KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY

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Telecom Database System

Database Management System Project

Group 3

- Deep Saha 2205029
- Kaustabh Shit 2205131
- Shashank Yadav 22051193
- Komal Anand 22051169
- Vibhav 22051302
- Rajdeep Mondal 22051359

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ACKNOWLEDGEMENT

I gratefully acknowledge my sincere thanks to my DBMS teacher, Mr. Pradeep Kumar Parhi for his valuable assistance, guidance, oversight, constructive criticism and suggestions for this project. I wish to express my deep gratitude to him and all the lab assistants for providing me the golden opportunity to be a part of this project. I am also indebted to my team members for their encouragement, support, help, suggestions, improvements and solutions for the completion of this project, which helped me learn a lot.

INTRODUCTION

In the fast-paced world of telecommunications, where vast amounts of data flow through networks every second, efficient management of information is paramount. Telecom Database Management Systems (DBMS) play a crucial role in handling, storing, retrieving, and analyzing this extensive volume of data. These systems serve as the backbone of telecom operations, enabling service providers to deliver seamless connectivity, maintain network integrity, and offer personalized services to customers.

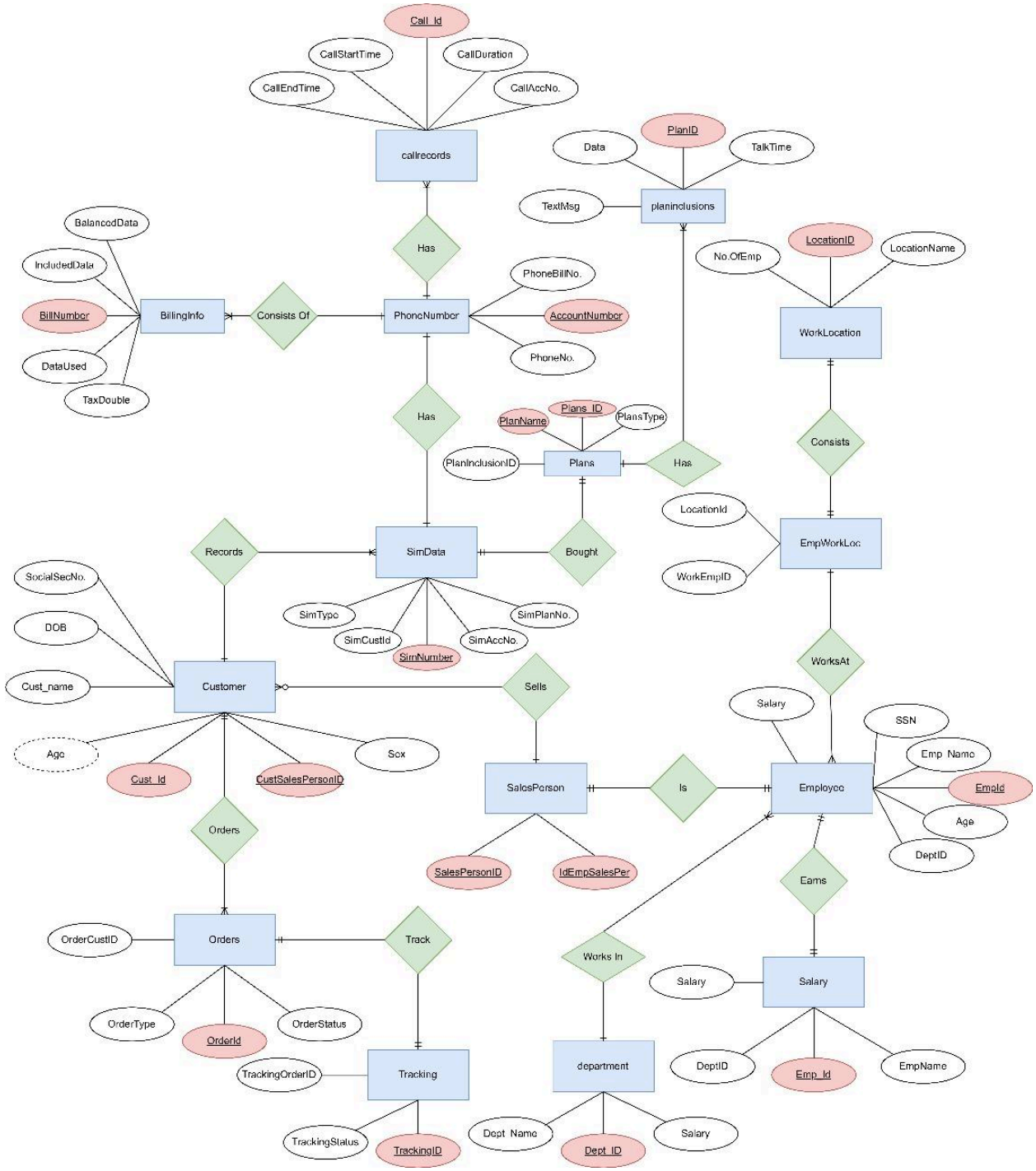
At its core, a Telecom DBMS is designed to organize structured and unstructured data generated from various sources within a telecommunications network. This data encompasses subscriber information, call records, network performance metrics, billing details, service configurations, and more. By centralizing this data within a robust database framework, telecom companies can streamline their operations, improve decision-making processes, enhance customer experiences, and optimize resource utilization.

