect of donor.

Attributes:

* donor\_id
* donor\_name
* email
* address\_line
* city
* state
* country
* type
* phone
* alternate\_phone
* points
* area\_id

**Key(donor\_id).**

Entity: area.

The area has unique area\_name, area\_id, city, state, country, creation\_date, monitor\_id.

Attributes:

* area\_id
* area\_name
* city
* state
* country
* creation\_date

**Key(area\_id).**

Entity: drive.

Whenever monitor creates new drive a unique drive\_id is generated after inserting start\_time, max\_volunteers, vol\_select\_method. Status of drive is initiated by default at the time of creation. area\_id aslo be there a monitor is going to create the drive.

Attributes:

* drive\_id
* status
* max\_volunteers
* start\_time
* area\_id
* monitor\_id
* vol\_select\_method
* end\_time

**Key(drive\_id).**

Entity: needy\_circle.

There are several needy circles in area. needy circle is characterized by circle\_id, no\_of\_peoples, address\_line, landmark, area\_id.

Attributes:

* circle\_id
* no\_of\_peoples
* address\_line
* landmark
* area\_id

**Key(circle\_id).**

Entity: volunteer.

The volunteer is specialized from member. volunteer has type attribute which make it specialized.

Entity: monitor.

The monitor is specialized from member. Out of number of members one member become monitor of area. monitor has assigned date and experience as monitor attributes.

Relationship: attendance.

Whenever volunteer attends the drive his/her attendance is recorded. The member\_id and drive\_id is stored. Attended date and time is also stored.

Involved entities:

* member
* monitor
* drive

Attributes from entities:

* member\_id
* drive\_id
* attendace\_flag
* monitor\_id

Attributes from relationship:

* date
* time

**Key(member\_id,drive\_id).**

Relationship: collects\_food\_from.

In case of drive, when drive is initiated volunteers has to collect food from donors to distribute it to needy peoples. All food collection information is recorded with food\_quantity, collection\_time, drive\_id, donor\_id.

Involved entities:

* donor
* drive

Attributes from entities:

* drive\_id
* donor\_id

Attributes from relationship:

* food\_quantity
* date
* time

Relationship: distribute\_to.

In case of drive, when drive is in running state the food is distributed to needy peoples. Information about this is stored with drive\_id, circle\_id, food\_quantity, date, time.

Involved entities:

* needy\_circle
* drive

Attributes from entities:

* drive\_id
* circle\_id

Attributes from relationship:

* food\_quantity
* date
* time

**Schema:**

* **member(**member\_id, fname, mname, lname, dob, joindate, dob, email, phone, alternate\_phone, points**)**
* **attendance(**member\_id, drive\_id, date, time, monitor\_id**).**
* **drive(**drive\_id, status, max\_volunteers, start\_time, area\_id, monitor\_id, vol\_select\_method, end\_time**).**
* **collects\_food\_from(**drive\_id, donor\_id, food\_quantity, donation\_time, donate\_flag, collection\_time**)**.
* **donor(**donor\_id, donor\_name, address\_line, type, phone, alternate\_phone, area\_id, points**).**
* **volunteer(**member\_id, type**).**
* **monitor(**monitor\_id, assigned\_date**).**
* **distribute\_to(**drive\_id, circle\_id, food\_quantity, decided\_time, end\_time, distribution\_flag**).**
* **needy\_circle(**circle\_id, no\_of\_peopples,address\_line, landmark, area\_id**).**
* **area(**area\_id, area\_name, city, state, country, creation\_date, monitor\_id**).**

**Functional Dependencies and Normalization:**

**1.) Table:** members

**Primary Key:** member\_id.

member\_id -> fname, mname, lname, gender, dob, email, join\_date, phone,alternate\_phone, points.

Table member is in 3NF.

**2.) Table:** volunteer (Specialized from member).

member\_id -> type.

Table volunteer is in 3NF.

**3.) Table:** monitor (Specialized from member).

**Primary Key:** monitor\_id.

monitor\_id -> assigned\_date.

Table monitor is in 3NF.

**4.) Table:** area

**Primary Key:** area\_id.

area\_id -> area\_name, city, state, country, monitor\_id, creation\_date.

Table area is in 2NF.

