



BANK MANAGEMENT SYSTEM

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A decorative graphic on the left side of the slide, composed of several overlapping geometric shapes and patterns. It includes a blue triangle with white concentric circles, a dark blue triangle with white concentric circles, a light blue triangle with white concentric circles, a dark blue triangle with white concentric circles, a light blue triangle with white concentric circles, and a dark blue triangle with white concentric circles.

INTRODUCTION

The database is a collection of information and is systematically stored in tables in the form of rows and columns. The Bank Management Database we created consists of 5 tables namely: Account, Customer, Employee, Loan, Transaction which are based on the respective real world entities.



DATATYPES USED

INTEGER

One optional sign character (+ or -) followed by at least one digit (0-9). Leading and trailing blanks are ignored. No other character is allowed.

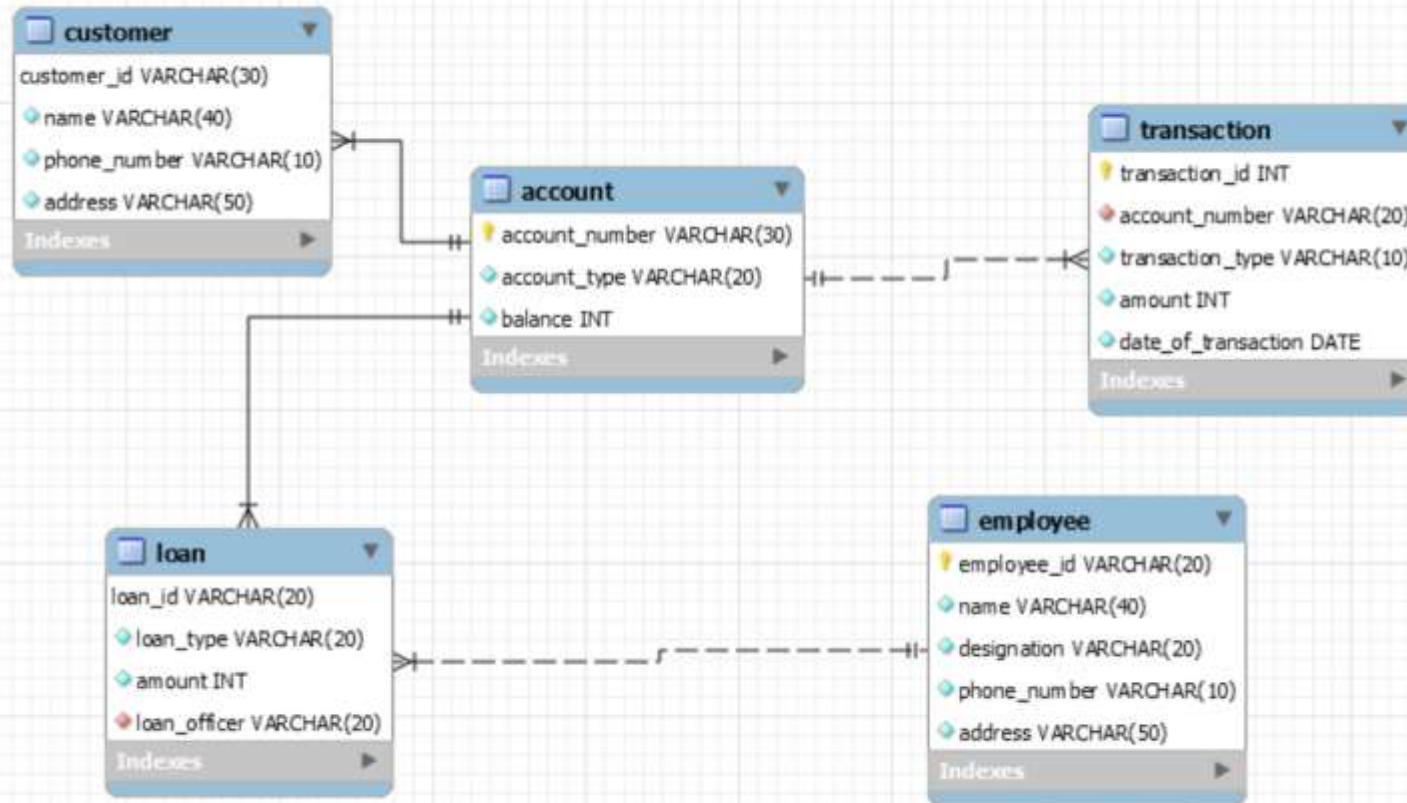
DATE

Date data type is used for representing date.