Key features of a Telecom DBMS include data integrity mechanisms to ensure accuracy and consistency, scalability to accommodate growing data volumes and user demands, security measures to safeguard sensitive information, and advanced analytics capabilities for deriving actionable insights from the data reservoir. Additionally, these systems often incorporate real-time processing capabilities to support mission-critical operations such as call routing, fraud detection, and network monitoring.

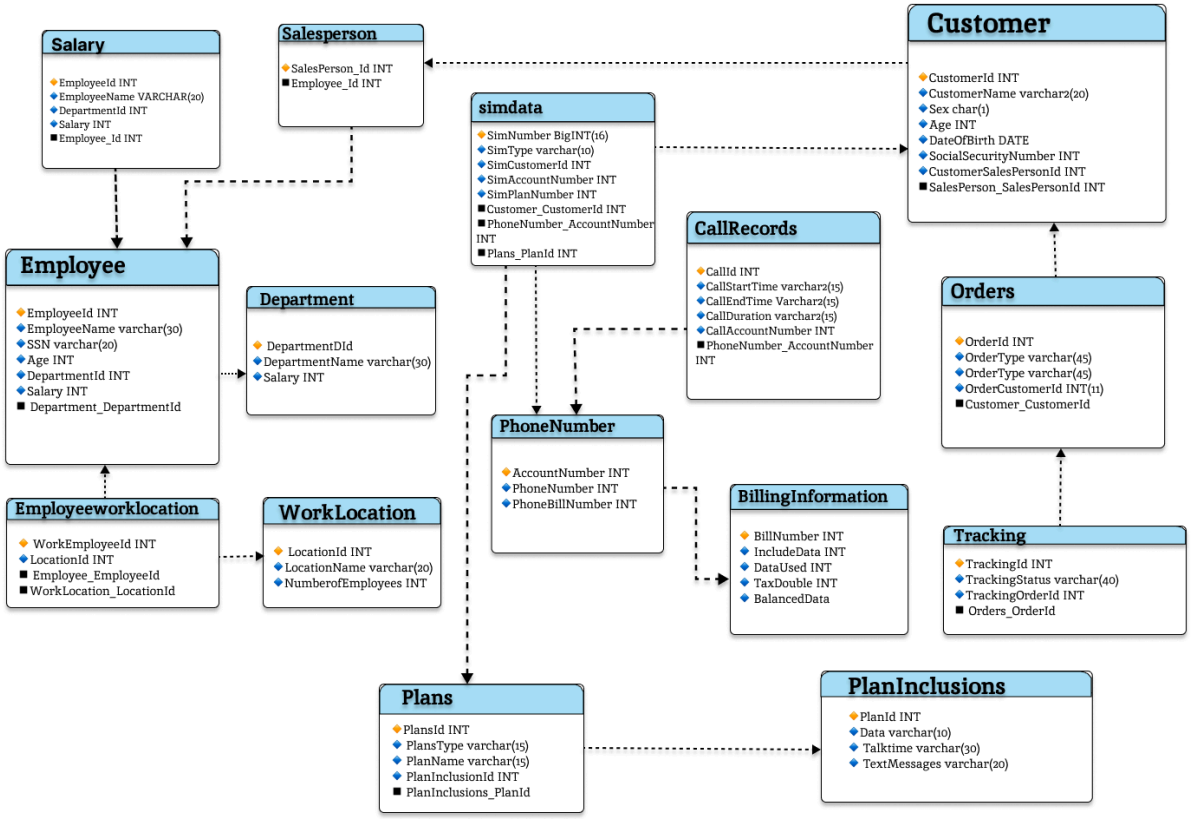
The evolution of Telecom DBMS is closely intertwined with advancements in technology, including cloud computing, big data analytics, machine learning, and artificial intelligence. These innovations enable telecom operators to leverage data-driven strategies for network optimization, predictive maintenance, targeted marketing, and personalized service offerings.

