**Problem statement:**

Consider a Bank database. The data requirements are summarized as follows:

* Banks are identified by a name, code and address of main office.
* Bank have branches, which are identified by branch\_id, branch\_name, branch\_address.
* Bank have customers, who are identified by their id, name, phone number, address, date of birth.
* Customers can have one or more accounts.
* Accounts are identified by account number, acc\_type and balance.
* All branches have employees and they are identified by their unique emp\_id, name, phone number, address and date of birth.
* Customer’s accounts are managed by employees.
* Bank offer loan which customer can avail to a particular branch.
* Loans can be identified by loan\_id, loan\_type, time and amount.

**ER DIAGRAM**



**SCHEMA**

|  |  |  |
| --- | --- | --- |
| **Customers** | | |
| Field | type | length |
| cust\_id (PK) | Int | 8 |
| cust\_name | Varchar (not null) | 30 |
| cust\_D.O.B | Date (not null) |  |
| cust\_phone | Int (not null) | 10 |
| cust\_address | Varchar (not null) | 100 |
| Br\_Id(FK) | int | 8 |

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| **Employees** | | |
| Field | Type | Length |
| Emp\_id ( PK ) | Int | 8 |
| Emp\_name | Varchar (not null) | 30 |
| Emp\_address | Varchar (not null) | 50 |
| Emp\_phone | Int (not null) | 10 |
| Emp\_D.O.B | Date |  |
| Br\_Id(FK) | int | 8 |

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| --- | --- | --- |
| **Accounts** | | |
| Field | type | Length |
| Account\_no (PK) | Int | 12 |
| Account\_type | Varchar (not null) | 30 |
| Balance | Float (not null) | 20,6 |
| Customer\_Id(FK) | Int(notnull) | 8 |

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| --- | --- | --- |
| **Loan** | | |
| Field | Type | Length |
| Loan\_id (PK) | Int | 8 |
| Loan\_type | Varchar (not null) | 30 |
| Amount | Float (not null) | 20,6 |
| Time\_duration (month) | Int (not null) | 3 |
| Br\_Id(FK) | int | 8 |

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| --- | --- | --- |
| **Branch** | | |
| Field | Type | Length |
| Branch\_id (PK) | Int | 8 |
| Branch\_Name | Varchar (not null) | 30 |
| Branch\_ Address | Varchar (not null) | 100 |
| Bank | Varchar(not null) | 30 |

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| **Bank** | | |
| Field | Type | Length |
| Bank\_code (PK) | Int | 5 |
| Bank\_address | Varchar (not null) | 100 |
| Bank\_name | varchar (not null) | 30 |

Relationships are:

* Bank has Branches => 1 : N   
  One Bank can have many Branches but one Branch can not belong to many Banks, so the relationship between Bank and Branch is one to many relationship.
* Branch has employees => 1 : N

One branch can have more than one employee but one employee cannot work in more than one branch. So this is one to many relationship

* Employees manages Accounts => M : N   
  One employee can manages more than one account and one account can be managed by more than one employee.
* Branch offer Loans => 1 : N   
  One Branch can have many Loans but one Loan can not belong to many Branches, so the relationship between Branch and Loan is one to many relationship.
* Account held by Customers => M : N   
  One Customer can have more than one Accounts and also One Account can be held by one or more Customers, so the relationship between Account and Customers is many to many relationship.
* Loan availed by Customer => M : N   
  One Customer can have more than one Loans and also One Loan can be availed by one or more Customers, so the relationship between Loan and Customers is many to many relationship.

**Tables:**

|  |  |  |
| --- | --- | --- |
| Bank code | Bank name | Bank address |
| 1000 | SBI | 84 rajaji salai, chennai, tamilnadu 600 001 |
| 1001 | AXIS | No 9, Block A, MG Road, Bengaluru, Karnataka, 560001 |
| 1002 | HDFC | BPL HOUSE SUMANGALAM CO-OP HSG SOCIETYOPP. DRIVE-IN-THEATRE, BODAKDEO AHMEDABAD GUJARAT-380054 |
| 1003 | KOTAK | 21, 2Nd Avenue, M G Road, Shastri Nagar, Adayar, Chennai - 600020 |
| 1004 | PNB | 1-2,Raghu Nath Nagar,M.G.Road,Agra 282002 |
| 1005 | ICICI | Onyx Business Center 102, Upper Ground Floor Akshar Chowk, Old Padra Road |
| 1006 | YES | Ground Floor, Syama Business Centre, Nh Bypass, Vytila, Kochi, Kerala 682019 |
| 1007 | IDFC | 2nd Flr, Oriflame Mall, Citadel Building Main Road Ranchi, Jharkhand - 834001 |