VARCHAR

It is used to store alphanumeric characters. In this data type, we can set the maximum number of characters up to 8000 ranges by default SQL server will set the size to 50 characters range.

ENTITY – RELATIONSHIP



TABLES OVERVIEW

```
mysql> describe account;
```

Field	Type	Null	Key	Default	Extra
account_number	varchar(30)	NO	PRI	NULL	
account_type	varchar(20)	NO		NULL	
balance	int	NO		NULL	

```
3 rows in set (0.00 sec)
```

```
mysql> describe customer;
```

Field	Type	Null	Key	Default	Extra
customer_id	varchar(30)	NO	PRI	NULL	
name	varchar(40)	NO		NULL	
phone_number	varchar(10)	NO		NULL	
address	varchar(50)	NO		NULL	

```
4 rows in set (0.00 sec)
```

```
mysql> describe loan;
```

Field	Type	Null	Key	Default	Extra
loan_id	varchar(20)	NO	PRI	NULL	
loan_type	varchar(20)	NO		NULL	
amount	int	NO		NULL	
loan_officer	varchar(20)	NO	MUL	NULL	

TABLES OVERVIEW

```
mysql> describe employee;
```

Field	Type	Null	Key	Default	Extra
employee_id	varchar(20)	NO	PRI	NULL	
name	varchar(40)	NO		NULL	
designation	varchar(20)	NO		NULL	
phone_number	varchar(10)	NO		NULL	
address	varchar(50)	NO		NULL	

```
5 rows in set (0.00 sec)
```

```
mysql> describe transaction;
```

Field	Type	Null	Key	Default	Extra
transaction_id	int	NO	PRI	NULL	
account_number	varchar(20)	NO	MUL	NULL	
transaction_type	varchar(10)	NO		NULL	
amount	int	NO		NULL	
date_of_transaction	date	NO		NULL	

```
5 rows in set (0.00 sec)
```




CREATION OF DB & QUERIES

CREATING DATABASE AND TABLES



```
mysql> create database bankdb;
Query OK, 1 row affected (0.01 sec)

mysql>
mysql> use bankdb;
Database changed
mysql>
mysql> create table account (
    -> account_number varchar(30) primary key,
    -> account_type varchar(20) not null,
    -> balance integer not null
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql>
mysql> insert into account values
    -> ("1243535", "Savings", 12435),
    -> ("1243242", "Recurring", 1435),
    -> ("1274825", "Savings", 99435),
    -> ("4354324", "Savings", 124300),
    -> ("3350350", "Recurring", 112322),
    -> ("3298530", "Savings", 13245095);
Query OK, 6 rows affected (0.01 sec)
Records: 6  Duplicates: 0  Warnings: 0
```


CREATING DATABASE AND TABLES



```
mysql> create table customer (  
-> customer_id varchar(30) primary key,  
-> name varchar(40) not null,  
-> phone_number varchar(10) not null,  
-> address varchar(50) not null  
-> );  
Query OK, 0 rows affected (0.04 sec)  
  
mysql>  
mysql> insert into customer values  
-> ("1243535", "Nimit Kumar", 9053752340, "I-121, Malviya Nagar, Delhi"),  
-> ("1243242", "Abhinav", 7714171400, "Sec-3, Dwarka, Delhi"),  
-> ("1274825", "Shreyansh Singh", 9094552340, "FNo. 233, Great Valley Apts., Noida"),  
-> ("4354324", "Akshay Khanna", 6778752340, "H-11, Janakpuri, Delhi"),  
-> ("3350350", "Om Pal", 9034590123, "A-13, Gurgaon, Haryana"),  
-> ("3298530", "Pulkit Samrat", 8103752340, "FNo. 101, Rising Society, Greater Noida");  
Query OK, 6 rows affected (0.01 sec)  
Records: 6  Duplicates: 0  Warnings: 0
```