In summary, Telecom DBMS serves as the cornerstone of modern telecommunications infrastructure, empowering providers to efficiently manage their networks, deliver high-quality services, and adapt to the dynamic demands of the digital era. As the telecom industry continues to evolve, the role of database management systems will remain pivotal in driving innovation, competitiveness, and customer satisfaction.

ENTITY RELATIONSHIP DIAGRAM



RELATIONSHIP SCHEMA



SOURCE CODE and QUERIES

```
CREATE TABLE billinginformation (
  BillNumber int NOT NULL,
  IncludedData int NOT NULL,
  DataUsed int NOT NULL,
  BalancedData int NOT NULL,
  TaxDouble int NOT NULL,
  PRIMARY KEY (BillNumber)
);

INSERT INTO billinginformation VALUES (1,50,40,10,15.1);
INSERT INTO billinginformation VALUES (2,100,60,40,20.3);
INSERT INTO billinginformation VALUES (3,200,100,100,30.3);
INSERT INTO billinginformation VALUES (4,500,200,300,40.3);
INSERT INTO billinginformation VALUES (5,500,100,400,50);
INSERT INTO billinginformation VALUES (6,1000,100,900,70);
INSERT INTO billinginformation VALUES (7,800,300,500,60);
INSERT INTO billinginformation VALUES (8,1200,400,800,100);
INSERT INTO billinginformation VALUES (9,1500,400,1100,100);
INSERT INTO billinginformation VALUES (10,1500,600,900,300);
INSERT INTO billinginformation VALUES (11,1500,800,700,180);
INSERT INTO billinginformation VALUES (12,2000,900,1100,180);
INSERT INTO billinginformation VALUES (13,2000,500,1500,170);
INSERT INTO billinginformation VALUES (14,2000,500,1500,200);
INSERT INTO billinginformation VALUES (15,2000,1800,200,200);
```

```
SQL> select * from billinginformation;

BILLNUMBER INCLUDEDDATA   DATAUSED BALANCEDDATA  TAXDOUBLE
---------- ------------ ---------- ------------ ----------
         1           50         40           10         15
         2          100         60           40         20
         3          200        100          100         30
         4          500        200          300         40
         5          500        100          400         50
         6         1000        100          900         70
         7          800        300          500         60
         8         1200        400          800        100
         9         1500        400         1100        100
        10         1500        600          900        300
        11         1500        800          700        180
        12         2000        900         1100        180
        13         2000        500         1500        170
        14         2000        500         1500        200
        15         2000       1800          200        200

15 rows selected.
```

```
CREATE TABLE department (
  DepartmentDId int NOT NULL,
  DepartmentName varchar(30) NOT NULL,
  Salary int NOT NULL,
  PRIMARY KEY (DepartmentDId)
);
```

```
INSERT INTO department VALUES (1,'Information Technology',10000);
INSERT INTO department VALUES (2,'Sales and Marketing', 5000);
INSERT INTO department VALUES (3,'Finance', 2500);
INSERT INTO department VALUES (4,'Human Resource',7500);
INSERT INTO department VALUES (5,'Customer Care',1000);
```

```
SQL> select * from department;

DEPARTMENTDID DEPARTMENTNAME                    SALARY
------------- ------------------------------ ----------
            1 Information Technology              10000
            4 Human Resource                       7500
            5 Customer Care                        1000
            2 Sales and Marketing                  5000
            3 Finance                              2500