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| --- | --- | --- | --- |
| Bank | Branch name | Branch id | Branch address |
| SBI | Jatusana | 10000023 | Jatusana block-c, rewari, 123401 |
| PNB | Delhi | 23423424 | CPPC IST FLOOR, PNB GURUDWARA ROAD, KAROL BAGH NEW DELHI  DELHI (CENTRAL)  Pincode - 110005 |
| AXIS | Rewari | 23423445 | Plot No 6530/Y/1 & E, Circular Road, Bawal Chowk, Rewari, Haryana, 123401 |
| AXIS | Kanpur | 67645646 | [18, 179, The Mall Road Opp Phool Bagh], kanpur |
| PNB | Pune | 23243556 | 119/1 PLOT 1-B ANANTKRIPA SOCIETY, KOTHRUD PUNE MAHARASHTRA  Pincode - 411038 |
| KOTAK | Chennai | 57565677 | Maharaja Tower, First Avenue, Ashok Nagar, Chennai, Tamilnadu  Tamil Nadu  Pincode: 600083 |
| IDFC | New delhi | 79069050 | Plot No 92, Ground Floor, Pocket 1  Jasola New Delhi - 110025 |
| HDFC | Mumbai | 24328748 | KHATIJA MANSION, 82 CYRUS AVENUE, DR. ANANDRAO NAIR ROAD, OPP. NAIR HOSPITAL, MUMBAI CENTRAL, MUMBAI, MAHARASHTRA – 400008 |
| SBI | Jaipur | 85879849 | P.B.NO.72, SANGANERI GATE,  MAIN BRANCH, SANGANERI  GATE, JAIPUR State: RAJASTHAN  Pincode - 302001 |
| HDFC | Kota | 34753958 | 039, 13 & 14. Main Jhalawar Road. Kota - 324007 |
| YES | Bhopal | 45654645 | YES BANK LTD., GR FLOOR, PLOT NO. 215, MP NAGAR, PHASE 1, BHOPAL, MADHYA PRADESH 462011 |
| ICICI | Kurukshetra | 24234355 | ICICI Bank Ltd., Sco 78, Sector 17, Kurukshetra, Kurukshetra Dist., Haryana. Kurukshetra Haryana, 136118 |

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| --- | --- | --- | --- | --- |
| Branch id | Loan id | Loan type | Time (yr) | Amount |
| 10000023 | 12332556 | Payday loan | 0.5 | 200000 |
| 23423424 | 34576567 | Pawn shop loan | 1.4 | 50000 |
| 23423445 | 23324545 | Home equity | 2.0 | 35000 |
| 67645646 | 33355555 | Personal loan | 1 | 25600 |
| 23243556 | 55557868 | Credit-builder | 1.5 | 250000 |
| 57565677 | 11132455 | Debt consolidation | 0.6 | 15000 |
| 79069050 | 99945435 | Student loan | 1.2 | 400000 |
| 24328748 | 66231332 | Home equity | 2.0 | 50000 |
| 85879849 | 44231232 | Payday loan | 1 | 35000 |
| 34753958 | 77771213 | Credit-builder | 1.5 | 25600 |
| 45654645 | 11432333 | Home equity | 0.6 | 250000 |
| 24234355 | 57422222 | Pawn shop loan | 1.2 | 56000 |