CREATING DATABASE AND TABLES



```
mysql> create table employee (  
-> employee_id varchar(20) primary key,  
-> name varchar(40) not null,  
-> designation varchar(20) not null,  
-> phone_number varchar(10) not null,  
-> address varchar(50) not null  
-> );  
Query OK, 0 rows affected (0.06 sec)  
  
mysql>  
mysql> insert into employee values  
-> ("E535", "Rahul Yadav","Manager",9953751340, "B-111, Mehrauli, Delhi"),  
-> ("E242", "Narendra Shah", "Loan Officer", 8884171400, "Sec-21, Dwarka, New Delhi"),  
-> ("E825", "Amit Modi", "Loan Officer",9023902340, "FNo. 103, Great Valley Apts., Noida"),  
-> ("E324", "Bhagwat Mohan", "Reception", 7890752340, "L-11, Uttam Nagar, Delhi"),  
-> ("E350", "Kishan Ravi", "Accounts Officer", 9032220123, "A-13, Kurukshetra, Haryana"),  
-> ("E530", "Arnab Chaudhary","Loan Officer", 9909952340, "FNo. 101, Republican Society, Greater Noida");  
Query OK, 6 rows affected (0.01 sec)  
Records: 6  Duplicates: 0  Warnings: 0
```

CREATING DATABASE AND TABLES



```
mysql> create table loan (  
    -> loan_id varchar(20) primary key,  
    -> loan_type varchar(20) not null,  
    -> amount integer not null,  
    -> loan_officer varchar(20) not null  
    -> );  
Query OK, 0 rows affected (0.06 sec)  
  
mysql>  
mysql> insert into loan values  
    -> ("1243535", "Home Loan", 9357385, "E242"),  
    -> ("3298530", "Car Loan", 97385, "E825"),  
    -> ("1243242", "Education Loan", 34385, "E530"),  
    -> ("4354324", "Home Loan", 8859085, "E242");  
Query OK, 4 rows affected (0.01 sec)  
Records: 4  Duplicates: 0  Warnings: 0
```

CREATING DATABASE AND TABLES



```
mysql> create table transaction (  
-> transaction_id integer primary key,  
-> account_number varchar(20) not null,  
-> transaction_type varchar(10) not null,  
-> amount integer not null,  
-> date_of_transaction date not null  
-> );  
Query OK, 0 rows affected (0.05 sec)  
  
mysql>  
mysql> insert into transaction values  
-> (12, "1243242", "Debit", 7358, "2021-06-12"),  
-> (24, "1243535", "Credit", 38478, "2021-06-23"),  
-> (124, "1243242", "Credit", 7008, "2021-05-11"),  
-> (352, "3350350", "Debit", 7358, "2021-06-12"),  
-> (35, "1243535", "Credit", 7358, "2021-03-23"),  
-> (543, "1243242", "Credit", 7358, "2021-05-25"),  
-> (592, "3298530", "Debit", 7358, "2021-04-01");  
Query OK, 7 rows affected (0.01 sec)  
Records: 7 Duplicates: 0 Warnings: 0
```

TABLES DATA

```
mysql> select * from account;
```

account_number	account_type	balance
1243242	Recurring	1435
1243535	Savings	12435
1274825	Savings	99435
3298530	Savings	13245095
3350350	Recurring	112322
4354324	Savings	124300

```
6 rows in set (0.00 sec)
```

```
mysql> select * from customer;
```

customer_id	name	phone_number	address
1243242	Abhinav	7714171400	Sec-3, Dwarka, Delhi
1243535	Namit Kumar	9053752340	I-121, Malviya Nagar, Delhi
1274825	Shreyansh Singh	9094552340	FNo. 233, Great Valley Apts., Noida
3298530	Pulkit Samrat	8103752340	FNo. 101, Rising Society, Greater Noida
3350350	Om Pal	9034590123	A-13, Gurgaon, Haryana
4354324	Akshay Khanna	6778752340	H-11, Janakpuri, Delhi

```
6 rows in set (0.00 sec)
```

TABLES DATA

```
mysql> select * from employee;
```

employee_id	name	designation	phone_number	address
E242	Narendra Shah	Loan Officer	8884171400	Sec-21, Dwarka, New Delhi
E324	Bhagwat Mohan	Reception	7890752340	L-11, Uttam Nagar, Delhi
E350	Kishan Ravi	Accounts Officer	9032220123	A-13, Kurukshetra, Haryana
E530	Arnab Chaudhary	Loan Officer	9909952340	FNo. 101, Republican Society, Greater Noida
E535	Rahul Yadav	Manager	9953751340	B-111, Mehrauli, Delhi
E825	Amit Modi	Loan Officer	9023902340	FNo. 103, Great Valley Apts., Noida

```
6 rows in set (0.01 sec)
```

```
mysql> select * from loan;
```

loan_id	loan_type	amount	loan_officer
1243242	Education Loan	34385	E530
1243535	Home Loan	9357385	E242
3298530	Car Loan	97385	E825
4354324	Home Loan	8859085	E242

```
4 rows in set (0.00 sec)
```