**5.) Table:** attendance

**Primary Key: (**member\_id, drive\_id).

**(**member\_id, drive\_id) -> datetime, attendance\_flag, monitor\_id.

Table attendance is in 3NF.

**6.) Table:** collects\_food\_from

**Primary Key:** (drive\_id, donor\_id).

(drive\_id, donor\_id) -> food\_quantity, donation\_time, donate\_flag, collection\_time.

Table collects\_food\_from is in 3NF.

**7.) Table:** distribute\_to.

**Primary Key:** (drive\_id, circle\_id).

(drive\_id, circle\_id) -> food\_quantity, decided\_time, end\_time, distribution\_flag.

Table distribute\_to

Table distribute\_to is in 3NF.

**8.) Table:** donor.

**Primary Key:** donor\_id.

donor\_id -> donor\_name, email, address\_line, state, city, country, type, phone, alternate\_phone, area\_id, points.

Table donor is in 2NF.

**9.) Table:** drive

**Primary Key:** drive\_id.

drive\_id -> status, max\_volunteers, start\_time, area\_id, monitor\_id, vol\_select\_method, end\_time.

Table drive is in 3NF.

**10.) Table:** Needy\_circle.

**Primary Key:** circle\_id.

circle\_id -> no\_of\_peoples, address\_line, landmark, area\_id.

Table needy\_circle is in 2NF.

**11.) Table:** team\_join\_req.

**Primary Key:** req\_id.

req\_id -> reference\_id, area\_id, status\_flag, role.

Table team\_join\_req is in 3NF.

**Create tables:**

1. **member:**

mysql> show create table member;

+--------+--------------------------------------------------------------

| Table | Create Table

+--------+--------------------------------------------------------------

| member | CREATE TABLE `member` (

`member\_id` int(11) NOT NULL AUTO\_INCREMENT,

`fname` varchar(15) NOT NULL,

`mname` varchar(15) DEFAULT NULL,

`lname` varchar(15) DEFAULT NULL,

`gender` varchar(6) NOT NULL,

`joindate` date DEFAULT NULL,

`dob` date DEFAULT NULL,

`email` varchar(50) DEFAULT NULL,

`points` int(11) DEFAULT NULL,

`phone` varchar(10) DEFAULT NULL,

`alternate\_phone` varchar(50) DEFAULT NULL,

`city` varchar(25) DEFAULT NULL,

`state` varchar(25) DEFAULT NULL,

`country` varchar(25) DEFAULT NULL,

`occupation` varchar(45) DEFAULT NULL,

PRIMARY KEY (`member\_id`),

KEY `city\_ref\_idx` (`city`),

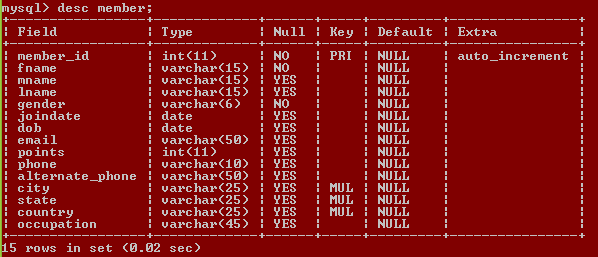
KEY `state\_ref\_idx` (`state`),

KEY `country\_ref\_idx` (`country`)

) ENGINE=InnoDB AUTO\_INCREMENT=63 DEFAULT CHARSET=latin1 |

+--------+--------------------------------------------------------------

**Describe table member:**

****

1. **area:**

mysql> show create table area;

+-------+------------------------------------------------------------------------------------------------------------------------

| Table | Create Table

+-------+------------------------------------------------------------------------------------------------------------------------

| area | CREATE TABLE `area` (

`area\_id` int(11) NOT NULL AUTO\_INCREMENT,

`city` varchar(50) NOT NULL,

`state` varchar(50) NOT NULL,

`country` varchar(50) NOT NULL,

`creation\_date` date DEFAULT NULL,

`monitor\_id` int(11) DEFAULT NULL,

`area\_name` varchar(50) NOT NULL,

PRIMARY KEY (`area\_id`),

KEY `fk\_monitor\_area` (`monitor\_id`),

KEY `fk\_city\_ref\_idx` (`city`),

KEY `fk\_state\_ref\_idx` (`state`),

KEY `fk\_country\_ref\_idx` (`country`),

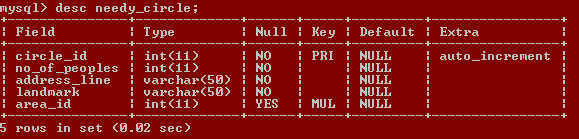
CONSTRAINT `fk\_monitor\_area` FOREIGN KEY (`monitor\_id`) REFERENCES `monitor` (`monitor\_id`) ON DELETE SET NULL ON UPDATE CASCADE