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| --- | --- | --- | --- | --- | --- |
| Branch id | Employee id | Employee address | Employee name | Employee D.O.B | Employee  Phone num. |
| 10000023 | 11111222 | House no. 34, rohini sector 12 | Rajbir Singh | 24/3/1995 |  |
| 23423424 | 11111223 | Plot No 56, first floor Pocket 1  Jasola New Delhi | Sanjay Rana | 21/5/1996 |  |
| 23423445 | 11111224 | [12, 543, Mall Road Opp Phool Bagh], kanpur | Samay Raina | 24/1/1995 |  |
| 67645646 | 11111225 | 119/67 PLOT 1-C ANANTKRIPA SOCIETY, KOTHRUD PUNE MAHARASHTRA | Vijay Chauhan | 21/2/1996 |  |
| 23243556 | 11111226 | Maharaja Tower, First Avenue, Ashok Nagar, Chennai, Tamilnadu | Ayush Khan | 24/3/1995 |  |
| 57565677 | 11111227 | Plot No 56, Ground Floor, Pocket 1  Jasola New Delhi | Rajat Saini | 21/4/1996 |  |
| 79069050 | 11111228 | KHATIJA MANSION, 52 CYRUS AVENUE, DR. ANANDRAO NAIR ROAD | Harsh Rajput | 07/5/1995 |  |
| 24328748 | 11111229 | P.B.NO.52, SANGANERI GATE,  MAIN BRANCH, SANGANERI  GATE, JAIPUR | Nitin Sharma | 12/6/1996 |  |
| 85879849 | 11111250 | House no. 34, rohini sector 12 | Kritin Naagar | 24/7/1995 |  |
| 34753958 | 11111251 | Plot No 6830/Y/1 & E, Circular Road, Bawal Chowk, Rewari, Haryana | Mohit Kumar | 20/8/1996 |  |
| 45654645 | 11111252 | [12, 56, Mall Road Opp Phool Bagh], kanpur | Tarun Mishra | 24/8/1995 |  |
| 24234355 | 11111253 | 119/1 PLOT 1-B ANANTKRIPA SOCIETY, KOTHRUD PUNE MAHARASHTRA | Koshal Kumar | 21/9/1996 |  |
| 57565677 | 11111254 | Maharaja Tower, First Avenue, Ashok Nagar, Chennai, Tamilnadu | Vikas Gupta | 24/10/1995 |  |
| 79069050 | 11111255 | Plot No 56, Ground Floor, Pocket 1  Jasola New Delhi | Rishal Singh | 21/11/1996 |  |
| 24328748 | 11111256 | KHATIJA MANSION, 52 CYRUS AVENUE, DR. ANANDRAO NAIR ROAD | Munesh Rao | 24/12/1995 |  |
| 10000023 | 11111257 | P.B.NO.67, SANGANERI GATE,  SANGANERI  GATE, JAIPUR | Vipin Gupta | 21/5/1994 |  |
| 23423424 | 11111258 | House no. 67, rohini sector 12 | Ravikant Yadav | 24/3/1993 |  |
| 23423445 | 11111259 | 6530/Y/1 & E, Circular Road, Bawal Chowk, Rewari, Haryana | Raghu Singh | 5/5/1994 |  |
| 67645646 | 11111260 | [12, 9, Mall Road Opp Phool Bagh], kanpur | Sanjay vats | 28/3/1994 |  |

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| --- | --- | --- | --- | --- | --- |
| Branch id | Customer id | Customer name | Customer phone | Customer address | Customer D.O.B |
| 10000023 | 21111222 | Raghav Kapoor | 9898977654 | House no.56,mg road,delhi | 21/4/1990 |
| 23423424 | 21111223 | Rajat Saini | 9898977656 | Plot No 6830/Y/1 & E, Circular Road, Bawal Chowk, Rewari, Haryana | 07/5/1991 |
| 23423445 | 21111224 | Mukesh kumar | 9898977657 | [12, 56, Mall Road Opp Phool Bagh], kanpur | 12/6/1991 |
| 67645646 | 21111225 | Pratap singh | 9898977658 | 119/1 PLOT 1-B ANANTKRIPA SOCIETY, KOTHRUD PUNE MAHARASHTRA | 24/7/1992 |
| 23243556 | 21111226 | Mayank garg | 9898977659 | Maharaja Tower, First Avenue, Ashok Nagar, Chennai, Tamilnadu | 20/8/1993 |
| 57565677 | 21111227 | Sudha kumari | 9898977650 | Plot No 56, Ground Floor, Pocket 1  Jasola New Delhi | 24/8/1991 |
| 79069050 | 21111228 | Priyanka singh | 9898977634 | KHATIJA MANSION, 52 CYRUS AVENUE, DR. ANANDRAO NAIR ROAD | 21/9/1990 |
| 24328748 | 21111229 | Rahul sharma | 9898977635 | P.B.NO.67, SANGANERI GATE,  SANGANERI  GATE, JAIPUR | 24/10/1995 |
| 85879849 | 21111250 | Ankita singh | 9898977636 | House no. 67, rohini sector 12 | 21/11/1995 |
| 34753958 | 21111251 | Meenakshi | 9898977637 | 6530/Y/1 & E, Circular Road, Bawal Chowk, Rewari, Haryana | 24/12/1995 |
| 45654645 | 21111252 | Divyendu | 9898977638 | [12, 9, Mall Road Opp Phool Bagh], kanpur | 21/5/1992 |
| 24234355 | 21111253 | Nidhi singh | 9898977639 | Plot No 6830/Y/1 & E, Circular Road, Bawal Chowk, Rewari, Haryana | 24/3/1992 |

|  |  |  |  |
| --- | --- | --- | --- |
| Customer id | Account number | Account balance | Account type |
| 21111222 | 423356348634 | 500000 | Saving |
| 21111223 | 423356348656 | 564555 | Checking |
| 21111224 | 423356348637 | 234334 | Money market |
| 21111225 | 423356348638 | 234355 | Retirement |
| 21111226 | 423356348639 | 457557 | Saving |
| 21111227 | 423356348630 | 455550 | Checking |
| 21111228 | 423356348611 | 324326 | Saving |
| 21111229 | 423356348612 | 2430 | Saving |
| 21111250 | 423356348613 | 34320 | Checking |
| 21111251 | 423356348614 | 23430 | Money market |
| 21111252 | 423356348615 | 3440 | Retirement |
| 21111253 | 423356348516 | 454570 | Saving |