TABLES DATA

```
mysql> select * from transaction;
```

transaction_id	account_number	transaction_type	amount	date_of_transaction
12	1243242	Debit	7358	2021-06-12
24	1243535	Credit	38478	2021-06-23
35	1243535	Credit	7358	2021-03-23
124	1243242	Credit	7008	2021-05-11
352	3350350	Debit	7358	2021-06-12
543	1243242	Credit	7358	2021-05-25
592	3298530	Debit	7358	2021-04-01

```
7 rows in set (0.00 sec)
```

ADDING FOREIGN KEYS

```
mysql> alter table customer add foreign key (customer_id) references account(account_number);
Query OK, 6 rows affected (0.17 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql>
mysql> alter table loan add foreign key (loan_id) references account(account_number);
Query OK, 4 rows affected (0.10 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql>
mysql> alter table loan add foreign key (loan_officer) references employee(employee_id);
Query OK, 4 rows affected (0.11 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql>
mysql> alter table transaction add foreign key (account_number) references account(account_number);
Query OK, 7 rows affected (0.12 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql>
mysql> alter table customer add foreign key (customer_id) references account(account_number);
Query OK, 6 rows affected (0.13 sec)
Records: 6  Duplicates: 0  Warnings: 0
```

SIMPLE QUERIES

```
mysql> select sum(balance) as "Total balance" from account;
```

```
+-----+
```

```
| Total balance |
```

```
+-----+
```

```
|      13595022 |
```

```
+-----+
```

```
1 row in set (0.01 sec)
```

```
mysql> select phone_number from employee where employee_id = "E242";
```

```
+-----+
```

```
| phone_number |
```

```
+-----+
```

```
| 8884171400 |
```

```
+-----+
```

INNER JOIN

```
mysql> select account.account_number, customer.name, transaction.amount, transaction.transaction_type,  
-> transaction.date_of_transaction from transaction  
-> inner join account on transaction.account_number = account.account_number  
-> inner join customer on customer.customer_id = transaction.account_number;
```

account_number	name	amount	transaction_type	date_of_transaction
1243242	Abhinav	7358	Debit	2021-06-12
1243535	Namit Kumar	38478	Credit	2021-06-23
1243535	Namit Kumar	7358	Credit	2021-03-23
1243242	Abhinav	7008	Credit	2021-05-11
3350350	Om Pal	7358	Debit	2021-06-12
1243242	Abhinav	7358	Credit	2021-05-25
3298530	Pulkit Samrat	7358	Debit	2021-04-01

```
7 rows in set (0.00 sec)
```

OUTER JOIN: LEFT JOIN

```
mysql> select customer.customer_id, customer.name, customer.phone_number,  
-> loan.loan_type, loan.amount, loan.loan_officer from loan  
-> left join customer on customer.customer_id = loan.loan_id;
```

customer_id	name	phone_number	loan_type	amount	loan_officer
1243242	Abhinav	7714171400	Education Loan	34385	E530
1243535	Namit Kumar	9053752340	Home Loan	9357385	E242
3298530	Pulkit Samrat	8103752340	Car Loan	97385	E825
4354324	Akshay Khanna	6778752340	Home Loan	8859085	E242

```
4 rows in set (0.00 sec)
```


OUTER JOIN: RIGHT JOIN

```
mysql> select customer.customer_id, customer.name, customer.phone_number,  
-> loan.loan_type, loan.amount, loan.loan_officer from loan  
-> right join customer on customer.customer_id = loan.loan_id;
```

customer_id	name	phone_number	loan_type	amount	loan_officer
1243242	Abhinav	7714171400	Education Loan	34385	E530
1243535	Namit Kumar	9053752340	Home Loan	9357385	E242
1274825	Shreyansh Singh	9094552340	NULL	NULL	NULL
3298530	Pulkit Samrat	8103752340	Car Loan	97385	E825
3350350	Om Pal	9034590123	NULL	NULL	NULL
4354324	Akshay Khanna	6778752340	Home Loan	8859085	E242

6 rows in set (0.00 sec)



THANK YOU

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