

Project Name: Phone Call Management System

PHASE - IV DATABASE MANAGEMENT & APPLICATIONS

I . FINAL RELATIONAL SCHEMA:

User

<u>user_ID</u>	<u>email_ID</u>	<u>identity_Proof</u>	Name	Address_Proof	House_No	Locality	city	zip_code
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User_Archive

<u>del_id</u>	data
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All_existing_phone_numbers

<u>Phone_number</u>

Area_Map

<u>locality</u>	<u>city</u>	<u>zip_code</u>	state	country
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Call_Log

<u>log_id</u>	call_start_time	call_end_time	called_phone_num	log_gen_phone_num
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Monthly_Bill

<u>bill_id</u>	generation_time	is_overdue	delivery_means	start_date
end_date	generated_for_phon e_number	user_id		

Plan

<u>plan_id</u>	charges	detail	Is_active
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Plan_Area

<u>plan_id</u>	<u>locality</u>
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Recieve_Log

<u>log_id</u>	call_start_time	call_end_time	log_gen_phone_num	recieved_phone_num
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Subscribed_To

<u>phone_num</u>	<u>plan_id</u>	plan_start_date	plan_end_date
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Unavailable_Phone_No

<u>phone_number</u>	<u>user_id</u>	assign_date
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II. SQL QUERIES TO CREATE DATABASE AND TABLES:

1. To create Database:

```
-----  
CREATE DATABASE IF NOT EXISTS `PHONE_LOGS`;  
USE `PHONE_LOGS`;
```

2. To create Tables:

```
-- MySQL dump 10.13 Distrib 5.7.25, for Linux (x86_64)  
--  
-- Host: 127.0.0.1  Database: PHONE_LOGS  
-----  
  
-- Server version 5.7.25-0ubuntu0.16.04.2  
/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;  
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;  
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;  
/*!40101 SET NAMES utf8 */;  
/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;  
/*!40103 SET TIME_ZONE='+00:00' */;  
/*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0 */;  
/*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS,  
FOREIGN_KEY_CHECKS=0 */;  
/*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;  
/*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;  
  
--  
-- Table structure for table `All_existing_phone_numbers`  
--  
DROP TABLE IF EXISTS `All_existing_phone_numbers`;  
/*!40101 SET @saved_cs_client = @@character_set_client */;  
/*!40101 SET character_set_client = utf8  
*/; CREATE TABLE  
`All_existing_phone_numbers` (  
  `Phone_number` bigint(12) NOT  
  NULL, PRIMARY KEY  
  (`Phone_number`)  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;  
/*!40101 SET character_set_client = @saved_cs_client */;  
--
```

```

-- Dumping data for table `All_existing_phone_numbers`
--
LOCK TABLES `All_existing_phone_numbers` WRITE;
/*!40000 ALTER TABLE `All_existing_phone_numbers` DISABLE KEYS */;
INSERT INTO `All_existing_phone_numbers` VALUES
(8697336359),(9792555514),(9792555516),(9868787316),(9958410442);
/*!40000 ALTER TABLE `All_existing_phone_numbers` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table `Area_Map`
--
DROP TABLE IF EXISTS `Area_Map`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `Area_Map` (
  `locality` varchar(50) NOT NULL,
  `city` varchar(20) NOT NULL,
  `zip_code` mediumint(9) NOT NULL,
  `state` varchar(20) NOT NULL,
  `country` varchar(20) NOT NULL,
  PRIMARY KEY (`locality`,`city`,`zip_code`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `Area_Map`
--
LOCK TABLES `Area_Map` WRITE;
/*!40000 ALTER TABLE `Area_Map` DISABLE KEYS */;
INSERT INTO `Area_Map` VALUES
('Kandi','hyderabad',7861,'Andhra','India'),('Malviya','hyderabad',7890,'Andhra','India'),('mla','de',1234,'del','india'),('sak','delhi',3456,'del','india');
/*!40000 ALTER TABLE `Area_Map` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table `Call_Log`
--
DROP TABLE IF EXISTS `Call_Log`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `Call_Log` (
  `log_id` bigint(20) NOT NULL AUTO_INCREMENT,
  `call_start_time` datetime NOT NULL,
  `call_end_time` datetime NOT NULL,
  `called_phone_num` bigint(20) NOT NULL,
  `log_gen_phone_num` bigint(20) NOT NULL,
  PRIMARY KEY (`log_id`),
  KEY `log_gen_phone_num` (`log_gen_phone_num`)