) ENGINE=InnoDB AUTO\_INCREMENT=22 DEFAULT CHARSET=latin1 |

+-------+------------------------------------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe area:**

****

1. **volunteer:**

mysql> show create table volunteer;

+-----------+--------------------------------------------------------------------------------------------------------------------

| Table | Create Table

+-----------+--------------------------------------------------------------------------------------------------------------------

| volunteer | CREATE TABLE `volunteer` (

`member\_id` int(11) DEFAULT NULL,

`type` varchar(30) DEFAULT NULL,

`area\_id` int(11) DEFAULT NULL,

UNIQUE KEY `Member\_Id` (`member\_id`),

KEY `fk\_member\_volunteer` (`member\_id`),

KEY `fk\_volunteer\_area` (`area\_id`),

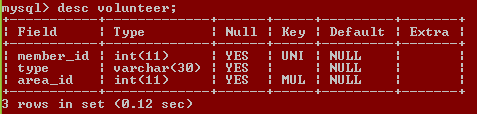
CONSTRAINT `fk\_member\_volunteer` FOREIGN KEY (`member\_id`) REFERENCES `member` (`member\_id`) ON DELETE CASCADE ON UPDATE NO ACTION,

CONSTRAINT `fk\_volunteer\_area` FOREIGN KEY (`area\_id`) REFERENCES `area` (`area\_id`) ON DELETE CASCADE ON UPDATE NO ACTION

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+-----------+--------------------------------------------------------------------------------------------------------------------

**Describe volunteer:**

****

1. **monitor:**

mysql> show create table monitor;

+---------+-----------------------------------------------------------------------------------------------------------

| Table | Create Table

+---------+-----------------------------------------------------------------------------------------------------------| monitor | CREATE TABLE `monitor` (

`monitor\_id` int(11) NOT NULL,

`assigned\_date` date DEFAULT NULL,

PRIMARY KEY (`monitor\_id`),

KEY `fk\_monitor` (`monitor\_id`),

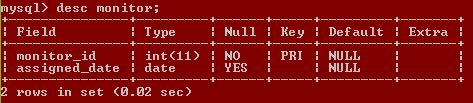
CONSTRAINT `fk\_monitor` FOREIGN KEY (`monitor\_id`) REFERENCES `member` (`member\_id`) ON DELETE CASCADE ON UPDATE NO ACTION

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+---------+-----------------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe monitor:**

****

1. **attendance:**

mysql> show create table attendance;

+------------+--------------------------------------------------------------------------------------------------------

| Table | Create Table

+------------+--------------------------------------------------------------------------------------------------------

| attendance | CREATE TABLE `attendance` (

`member\_id` int(11) NOT NULL,

`drive\_id` int(11) NOT NULL,

`datetime` datetime DEFAULT NULL,

`attendance\_flag` int(11) DEFAULT NULL,

`monitor\_id` int(11) NOT NULL,

PRIMARY KEY (`member\_id`,`drive\_id`),

KEY `fk\_member\_attendance` (`member\_id`),

KEY `fk\_drive\_attendance` (`drive\_id`),

KEY `fk\_monitor\_attendance\_idx` (`monitor\_id`),

CONSTRAINT `fk\_drive\_attendance` FOREIGN KEY (`drive\_id`) REFERENCES `drive` (`drive\_id`) ON DELETE CASCADE ON UPDATE NO ACTION,

CONSTRAINT `fk\_member\_attendance` FOREIGN KEY (`member\_id`) REFERENCES `member` (`member\_id`) ON DELETE CASCADE ON UPDATE NO ACTION,

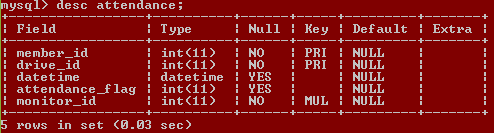
CONSTRAINT `fk\_monitor\_attendance` FOREIGN KEY (`monitor\_id`) REFERENCES `monitor` (`monitor\_id`) ON DELETE NO ACTION ON UPDATE NO ACTION