```

```
CREATE TABLE employee (
  EmployeeId int NOT NULL,
  Employee_Name varchar(30) NOT NULL,
  SSN varchar(20) NOT NULL,
  Age int NOT NULL,
  DepartmentId int DEFAULT NULL,
  Salary int DEFAULT NULL,
  PRIMARY KEY (EmployeeId),
  CONSTRAINT DepartmentId FOREIGN KEY (DepartmentId) REFERENCES department (DepartmentDId)
);


INSERT INTO employee VALUES (1,'Ojas Phansekar','123456789',24,1,1000);
INSERT INTO employee VALUES (2,'Shreyas Kalayanaraman','245987675',24,1,1000);
INSERT INTO employee VALUES (3,'Saurabh Kulkarni','734756953',24,1,1000);
INSERT INTO employee VALUES (4,'Vivek Shetye','572364526',26,1,1000);
INSERT INTO employee VALUES (5,'Mihir Patil','238745784',27,1,1000);
INSERT INTO employee VALUES (6,'Karan Thevar','968374657',28,4,7500);
INSERT INTO employee VALUES (7,'Chetan Mistry','623784983',30,4,7500);
INSERT INTO employee VALUES (8,'Shantanu Sawant','527473298',24,4,7500);
INSERT INTO employee VALUES (9,'Pooja Patil','286436778',24,4,7500);
INSERT INTO employee VALUES (10,'Kalpita Malvankar','863476236',34,4,7500);
```

```
SQL> select * from employee;

EMPLOYEEID EMPLOYEE_NAME                  SSN                       AGE DEPARTMENTID     SALARY
---------- ------------------------------ -------------------- ---------- ------------ ----------
         1 Ojas Phansekar                 123456789                    24            1       1000
         2 Shreyas Kalayanaraman          245987675                    24            1       1000
         3 Saurabh Kulkarni               734756953                    24            1       1000
         4 Vivek Shetye                   572364526                    26            1       1000
         5 Mihir Patil                    238745784                    27            1       1000
         6 Karan Thevar                   968374657                    28            4       7500
         7 Chetan Mistry                  623784983                    30            4       7500
         8 Shantanu Sawant                527473298                    24            4       7500
         9 Pooja Patil                    286436778                    24            4       7500
        10 Kalpita Malvankar              863476236                    34            4       7500

10 rows selected.
```

```
CREATE TABLE worklocation (
 LocationId int NOT NULL,
 LocationName varchar(20) NOT NULL,
 NumberOfEmployees int NOT NULL,
 PRIMARY KEY (LocationId)
);

insert into worklocation values(1,'Seattle',5);
insert into worklocation values(2,'Washington DC',5);
insert into worklocation values(3,'New York',5);
insert into worklocation values(4,'Boston',5);
```

```
SQL> select * from worklocation;

LOCATIONID LOCATIONNAME         NUMBEROFEMPLOYEES
---------- -------------------- -----------------
         1 Seattle                              5
         2 Washington DC                        5
         3 New York                             5
         4 Boston                               5
```

```
CREATE TABLE employeeworklocation (
 WorkEmployeeId int NOT NULL,
 LocationId int NOT NULL,
 CONSTRAINT LocationId FOREIGN KEY (LocationId) REFERENCES worklocation (LocationId),
 CONSTRAINT WorkEmployeeId FOREIGN KEY (WorkEmployeeId) REFERENCES employee (EmployeeId)
);

INSERT INTO employeeworklocation VALUES (1,2);
INSERT INTO employeeworklocation VALUES (2,4);
INSERT INTO employeeworklocation VALUES (3,3);
INSERT INTO employeeworklocation VALUES (4,1);
INSERT INTO employeeworklocation VALUES (5,2);
INSERT INTO employeeworklocation VALUES (6,4);
```