```

```

) ENGINE=InnoDB AUTO_INCREMENT=4 DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `Call_Log`
--
LOCK TABLES `Call_Log` WRITE;
/*!40000 ALTER TABLE `Call_Log` DISABLE KEYS */;
INSERT INTO `Call_Log` VALUES (1,'2019-04-24 08:00:00','2019-04-26
12:00:00',12345678,9792555514),(2,'2019-04-26 08:00:00','2019-04-26
16:00:00',987654321,8697336359),(3,'2019-04-17 02:00:00','2019-04-26
04:18:00',2345676543,9792555516);
/*!40000 ALTER TABLE `Call_Log` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table `Monthly_Bill`
--
DROP TABLE IF EXISTS `Monthly_Bill`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `Monthly_Bill` (
  `bill_id` int(11) NOT NULL AUTO_INCREMENT,
  `generation_time` datetime NOT NULL,
  `is_overdue` bit(1) NOT NULL,
  `delivery_means` varchar(20) DEFAULT NULL,
  `start_date` date NOT NULL,
  `end_date` date NOT NULL,
  `generated_for_phone_number` bigint(20) NOT NULL,
  `user_id` int(11) NOT NULL,
  PRIMARY KEY (`bill_id`),
  KEY `generated_for_phone_number` (`generated_for_phone_number`),
  KEY `monthly_bill_ibfk_2` (`user_id`),
  CONSTRAINT `monthly_bill_ibfk_1` FOREIGN KEY (`generated_for_phone_number`)
REFERENCES `Unavailable_Phone_No` (`phone_number`),
  CONSTRAINT `monthly_bill_ibfk_2` FOREIGN KEY (`user_id`) REFERENCES `User`
(`user_id`) ON DELETE CASCADE
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `Monthly_Bill`
--
LOCK TABLES `Monthly_Bill` WRITE;
/*!40000 ALTER TABLE `Monthly_Bill` DISABLE KEYS */;
INSERT INTO `Monthly_Bill` VALUES (1,'2019-04-01 00:00:00',_binary '', 'By
air','2019-04-17','2019-05-16',9792555514,1);
/*!40000 ALTER TABLE `Monthly_Bill` ENABLE KEYS */;
UNLOCK TABLES;
--

```

```

-- Table structure for table `Plan`
--
DROP TABLE IF EXISTS `Plan`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `Plan` (
  `plan_id` int(11) NOT NULL AUTO_INCREMENT,
  `charges` decimal(5,2) NOT NULL,
  `detail` varchar(500) NOT NULL,
  `Is_active` bit(1) NOT NULL,
  PRIMARY KEY (`plan_id`)
) ENGINE=InnoDB AUTO_INCREMENT=1001 DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `Plan`
--
LOCK TABLES `Plan` WRITE;
/*!40000 ALTER TABLE `Plan` DISABLE KEYS */;
INSERT INTO `Plan` VALUES (1,25.00,'detials',_binary ''),(2,34.00,'details
random',_binary '\0'),(3,99.00,'some new offer',_binary
'\0'),(999,456.00,'free',_binary ''), (1000,34.00,'Super discounted',_binary '');
/*!40000 ALTER TABLE `Plan` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table `Plan_Area`
--
DROP TABLE IF EXISTS `Plan_Area`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `Plan_Area` (
  `plan_id` int(11) NOT NULL,
  `locality` varchar(50) NOT NULL,
  PRIMARY KEY (`plan_id`,`locality`),
  KEY `city_keys` (`locality`),
  CONSTRAINT `city_keys` FOREIGN KEY (`locality`) REFERENCES `Area_Map`
(`locality`) ON DELETE CASCADE,
  CONSTRAINT `plan_area_ibfk_1` FOREIGN KEY (`plan_id`) REFERENCES `Plan`
(`plan_id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `Plan_Area`
--
LOCK TABLES `Plan_Area` WRITE;
/*!40000 ALTER TABLE `Plan_Area` DISABLE KEYS */;
INSERT INTO `Plan_Area` VALUES (1,'Kandi'),(1,'Malviya'),(3,'mla'),(999,'sak');
/*!40000 ALTER TABLE `Plan_Area` ENABLE KEYS */;