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+------------+--------------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe attendance:**



1. **collects\_food\_from**

mysql> show create table collects\_food\_from;

+--------------------+------------------------------------------------------------------------------------------------

| Table | Create Table

+--------------------+------------------------------------------------------------------------------------------------

| collects\_food\_from | CREATE TABLE `collects\_food\_from` (

`drive\_id` int(11) NOT NULL,

`donor\_id` int(11) NOT NULL,

`food\_quantity` int(11) NOT NULL,

`donation\_time` datetime NOT NULL,

`donate\_flag` varchar(45) DEFAULT NULL,

`collection\_time` datetime DEFAULT NULL,

PRIMARY KEY (`drive\_id`,`donor\_id`),

KEY `fk\_drive\_collects` (`drive\_id`),

KEY `fk\_donor\_collects` (`donor\_id`),

CONSTRAINT `fk\_donor\_collects` FOREIGN KEY (`donor\_id`) REFERENCES `donor` (`donor\_id`) ON DELETE CASCADE ON UPDATE NO ACTION,

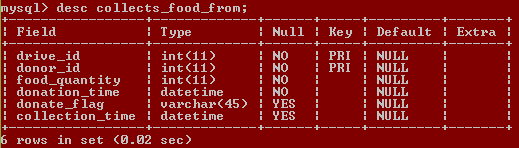
CONSTRAINT `fk\_drive\_collects` FOREIGN KEY (`drive\_id`) REFERENCES `drive` (`drive\_id`) ON DELETE CASCADE

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+--------------------+------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe collects\_food\_from:**

****

1. **distribute\_to:**

mysql> show create table distribute\_to;

+---------------+-----------------------------------------------------------------------------------------------------| Table | Create Table

+---------------+-----------------------------------------------------------------------------------------------------

| distribute\_to | CREATE TABLE `distribute\_to` (

`drive\_id` int(11) NOT NULL,

`circle\_id` int(11) NOT NULL,

`food\_quantity` char(10) NOT NULL,

`decided\_time` datetime DEFAULT NULL,

`end\_time` datetime DEFAULT NULL,

`distribution\_flag` varchar(45) NOT NULL,

PRIMARY KEY (`drive\_id`,`circle\_id`),

KEY `fk\_distribute\_to\_drive` (`drive\_id`),

KEY `fk\_distribute\_to\_circle` (`circle\_id`),

CONSTRAINT `fk\_distribute\_to\_circle` FOREIGN KEY (`circle\_id`) REFERENCES `needy\_circle` (`circle\_id`) ON DELETE CASCADE ON UPDATE CASCADE,

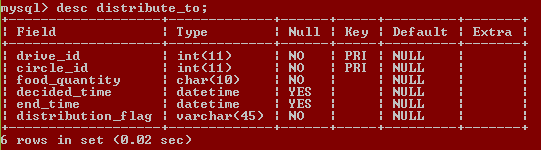
CONSTRAINT `fk\_distribute\_to\_drive` FOREIGN KEY (`drive\_id`) REFERENCES `drive` (`drive\_id`) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+---------------+-----------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe distribute\_to:**

****

1. **drive:**

mysql> show create table drive;

+-------+-------------------------------------------------------------------------------------------------------------

| Table | Create Table

+-------+-------------------------------------------------------------------------------------------------------------

| drive | CREATE TABLE `drive` (

`drive\_id` int(11) NOT NULL AUTO\_INCREMENT,

`status` varchar(30) DEFAULT NULL,

`max\_volunteers` int(11) DEFAULT NULL,

`start\_time` datetime NOT NULL,

`area\_id` int(11) NOT NULL,

`monitor\_id` int(11) NOT NULL,

`vol\_select\_method` varchar(45) NOT NULL,

`end\_time` datetime DEFAULT NULL,

PRIMARY KEY (`drive\_id`),

KEY `fk\_area\_id\_drive\_idx` (`area\_id`),

KEY `fk\_monitor\_id\_monitor\_idx` (`monitor\_id`),

CONSTRAINT `fk\_area\_id\_drive` FOREIGN KEY (`area\_id`) REFERENCES `area` (`area\_id`) ON DELETE CASCADE ON UPDATE NO ACTION,