INSERT INTO employeeworklocation VALUES (7,3);

INSERT INTO employeeworklocation VALUES (8,1);

INSERT INTO employeeworklocation VALUES (9,2);

INSERT INTO employeeworklocation VALUES (10,4);

```
SQL> select * from employeeworklocation;

WORKEMPLOYEEID LOCATIONID
-------------- ----------
             1          2
             2          4
             3          3
             4          1
             5          2
             6          4
             7          3
             8          1
             9          2
            10          4

10 rows selected.
```

CREATE TABLE phonenumber (

AccountNumber int NOT NULL,

PhoneNumber int NOT NULL,

PhoneBillNumber int NOT NULL,

PRIMARY KEY (AccountNumber)

);

insert into phonenumber values(10,1235465768,1);

insert into phonenumber values(11,1675849305,3);

insert into phonenumber values(12,1345267859,4);

insert into phonenumber values(13,1578893409,5);

insert into phonenumber values(14,1876509876,7);

insert into phonenumber values(15,1657483948,8);

insert into phonenumber values(16,1236564789,9);

insert into phonenumber values(17,1784967348,10);

insert into phonenumber values(18,1758483934,11);

insert into phonenumber values(19,1745889839,12);

```
SQL> select * from phonenumber;

ACCOUNTNUMBER PHONENUMBER PHONEBILLNUMBER
------------- ----------- ---------------
           10  1235465768               1
           11  1675849305               3
           12  1345267859               4
           13  1578893409               5
           14  1876509876               7
           15  1657483948               8
           16  1236564789               9
           17  1784967348              10
           18  1758483934              11
           19  1745889839              12

10 rows selected.
```

```
CREATE TABLE callrecords (
  CallId int NOT NULL,
  CallStartTime varchar2(15) NOT NULL,
  CallEndTime varchar2(15) NOT NULL,
  CallDuration varchar2(15) NOT NULL,
  CallAccountNumber int NOT NULL,
  PRIMARY KEY (CallId),
  CONSTRAINT CallAccountNumber FOREIGN KEY (CallAccountNumber) REFERENCES phonenumber (AccountNumber)
);

INSERT INTO callrecords VALUES (1,'12:20:20','12:21:20','00:01:00',10);
INSERT INTO callrecords VALUES (2,'11:23:24','15:40:30','04:17:06',10);
INSERT INTO callrecords VALUES (3,'08:30:10','08:32:20','00:02:10',11);
INSERT INTO callrecords VALUES (4,'21:45:30','21:50:34','00:05:04',14);
INSERT INTO callrecords VALUES (5,'12:32:21','12:34:20','00:01:59',10);
INSERT INTO callrecords VALUES (6,'19:10:13','19:55:20','00:45:07',10);
INSERT INTO callrecords VALUES (7,'20:30:25','21:21:20','00:50:55',10);
INSERT INTO callrecords VALUES (8,'13:40:56','14:34:20','00:53:24',10);
INSERT INTO callrecords VALUES (9,'16:20:20','18:21:20','02:01:00',10);
```

```
SQL> select * from callrecords;

    CALLID CALLSTARTTIME   CALLENDTIME     CALLDURATION    CALLACCOUNTNUMBER
---------- --------------- --------------- --------------- ------------------
         1 12:20:20        12:21:20        00:01:00                        10
         2 11:23:24        15:40:30        04:17:06                        10
         3 08:30:10        08:32:20        00:02:10                        11
         4 21:45:30        21:50:34        00:05:04                        14
         5 12:32:21        12:34:20        00:01:59                        10
         6 19:10:13        19:55:20        00:45:07                        10
         7 20:30:25        21:21:20        00:50:55                        10
         8 13:40:56        14:34:20        00:53:24                        10
         9 16:20:20        18:21:20        02:01:00                        10

9 rows selected.
```

```
CREATE TABLE planinclusions (
  PlanId int NOT NULL,
  Data varchar(10) NOT NULL,
  Talktime varchar(30) NOT NULL,
  TextMessages varchar(20) NOT NULL,
  PRIMARY KEY (PlanId)
);

insert into PlanInclusions values(1,'500MB','60 Minutes','100');
insert into PlanInclusions values(2,'500MB','120 Minutes','200');
insert into PlanInclusions values(3,'500MB','180 Minutes','300');
insert into PlanInclusions values(4,'500MB','240 Minutes','400');
insert into PlanInclusions values(5,'500MB','300 Minutes','500');
insert into PlanInclusions values(6,'1GB','360 Minutes','600');
insert into PlanInclusions values(7,'1GB','420 Minutes','700');
insert into PlanInclusions values(8,'1GB','480 Minutes','800');
insert into PlanInclusions values(9,'1GB','540 Minutes','900');
insert into PlanInclusions values(10,'1GB','600 Minutes','1000');
insert into PlanInclusions values(11,'1.5 GB','660 Minutes','1100');
insert into PlanInclusions values(12,'1.5 GB','720 Minutes','1200');
insert into PlanInclusions values(13,'1.5 GB','780 Minutes','1300');
insert into PlanInclusions values(14,'1.5 GB','840 Minutes','1400');
insert into PlanInclusions values(15,'1.5 GB','900 Minutes','1500');
```

insert into PlanInclusions values(16,'2 GB','960 Minutes','Unlimited');

insert into PlanInclusions values(17,'2 GB','1020 Minutes','Unlimited');

insert into PlanInclusions values(18,'2 GB','1080 Minutes','Unlimited');

insert into PlanInclusions values(19,'2 GB','1140 Minutes','Unlimited');

insert into PlanInclusions values(20,'2 GB','1200 Minutes','Unlimited');

```
SQL> select * from planinclusions;

    PLANID DATA       TALKTIME                       TEXTMESSAGES
---------- ---------- ------------------------------ --------------------
         1 500MB      60 Minutes                     100
         2 500MB      120 Minutes                    200
         3 500MB      180 Minutes                    300
         4 500MB      240 Minutes                    400
         5 500MB      300 Minutes                    500
         6 1GB        360 Minutes                    600
         7 1GB        420 Minutes                    700
         8 1GB        480 Minutes                    800
         9 1GB        540 Minutes                    900
        10 1GB        600 Minutes                    1000
        11 1.5 GB     660 Minutes                    1100
        12 1.5 GB     720 Minutes                    1200
        13 1.5 GB     780 Minutes                    1300
        14 1.5 GB     840 Minutes                    1400
        15 1.5 GB     900 Minutes                    1500
        16 2 GB       960 Minutes                    Unlimited
        17 2 GB       1020 Minutes                   Unlimited
        18 2 GB       1080 Minutes                   Unlimited
        19 2 GB       1140 Minutes                   Unlimited
        20 2 GB       1200 Minutes                   Unlimited

20 rows selected.
```

CREATE TABLE plans(

PlansId int NOT NULL,

PlansType varchar(15) NOT NULL,

PlanName varchar(20) NOT NULL,

PlanInclusionId int NOT NULL,

PRIMARY KEY (PlansId),

CONSTRAINT PlanInclusionId FOREIGN KEY (PlanInclusionId) REFERENCES planinclusions (PlanId)

);

insert into plans values(2,'Prepaid','Every Minute Counts',2);

insert into plans values(3,'Postpaid','Family',3);

insert into plans values(4,'Postpaid','Enjoy Data',4);

insert into plans values(5,'Postpaid','Finger tips',5);

insert into plans values(6,'Prepaid','Talk For Hours',6);

insert into plans values(7,'Postpaid','Do not disturb',7);

insert into plans values(8,'Prepaid','Enjoy surfing',8);

insert into plans values(9,'Prepaid','Continuous Texting',18);

insert into plans values(10,'Postpaid','Powerful Speed',20);

```
SQL> select * from plans;

   PLANSID PLANSTYPE       PLANNAME            PLANINCLUSIONID
---------- --------------- ------------------- ---------------
         2 Prepaid         Every Minute Counts                2
         3 Postpaid        Family                             3
         4 Postpaid        Enjoy Data                         4
         5 Postpaid        Finger tips                        5
         6 Prepaid         Talk For Hours                     6
         7 Postpaid        Do not disturb                     7
         8 Prepaid         Enjoy surfing                      8
         9 Prepaid         Continuous Texting                18
        10 Postpaid        Powerful Speed                    20

9 rows selected.
```

CREATE TABLE salary (

EmployeeId int NOT NULL,

EmployeeName varchar(20) NOT NULL,

DepartmentId int DEFAULT NULL,

Salary int NOT NULL,

PRIMARY KEY (EmployeeId)

);

INSERT INTO salary VALUES (27,'Devdip Sen',5,10000);

INSERT INTO salary VALUES (28,'Alpana Sharan',3,2500);

INSERT INTO salary VALUES (29,'Priyanka Singh',3,2500);

INSERT INTO salary VALUES (30,'Ranjani Iyer',2,5000);

INSERT INTO salary VALUES (31,'Amlan Bhuyan',4,7500);

INSERT INTO salary VALUES (32,'Manoj Prabhakar',1,1000);

INSERT INTO salary VALUES (33,'Raj Phadke',5,10000);

INSERT INTO salary VALUES (34,'Priya Yadav',1,1000);

INSERT INTO salary VALUES (35,'Sayali Joshi',4,7500);

INSERT INTO salary VALUES (36,'Pranav Patil',5,10000);

INSERT INTO salary VALUES (37,'Rohit Patil',3,2500);

INSERT INTO salary VALUES (38,'Swanand Sapre',5,10000);

```
SQL> select * from salary;

EMPLOYEEID EMPLOYEENAME         DEPARTMENTID     SALARY
---------- -------------------- ------------ ----------
        27 Devdip Sen                      5      10000
        28 Alpana Sharan                   3       2500
        29 Priyanka Singh                  3       2500
        30 Ranjani Iyer                    2       5000
        31 Amlan Bhuyan                    4       7500
        32 Manoj Prabhakar                 1       1000
        33 Raj Phadke                      5      10000
        34 Priya Yadav                     1       1000
        35 Sayali Joshi                    4       7500
        36 Pranav Patil                    5      10000
        37 Rohit Patil                     3       2500
        38 Swanand Sapre                   5      10000

12 rows selected.
```

CREATE TABLE salesperson (

SalesPersonId int NOT NULL,

IdEmployeeSalesPerson int NOT NULL,

PRIMARY KEY (SalesPersonId, IdEmployeeSalesPerson),

CONSTRAINT IdEmployeeSalesPerson FOREIGN KEY (IdEmployeeSalesPerson) REFERENCES employee (EmployeeId)

);

insert into salesperson values(1,5);

insert into salesperson values(2,6);

insert into salesperson values(3,7);

insert into salesperson values(4,8);

```
SQL> select * from salesperson;

SALESPERSONID IDEMPLOYEESALESPERSON
------------- ----------------------
            1                      5
            2                      6
            3                      7
            4                      8
```

CREATE TABLE customer (

CustomerId int NOT NULL,

CustomerName varchar2(20) NOT NULL,

Sex char(1) NOT NULL,

Age int NOT NULL,

```
 DateOfBirth varchar2(15) NOT NULL,
 SocialSecurityNumber int NOT NULL,
 CustomerSalesPersonId int NOT NULL,
 PRIMARY KEY (CustomerId, CustomerSalesPersonId)
);

INSERT INTO customer VALUES (1,'Jishnu Vasudevan','M',24,'1993-12-28',232498675,1);
INSERT INTO customer VALUES (2,'Harsh Shah','M',24,'1993-09-12',456498675,2);
INSERT INTO customer VALUES (3,'Rachana Rambhad','F',24,'1993-08-19',543498675,3);
INSERT INTO customer VALUES (4,'Lagan Gupta','F',24,'1993-08-08',765498675,4);
INSERT INTO customer VALUES (5,'Neha Verma','F',24,'1993-08-27',987498675,1);
INSERT INTO customer VALUES (6,'Aniel Patel','M',24,'1993-11-28',235468675,2);
INSERT INTO customer VALUES (7,'Anubhav Gupta','M',27,'1990-12-28',555698675,3);
INSERT INTO customer VALUES (8,'Aditya Joshi','M',24,'1993-10-28',232434575,4);
INSERT INTO customer VALUES (9,'Parnal Dighe','F',24,'1993-09-28',232498765,1);
INSERT INTO customer VALUES (10,'Dharit Shah','M',24,'1993-12-27',123498675,2);
```

```
SQL> select * from customer;

CUSTOMERID CUSTOMERNAME         S        AGE DATEOFBIRTH     SOCIALSECURITYNUMBER CUSTOMERSALESPERSONID
---------- -------------------- - ---------- -------------- -------------------- ----------------------
         1 Jishnu Vasudevan     M         24 1993-12-28                232498675                      1
         2 Harsh Shah           M         24 1993-09-12                456498675                      2
         3 Rachana Rambhad      F         24 1993-08-19                543498675                      3
         4 Lagan Gupta          F         24 1993-08-08                765498675                      4
         5 Neha Verma           F         24 1993-08-27                987498675                      1
         6 Aniel Patel          M         24 1993-11-28                235468675                      2
         7 Anubhav Gupta        M         27 1990-12-28                555698675                      3
         8 Aditya Joshi         M         24 1993-10-28                232434575                      4
         9 Parnal Dighe         F         24 1993-09-28                232498765                      1
        10 Dharit Shah          M         24 1993-12-27                123498675                      2

10 rows selected.
```

```
CREATE TABLE orders (
 OrderId int NOT NULL,
 OrderType varchar(30) NOT NULL,
 OrderStatus varchar(20) NOT NULL,
 OrderCustomerId int NOT NULL,
 PRIMARY KEY (OrderId),
 CONSTRAINT OrderCustomerId FOREIGN KEY (OrderCustomerId) REFERENCES customer (CustomerId)
);
```

```
insert into orders values(1,'2 day shipping','Shipped',1);

insert into orders values(2,'Priority Shipping','Partially Shipped',2);

insert into orders values(3,'Standard','Payment Incomplete',3);

insert into orders values(4,'2 day shipping','Order Cancelled',4);

insert into orders values(5,'Standard','Pending',5);

insert into orders values(6,'Priority Shipping','Refund Initiated',6);

insert into orders values(7,'2 day shipping','Order Cancelled',7);

insert into orders values(8,'Standard','Pending',8);

insert into orders values(9,'Priority Shipping','Partially Shipped',9);

insert into orders values(10,'2 day shipping','Shipped',10);

insert into orders values(11,'Standard','Order Cancelled',11);

insert into orders values(12,'Priority Shipping','Partially Shipped',12);

insert into orders values(13,'2 day shipping','Payment Incomplete',13);

insert into orders values(14,'Standard','Shipped',14);

insert into orders values(15,'Priority Shipping','On The way',15);

insert into orders values(16,'2 day shipping','Order Cancelled',16);

insert into orders values(17,'Standard','Order Decilned',17);

insert into orders values(18,'Priority Shipping','Refund Initiated',18);

insert into orders values(19,'2 day shipping','Pending',19);

insert into orders values(20,'Standard','On The way',20);
```

```
SQL> select * from orders;

   ORDERID ORDERTYPE                     ORDERSTATUS          ORDERCUSTOMERID
---------- ----------------------------- -------------------- ---------------
         1 2 day shipping                Shipped                            1
         2 Priority Shipping             Partially Shipped                  2
         3 Standard                      Payment Incomplete                 3
         4 2 day shipping                Order Cancelled                    4
         5 Standard                      Pending                            5
         6 Priority Shipping             Refund Initiated                   6
         7 2 day shipping                Order Cancelled                    7
         8 Standard                      Pending                            8
         9 Priority Shipping             Partially Shipped                  9
        10 2 day shipping                Shipped                           10
        11 Standard                      Order Cancelled                   11
        12 Priority Shipping             Partially Shipped                 12
        13 2 day shipping                Payment Incomplete                13
        14 Standard                      Shipped                           14
        15 Priority Shipping             On The way                        15
        16 2 day shipping                Order Cancelled                   16
        17 Standard                      Order Decilned                    17
        18 Priority Shipping             Refund Initiated                  18
        19 2 day shipping                Pending                           19
        20 Standard                      On The way                        20

20 rows selected.
```

```
CREATE TABLE simdata (
  SimNumber number(16) NOT NULL,
  SimType varchar(10) NOT NULL,
  SimCustomerId int NOT NULL,
  SimAccountNumber int NOT NULL,
  SimPlanNumber int DEFAULT NULL,
  PRIMARY KEY (SimNumber),
  CONSTRAINT SimAccountNumber FOREIGN KEY (SimAccountNumber) REFERENCES phonenumber (AccountNumber),
  CONSTRAINT SimCustomerId FOREIGN KEY (SimCustomerId) REFERENCES customer (CustomerId),
  CONSTRAINT SimPlanNumber FOREIGN KEY (SimPlanNumber) REFERENCES plans (PlansId)
);

insert into simdata values(1234567890123461,'Prepaid',16,10,1);
insert into simdata values(1234567890123462,'Postpaid',14,12,3);
insert into simdata values(1234567890123463,'Postpaid',1,14,5);
insert into simdata values(1234567890123464,'Prepaid',12,16,8);
insert into simdata values(1234567890123465,'Postpaid',13,11,7);
insert into simdata values(1234567890123466,'Prepaid',15,13,9);
insert into simdata values(1234567890123467,'Postpaid',10,18,10);
insert into simdata values(1234567890123468,'Postpaid',7,15,4);
insert into simdata values(1234567890123469,'Prepaid',5,17,6);
insert into simdata values(1234567890123460,'Postpaid',2,19,3);
```

```
SQL> select * from simdata;

 SIMNUMBER SIMTYPE    SIMCUSTOMERID SIMACCOUNTNUMBER SIMPLANNUMBER
---------- ---------- ------------- ---------------- -------------
1.2346E+15 Postpaid              14               12             3
1.2346E+15 Postpaid               1               14             5
1.2346E+15 Prepaid               12               16             8
1.2346E+15 Postpaid              13               11             7
1.2346E+15 Prepaid               15               13             9
1.2346E+15 Postpaid              10               18            10
1.2346E+15 Postpaid               7               15             4
1.2346E+15 Prepaid                5               17             6
1.2346E+15 Postpaid               2               19             3

9 rows selected.
```

```
CREATE TABLE tracking (
  TrackingId int NOT NULL,
  TrackingStatus varchar(40) NOT NULL,
  TrackingOrderId int NOT NULL,
  PRIMARY KEY (TrackingId),
  CONSTRAINT TrackingOrderId FOREIGN KEY (TrackingOrderId) REFERENCES orders (OrderId)
);


insert into tracking values(1,'On the way',10);
insert into tracking values(2,'Arrived to courier service',9);
insert into tracking values(3,'Near by closest dispatch location',14);
insert into tracking values(4,'Arrived to courier service',16);
insert into tracking values(5,'Arrived to courier service',17);
insert into tracking values(6,'On the way',19);
insert into tracking values(7,'Near by dispatch location',7);
insert into tracking values(8,'Arriving Tomorrow',2);
insert into tracking values(9,'Arriving Today',13);
```

```
SQL> select * from tracking;

TRACKINGID TRACKINGSTATUS                          TRACKINGORDERID
---------- --------------------------------------- ---------------
         1 On the way                                           10
         2 Arrived to courier service                            9
         3 Near by closest dispatch location                    14
         4 Arrived to courier service                           16
         5 Arrived to courier service                           17
         6 On the way                                           19
         7 Near by dispatch location                             7
         8 Arriving Tomorrow                                     2
         9 Arriving Today                                       13

9 rows selected.
```

CONCLUSION

In conclusion, Telecom Database Management Systems (DBMS) stand as indispensable tools in the realm of modern telecommunications, serving as the backbone for managing vast amounts of data generated by network operations, subscriber activities, and service interactions. Through the effective organization, storage, retrieval, and analysis of data, these systems enable telecom operators to streamline operations, enhance network performance, optimize resource utilization, and deliver personalized services to customers.

The role of Telecom DBMS is expected to grow in significance as the telecommunications industry continues to expand and evolve. With the proliferation of connected devices, the advent of 5G networks, and the rise of Internet of Things (IoT) applications, the volume and complexity of data within telecom networks will only continue to increase. As technology continues to advance and new challenges emerge, the role of Telecom DBMS will remain pivotal in shaping the future of telecommunications, driving innovation, efficiency, and customer satisfaction.