```

```

UNLOCK TABLES;
--
-- Table structure for table `Recieve_Log`
--
DROP TABLE IF EXISTS `Recieve_Log`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `Recieve_Log` (
  `log_id` bigint(20) NOT NULL AUTO_INCREMENT,
  `call_start_time` datetime NOT NULL,
  `call_end_time` datetime NOT NULL,
  `log_gen_phone_num` bigint(20) NOT NULL,
  `recieved_phone_num` bigint(20) NOT NULL,
  PRIMARY KEY (`log_id`),
  KEY `log_gen_phone_num` (`log_gen_phone_num`)
) ENGINE=InnoDB AUTO_INCREMENT=5 DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `Recieve_Log`
--
LOCK TABLES `Recieve_Log` WRITE;
/*!40000 ALTER TABLE `Recieve_Log` DISABLE KEYS */;
INSERT INTO `Recieve_Log` VALUES (1,'2019-04-19 00:00:00','2019-04-23
00:00:00',9792555514,345676785),(2,'2019-04-09 00:00:00','2019-04-17
00:00:00',9792555516,123456789),(3,'2019-04-09 00:00:00','2019-04-19
00:00:00',8697336359,9876534567),(4,'2019-04-16 00:00:00','2019-04-24
00:00:00',9792555514,345676785);
/*!40000 ALTER TABLE `Recieve_Log` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table `Subscribed_To`
--
DROP TABLE IF EXISTS `Subscribed_To`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `Subscribed_To` (
  `phone_num` bigint(20) NOT NULL,
  `plan_id` int(11) NOT NULL,
  `plan_start_date` date NOT NULL,
  `plan_end_date` date NOT NULL,
  PRIMARY KEY (`phone_num`,`plan_id`),
  KEY `subscribed_to_ibfk_2` (`plan_id`),
  CONSTRAINT `subscribed_to_ibfk_1` FOREIGN KEY (`phone_num`) REFERENCES
`Unavailable_Phone_No` (`phone_number`) ON DELETE CASCADE,
  CONSTRAINT `subscribed_to_ibfk_2` FOREIGN KEY (`plan_id`) REFERENCES `Plan`
(`plan_id`) ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

```

```

/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `Subscribed_To`
--
LOCK TABLES `Subscribed_To` WRITE;
/*!40000 ALTER TABLE `Subscribed_To` DISABLE KEYS */;
INSERT INTO `Subscribed_To` VALUES
(8697336359,999,'2019-04-09','2019-06-12'),(9792555514,1,'2019-04-16','2019-04-30')
,(9792555516,3,'2019-04-01','2019-07-06');
/*!40000 ALTER TABLE `Subscribed_To` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table `Unavailable_Phone_No`
--
DROP TABLE IF EXISTS `Unavailable_Phone_No`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `Unavailable_Phone_No` (
  `phone_number` bigint(20) NOT NULL,
  `user_id` int(11) NOT NULL,
  `assign_date` date NOT NULL,
  PRIMARY KEY (`phone_number`,`user_id`),
  KEY `available_phone_no_ibfk_1` (`user_id`),
  CONSTRAINT `Phone_number_constraint` FOREIGN KEY (`phone_number`) REFERENCES
`All_existing_phone_numbers` (`Phone_number`),
  CONSTRAINT `available_phone_no_ibfk_1` FOREIGN KEY (`user_id`) REFERENCES `User`
(`user_id`) ON DELETE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `Unavailable_Phone_No`
--
LOCK TABLES `Unavailable_Phone_No` WRITE;
/*!40000 ALTER TABLE `Unavailable_Phone_No` DISABLE KEYS */;
INSERT INTO `Unavailable_Phone_No` VALUES
(8697336359,3,'2019-04-07'),(9792555514,1,'2019-04-01'),(9792555516,1,'2019-04-20')
;
/*!40000 ALTER TABLE `Unavailable_Phone_No` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table `User`
--
DROP TABLE IF EXISTS `User`;
/*!40101 SET @saved_cs_client      = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `User` (
  `user_id` int(11) NOT NULL AUTO_INCREMENT,