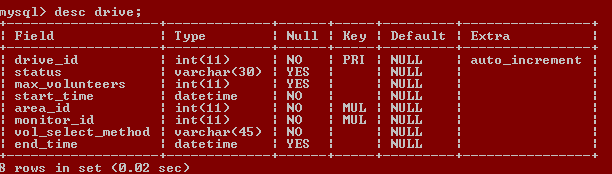
CONSTRAINT `fk\_monitor\_id\_monitor` FOREIGN KEY (`monitor\_id`) REFERENCES `monitor` (`monitor\_id`) ON DELETE CASCADE ON UPDATE NO ACTION

) ENGINE=InnoDB AUTO\_INCREMENT=19 DEFAULT CHARSET=latin1 |

+-------+-------------------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe drive:**

****

1. **donor:**

mysql> show create table donor;

+-------+-------------------------------------------------------------------------------------------------------------

| Table | Create Table

+-------+-------------------------------------------------------------------------------------------------------------

| donor | CREATE TABLE `donor` (

`donor\_id` int(11) NOT NULL AUTO\_INCREMENT,

`donor\_name` varchar(25) NOT NULL,

`email` varchar(50) DEFAULT NULL,

`address\_line` varchar(50) NOT NULL,

`city` varchar(50) NOT NULL,

`state` varchar(50) NOT NULL,

`country` varchar(50) NOT NULL,

`type` varchar(10) NOT NULL,

`phone` varchar(10) NOT NULL,

`alternate\_phone` varchar(10) DEFAULT NULL,

`area\_id` int(11) DEFAULT NULL,

`points` int(11) NOT NULL DEFAULT '0',

PRIMARY KEY (`donor\_id`),

UNIQUE KEY `email\_UNIQUE` (`email`),

KEY `fk\_area\_id\_donor\_idx` (`area\_id`),

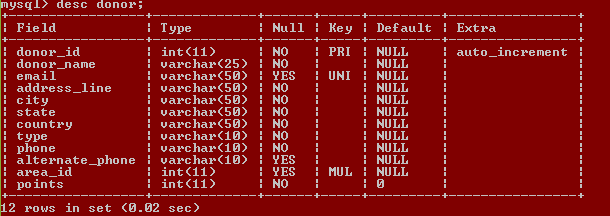
CONSTRAINT `fk\_area\_id\_donor` FOREIGN KEY (`area\_id`) REFERENCES `area` (`area\_id`) ON DELETE CASCADE ON UPDATE NO ACTION

) ENGINE=InnoDB AUTO\_INCREMENT=15 DEFAULT CHARSET=latin1 |

+-------+-------------------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe donor:**

****

1. **needy\_circle:**

mysql> show create table needy\_circle;

+--------------+------------------------------------------------------------------------------------------------------

| Table  | Create Table

+--------------+------------------------------------------------------------------------------------------------------

| needy\_circle | CREATE TABLE `needy\_circle` (

`circle\_id` int(11) NOT NULL AUTO\_INCREMENT,

`no\_of\_peoples` int(11) NOT NULL,

`address\_line` varchar(50) NOT NULL,

`landmark` varchar(50) NOT NULL,

`area\_id` int(11) DEFAULT NULL,

PRIMARY KEY (`circle\_id`),

KEY `fk\_needy\_circle\_area` (`area\_id`),

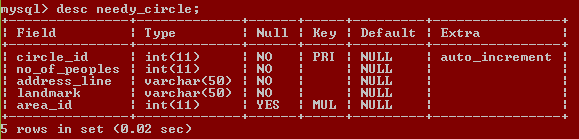
CONSTRAINT `fk\_needy\_circle\_area` FOREIGN KEY (`area\_id`) REFERENCES `area` (`area\_id`) ON DELETE CASCADE ON UPDATE NO ACTION

) ENGINE=InnoDB AUTO\_INCREMENT=6 DEFAULT CHARSET=latin1 |

+--------------+------------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe needy\_circle:**

****

1. **request\_for\_join:**

mysql> show create table team\_join\_req;