```



```

`email_id` varchar(50) NOT NULL,
`identity_proof` varchar(50) NOT NULL,
`name` varchar(50) NOT NULL,
`house_no` smallint(6) DEFAULT NULL,
`locality` varchar(50) NOT NULL,
`city` varchar(20) NOT NULL,
`zip_code` mediumint(9) NOT NULL,
`address_proof` varchar(100) NOT NULL,
PRIMARY KEY (`user_id`),
UNIQUE KEY `email_id` (`email_id`)
) ENGINE=InnoDB AUTO_INCREMENT=7 DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table `User`
--
LOCK TABLES `User` WRITE;
/*!40000 ALTER TABLE `User` DISABLE KEYS */;
INSERT INTO `User` VALUES
(1,'1@email.com','Aadhar','ash',12,'mk','delhi',11021,'/path/to/file'),(3,'2@email.com','Driver license','abhor',69,'6969','buda',11069,'birth certificate'),(5,'3@email.com','Driver license','bharat',21,'budapest','delhi',110198,'j-456'),(6,'4@email.com','Driver license','yash',12,'som','paris',11029,'k-123/4');
/*!40000 ALTER TABLE `User` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table `User_Archive`
--
DROP TABLE IF EXISTS `User_Archive`;
/*!40101 SET @saved_cs_client = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `User_Archive` (
  `del_id` int(11) NOT NULL AUTO_INCREMENT,
  `data` json DEFAULT NULL,
  PRIMARY KEY (`del_id`)
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
-- Dumping data for table `User_Archive`
LOCK TABLES `User_Archive` WRITE;
/*!40000 ALTER TABLE `User_Archive` DISABLE KEYS */;
/*!40000 ALTER TABLE `User_Archive` ENABLE KEYS */;
UNLOCK TABLES;
-- Table structure for table `temp`
DROP TABLE IF EXISTS `temp`;
/*!40101 SET @saved_cs_client = @@character_set_client */;
/*!40101 SET character_set_client = utf8 */;
CREATE TABLE `temp` (

```

```

    `call_start_time` datetime NOT NULL,
    `call_end_time` datetime NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
/*!40101 SET character_set_client = @saved_cs_client */;
-- Dumping data for table `temp`
LOCK TABLES `temp` WRITE;
/*!40000 ALTER TABLE `temp` DISABLE KEYS */;
INSERT INTO `temp` VALUES ('2019-04-26 08:00:00','2019-04-26
12:00:00'),('2019-04-26 02:00:00','2019-04-26 04:18:00');
/*!40000 ALTER TABLE `temp` ENABLE KEYS */;
UNLOCK TABLES;
-- Temporary table structure for view `user_temp`
DROP TABLE IF EXISTS `user_temp`;
/*!50001 DROP VIEW IF EXISTS `user_temp`*/;
SET @saved_cs_client      = @@character_set_client;
SET character_set_client = utf8;
/*!50001 CREATE VIEW `user_temp` AS SELECT
  1 AS `user_id`,
  1 AS `email_id`,
  1 AS `identity_proof`,
  1 AS `name`,
  1 AS `house_no`,
  1 AS `locality`,
  1 AS `city`,
  1 AS `zip_code`,
  1 AS `address_proof`,
  1 AS `phone_number`,
  1 AS `assign_date`*/;
SET character_set_client = @saved_cs_client;
-- Final view structure for view `user_temp`
/*!50001 DROP VIEW IF EXISTS `user_temp`*/;
/*!50001 SET @saved_cs_client      = @@character_set_client */;
/*!50001 SET @saved_cs_results     = @@character_set_results */;
/*!50001 SET @saved_col_connection = @@collation_connection */;
/*!50001 SET character_set_client  = utf8 */;
/*!50001 SET character_set_results = utf8 */;
/*!50001 SET collation_connection  = utf8_general_ci */;
/*!50001 CREATE ALGORITHM=UNDEFINED */
/*!50013 DEFINER=`root`@`localhost` SQL SECURITY DEFINER */
/*!50001 VIEW `user_temp` AS select `User`.`user_id` AS `user_id`,`User`.`email_id`
AS `email_id`,`User`.`identity_proof` AS `identity_proof`,`User`.`name` AS
`name`,`User`.`house_no` AS `house_no`,`User`.`locality` AS
`locality`,`User`.`city` AS `city`,`User`.`zip_code` AS
`zip_code`,`User`.`address_proof` AS
`address_proof`,`Unavailable_Phone_No`.`phone_number` AS
`phone_number`,`Unavailable_Phone_No`.`assign_date` AS `assign_date` from (`User`
join `Unavailable_Phone_No`) where ((`User`.`user_id` =

```

```

`Unavailable_Phone_No`.`user_id`) and (`User`.`user_id` = 1)) */;
/*!50001 SET character_set_client      = @saved_cs_client */;
/*!50001 SET character_set_results     = @saved_cs_results */;
/*!50001 SET collation_connection     = @saved_col_connection */;
/*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;

/*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
/*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
/*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
/*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;
-- Dump completed on 2019-04-28 19:29:14

```

II. SQL QUERIES FOR ALL THE APPLICATION REQUIREMENTS :

1. Monthly bill of a user

```

SELECT SUM(DATEDIFF(`Call_Log`.`call_end_time`, `Call_Log`.`call_start_time`))*20
FROM `Unavailable_Phone_No`, `Call_Log`
WHERE `Unavailable_Phone_No`.`user_id` = 1 AND `Unavailable_Phone_No`.`phone_number`
= `Call_Log`.`log_gen_phone_num` AND `Call_Log`.`call_start_time` > '2019-04-23
08:00:00.000000'

```

2. Display all calls by a certain user in a specific period

```

SELECT `Call_Log`.`log_id`, `Unavailable_Phone_No`.`phone_number`,
`Call_Log`.`called_phone_num` FROM `Call_Log`, `Unavailable_Phone_No`
WHERE `Unavailable_Phone_No`.`user_id` = 1 AND
`Unavailable_Phone_No`.`phone_number` = `Call_Log`.`log_gen_phone_num` AND
`Call_Log`.`call_start_time` > '2019-04-23 08:00:00.000000'

```

3. Display calls made in a specific period

```

SELECT * FROM `Call_Log` WHERE `Call_Log`.`call_start_time` > '2019-04-23
08:00:00.000000'

```

4. Display list of dialled numbers by a certain user in a specific period

```

SELECT `Recieve_Log`.`recieved_phone_num`, `Unavailable_Phone_No`.`user_id`
FROM `Recieve_Log`, `Unavailable_Phone_No`
WHERE `Unavailable_Phone_No`.`user_id` =1 AND `Recieve_Log`.`log_gen_phone_num` =
`Unavailable_Phone_No`.`phone_number` AND `Recieve_Log`.`call_start_time` <
'2019-04-20 08:00:00.000000'

```

5. Display all calls made to a user in a specific period

```
SELECT `Recieve_Log`.`recieved_phone_num`
FROM `Recieve_Log`, `Unavailable_Phone_No`
WHERE `Unavailable_Phone_No`.`user_id` = 1 AND
`Unavailable_Phone_No`.`phone_number` = `Recieve_Log`.`log_gen_phone_num` AND
`Recieve_Log`.`call_start_time` < '2019-04-16 08:00:00.000000'
```

6. Display the most frequently called user

```
SELECT `Unavailable_Phone_No`.`user_id`, COUNT(*)
FROM `Recieve_Log`, `Unavailable_Phone_No`
WHERE `Recieve_Log`.`log_gen_phone_num` = `Unavailable_Phone_No`.`phone_number`
GROUP BY `Unavailable_Phone_No`.`user_id` DESC LIMIT 1
```

7. Display the most frequently called user in a specific period

```
SELECT `Unavailable_Phone_No`.`user_id`, COUNT(*)
FROM `Recieve_Log`, `Unavailable_Phone_No`
WHERE `Recieve_Log`.`log_gen_phone_num` = `Unavailable_Phone_No`.`phone_number` AND
`Recieve_Log`.`call_start_time` < '2019-04-16 08:00:00.000000'
GROUP BY `Unavailable_Phone_No`.`user_id` DESC LIMIT 1
```

8. Display the most frequent caller to a user

```
SELECT `Recieve_Log`.`recieved_phone_num`, COUNT(*)
FROM `Recieve_Log`, `Unavailable_Phone_No`
WHERE `Unavailable_Phone_No`.`user_id` =1 AND `Recieve_Log`.`log_gen_phone_num` =
`Unavailable_Phone_No`.`phone_number`
GROUP BY `Recieve_Log`.`recieved_phone_num` DESC LIMIT 1
```

9. Display the most frequent caller to a user in a specific period

```
SELECT `Recieve_Log`.`recieved_phone_num`, COUNT(*)
FROM `Recieve_Log`, `Unavailable_Phone_No`
WHERE `Unavailable_Phone_No`.`user_id` =1 AND `Recieve_Log`.`log_gen_phone_num` =
`Unavailable_Phone_No`.`phone_number` AND `Recieve_Log`.`call_start_time` <
'2019-04-16 08:00:00.000000'
GROUP BY `Recieve_Log`.`recieved_phone_num` DESC LIMIT 1
```

10. SHOW details

```
SELECT * FROM Monthly_Bill WHERE `Monthly_Bill`.`user_id` = 1
```

10. UPDATE details on bill

```
UPDATE `Monthly_Bill` SET `Monthly_Bill`.`delivery_means` = "By air" WHERE
`Monthly_Bill`.`bill_id` =1
```

11. Display all users

```
SELECT * FROM `User` WHERE 1
```

12. Display all areas where user has his plan applicable

```
SELECT `Plan_Area`.`locality` FROM `Plan_Area` , `Subscribed_To` ,  
`Unavailable_Phone_No`  
WHERE `Plan_Area`.`plan_id` = `Subscribed_To`.`plan_id` AND  
`Unavailable_Phone_No`.`user_id` =3 AND `Unavailable_Phone_No`.`phone_number` =  
`Subscribed_To`.`phone_num`
```

```
SELECT `Plan_Area`.`locality` FROM `Plan_Area` , `Subscribed_To` ,  
`Unavailable_Phone_No`  
WHERE `Plan_Area`.`plan_id` = `Subscribed_To`.`plan_id` AND  
`Unavailable_Phone_No`.`user_id` =1 AND `Unavailable_Phone_No`.`phone_number` =  
`Subscribed_To`.`phone_num`
```

13. Display all users of a particular Area

```
SELECT `Unavailable_Phone_No`.`user_id`, `Unavailable_Phone_No`.`phone_number`  
FROM `Plan_Area` , `Subscribed_To` , `Unavailable_Phone_No`  
WHERE `Plan_Area`.`locality` ="Kandi" AND `Unavailable_Phone_No`.`phone_number` =  
`Subscribed_To`.`phone_num` AND `Plan_Area`.`plan_id` = `Subscribed_To`.`plan_id`
```

14. All available phone numbers

```
SELECT `All_existing_phone_numbers`.`Phone_number` FROM `All_existing_phone_numbers`  
WHERE `All_existing_phone_numbers`.`Phone_number` NOT IN  
(SELECT `Unavailable_Phone_No`.`phone_number` FROM `Unavailable_Phone_No` WHERE 1)
```

15. Adding a new plan

```
INSERT INTO `Plan` (`plan_id`, `charges`, `detail`, `Is_active`) VALUES (NULL,  
'34', 'Super discounted', b'1')
```

16. Updating an existing plan

```
UPDATE `Plan` SET `charges`=99, `detail`='some new offer' , `Is_active`=1 WHERE  
`plan_id` =3
```

17. Archiving an existing plan

```
UPDATE `Plan` SET `charges`=99, `detail`='some new offer' , `Is_active`=0 WHERE  
`plan_id` =3
```

18. Display all Active plans

```
SELECT * FROM `Plan` WHERE `Plan`.`Is_active` =1
```

19. Display all available calling plans for an area

```
SELECT `Plan_Area`.`plan_id` FROM `Plan_Area` WHERE `Plan_Area`.`locality` =  
"Kandi"
```