+---------------+-----------------------------------------------------------------------------------------------------

| Table | Create Table

+---------------+-----------------------------------------------------------------------------------------------------

| team\_join\_req | CREATE TABLE `team\_join\_req` (

`req\_id` int(11) NOT NULL AUTO\_INCREMENT,

`reference\_id` int(11) DEFAULT NULL,

`area\_id` int(11) DEFAULT NULL,

`status\_flag` int(11) DEFAULT NULL,

`role` varchar(20) DEFAULT NULL,

PRIMARY KEY (`req\_id`),

KEY `fk\_area\_ref\_join\_idx` (`area\_id`),

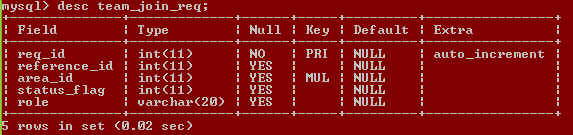
CONSTRAINT `fk\_area\_ref\_join` FOREIGN KEY (`area\_id`) REFERENCES `area` (`area\_id`) ON DELETE CASCADE ON UPDATE NO ACTION

) ENGINE=InnoDB AUTO\_INCREMENT=46 DEFAULT CHARSET=latin1 |

+---------------+-----------------------------------------------------------------------------------------------------

1 row in set (0.00 sec)

**Describe request\_for\_join:**

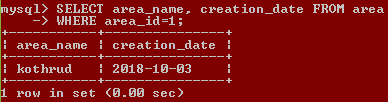
****

**ILLUSTRATION OF QUERYING THE SYSTEM USING MYSQL**

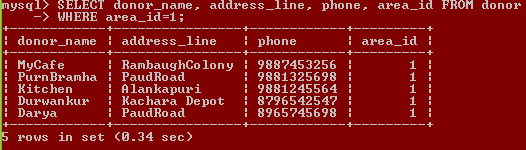
In this section, various instances of querying the system using MYSQL will be shown. The results are also shown.

**WHERE** clause usage:

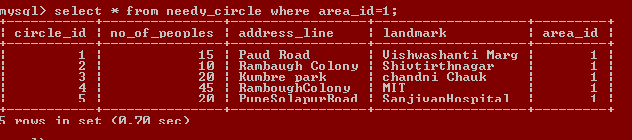
To select area\_name of area\_id=1;



To select donor names in area\_id=1:

****

To select all needy circles from area\_id=1:



**ORDER BY and LIKE** clause usage:

To search drive information from any column of drive :

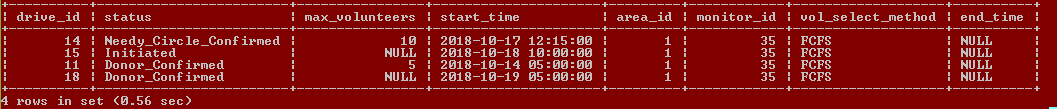
SELECT \*

FROM drive

WHERE CONCAT\_WS(',',drive\_id,status,max\_volunteers,start\_time,end\_time,monitor\_id,area\_id,vol\_select\_method)

LIKE '%FC%'

AND area\_id=1 AND status<>'Completed' ORDER BY status DESC,start\_time;



**JOIN** clause usage:

To get ALL information about monitor:

SELECT member.fname,

member.lname,

member.gender,

member.dob,

member.email,

member.points,

member.phone,

monitor.monitor\_id,

monitor.assigned\_date,

area.area\_id,

area.area\_name

FROM ((member

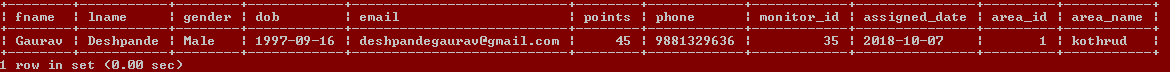
INNER JOIN monitor

ON monitor.monitor\_id=member.member\_id)

INNER JOIN area

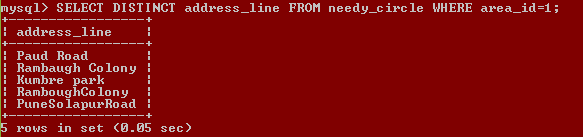
ON area.monitor\_id=monitor.monitor\_id)

WHERE monitor.monitor\_id=35

****

**DISTINCT clause usage:**

To select all distinct address lines from needy\_circle of area\_id=1:



To select all distinct landmarks from needy\_circle of area\_id=1:

