**Schemas for Banking System(BS)**

**1. Schema for Accounts Collection**

{

"count": 10,

"fields": [

{

"name": "\_id",

"path": [

"\_id"

],

"count": 10,

"type": "ObjectId",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "ObjectId",

"path": [

"\_id"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"65480dcc89d0d7a61b585366",

"65480dcc89d0d7a61b58536c",

"65480dcc89d0d7a61b58536b",

"65480dcc89d0d7a61b585365",

"65480dcc89d0d7a61b58536a",

"65480dcc89d0d7a61b585364",

"65480dcc89d0d7a61b585368",

"65480dcc89d0d7a61b585367",

"65480dcc89d0d7a61b585369",

"65480dcc89d0d7a61b585363"

],

"bsonType": "ObjectId"

}

]

},

{

"name": "account\_number",

"path": [

"account\_number"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "String",

"path": [

"account\_number"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"4567890123",

"0123456789",

"9012345678",

"3456789012",

"8901234567",

"2345678901",

"6789012345",

"5678901234",

"7890123456",

"1234567890"

],

"bsonType": "String"

}

]

},

{

"name": "balance",

"path": [

"balance"

],

"count": 10,

"type": "Int32",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "Int32",

"path": [

"balance"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

2100,

7800,

5300,

7200,

8900,

3500,

4300,

6800,

6200,

5000

],

"bsonType": "Int32"

}

]

},

{

"name": "owner\_id",

"path": [

"owner\_id"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": true,

"types": [

{

"name": "String",

"path": [

"owner\_id"

],

"count": 10,

"probability": 1,

"unique": 3,

"hasDuplicates": true,

"values": [

"5ed33a8f995a3d3e2a1c9357",

"5ed33a8f995a3d3e2a1c9357",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9357",

"5ed33a8f995a3d3e2a1c9357"

],

"bsonType": "String"

}

]

}

]

}

**Collection Name: Accounts Collection**

**Analyzing Data:**

**\_id: Each document in the collection has a unique identifier represented in this field. It contains a BSON data type called "ObjectId," which is used for unique identifiers.**

**account\_number: The number connected to each account is shown in this field. It is a distinct account identifier with the data type "String".**

**balance: The account balance is shown as a numerical value in this field. The data type of it is "Int32."**

**owner\_id: This field holds the distinct identity of the owner for every account. It is not always unique and has the data type "String"**

***Business Purpose:* The collection is an essential part of the bank's database for transactional and account management functions since it contains account-specific information like account numbers, balances, and owner identifiers.**

**2. Schema for Customers Collection**

{

"count": 10,

"fields": [

{

"name": "\_id",

"path": [

"\_id"

],

"count": 10,

"type": "ObjectId",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "ObjectId",

"path": [

"\_id"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"65480dda89d0d7a61b585371",

"65480dda89d0d7a61b585375",

"65480dda89d0d7a61b585372",

"65480dda89d0d7a61b585376",

"65480dda89d0d7a61b58536f",

"65480dda89d0d7a61b585370",

"65480dda89d0d7a61b585373",

"65480dda89d0d7a61b58536e",

"65480dda89d0d7a61b585374",

"65480dda89d0d7a61b585377"

],

"bsonType": "ObjectId"

}

]

},

{

"name": "email",

"path": [

"email"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "String",

"path": [

"email"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"david@example.com",

"hannah@example.com",

"emily@example.com",

"isaac@example.com",

"bob@example.com",

"charlie@example.com",

"frank@example.com",

"alice@example.com",

"grace@example.com",

"jack@example.com"

],

"bsonType": "String"

}

]

},

{

"name": "name",

"path": [

"name"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "String",

"path": [

"name"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"David Lee",

"Hannah Moore",

"Emily Davis",

"Isaac Wilson",

"Bob Smith",

"Charlie Brown",

"Frank White",

"Alice Johnson",

"Grace Taylor",

"Jack Harris"

],

"bsonType": "String"

}

]

},

{

"name": "phone\_number",

"path": [

"phone\_number"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "String",

"path": [

"phone\_number"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"333-999-8888",

"111-222-3333",

"777-222-1111",

"333-666-1111",

"987-654-3210",

"555-123-4567",

"444-777-9999",

"123-456-7890",

"666-555-3333",

"555-444-2222"

],

"bsonType": "String"

}

]

}

]

}

Collection Name: Customers Collection

email: The email addresses of the customers are represented in this field. It is specific to every customer and has the data type "String".

name: The customer's name is displayed in this field. It is not always unique and has the data type "String"

phone\_number: The phone numbers of the customers are shown in this field. It is specific to every customer and has the data type "String".

**Business Purpose:**

**The "Customers Collection" stores information about bank customers. This collection is essential for managing customer profiles, tracking customer contact details, and associating customers with their accounts.**

**3. Schema for Loans Collection**

{

"count": 10,

"fields": [

{

"name": "\_id",

"path": [

"\_id"

],

"count": 10,

"type": "ObjectId",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "ObjectId",

"path": [

"\_id"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"65480de389d0d7a61b585379",

"65480de389d0d7a61b585382",

"65480de389d0d7a61b585381",

"65480de389d0d7a61b58537e",

"65480de389d0d7a61b58537b",

"65480de389d0d7a61b58537a",

"65480de389d0d7a61b585380",

"65480de389d0d7a61b58537d",

"65480de389d0d7a61b58537f",

"65480de389d0d7a61b58537c"

],

"bsonType": "ObjectId"

}

]

},

{

"name": "customer\_id",

"path": [

"customer\_id"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": true,

"types": [

{

"name": "String",

"path": [

"customer\_id"

],

"count": 10,

"probability": 1,

"unique": 3,

"hasDuplicates": true,

"values": [

"5ed33a8f995a3d3e2a1c9357",

"5ed33a8f995a3d3e2a1c9357",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9357",

"5ed33a8f995a3d3e2a1c9357"

],

"bsonType": "String"

}

]

},

{

"name": "interest\_rate",

"path": [

"interest\_rate"

],

"count": 10,

"type": [

"Double",

"Int32"

],

"probability": 1,

"hasDuplicates": true,

"types": [

{

"name": "Double",

"path": [

"interest\_rate"

],

"count": 8,

"probability": 0.8,

"unique": 7,

"hasDuplicates": true,

"values": [

5.5,

5.9,

5.5,

6.2,

6.1,

5.8,

5.7,

6.5

],

"bsonType": "Double"

},

{

"name": "Int32",

"path": [

"interest\_rate"

],

"count": 2,

"probability": 0.2,

"unique": 2,

"hasDuplicates": false,

"values": [

5,

6

],

"bsonType": "Int32"

}

]

},

{

"name": "loan\_amount",

"path": [

"loan\_amount"

],

"count": 10,

"type": "Int32",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "Int32",

"path": [

"loan\_amount"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

10000,

13000,

8000,

8500,

12000,

7500,

10500,

11000,

9500,

9000

],

"bsonType": "Int32"

}

]

},

{

"name": "loan\_status",

"path": [

"loan\_status"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": true,

"types": [

{

"name": "String",

"path": [

"loan\_status"

],

"count": 10,

"probability": 1,

"unique": 3,

"hasDuplicates": true,

"values": [

"approved",

"pending",

"approved",

"repaid",

"pending",

"repaid",

"pending",

"approved",

"approved",

"repaid"

],

"bsonType": "String"

}

]

}

]

}

Collection Name: Loans Collection

customer\_id: This field holds the distinct customer identification linked to every loan. It is not always unique and has the data type "String" (there are duplicates).

interest\_rate: This field, which contains both "Double" and "Int32" data types, shows the interest rate for each loan. Different loans have different interest rates; some have decimal values (Double), while others have whole numbers (Int32).

loan\_amount: This field holds a numerical value that indicates the loan amount. It is not always unique and has the data type "Int32".

loan status: The status of each loan is represented by this field, which can be "approved," "pending," or "repaid." Its data type is "String," and its status values are multiple, including duplicates.

**Business Purpose: The "Loans Collection" maintains data regarding bank-provided loans. This data is essential for loan management, loan tracking, loan customer association, and loan status monitoring.**

**4. Schema for Transactions Collection**

{

"count": 10,

"fields": [

{

"name": "\_id",

"path": [

"\_id"

],

"count": 10,

"type": "ObjectId",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "ObjectId",

"path": [

"\_id"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"65480deb89d0d7a61b585387",

"65480e2f89d0d7a61b585391",

"65480deb89d0d7a61b58538c",

"65480deb89d0d7a61b58538a",

"65480deb89d0d7a61b585385",

"65480deb89d0d7a61b585389",

"65480deb89d0d7a61b585386",

"65480deb89d0d7a61b58538b",

"65480deb89d0d7a61b585388",

"65480deb89d0d7a61b585384"

],

"bsonType": "ObjectId"

}

]

},

{

"name": "account\_id",

"path": [

"account\_id"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": true,

"types": [

{

"name": "String",

"path": [

"account\_id"

],

"count": 10,

"probability": 1,

"unique": 4,

"hasDuplicates": true,

"values": [

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9444",

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9357",

"5ed33a8f995a3d3e2a1c9357",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9358",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9359",

"5ed33a8f995a3d3e2a1c9357"

],

"bsonType": "String"

}

]

},

{

"name": "amount",

"path": [

"amount"

],

"count": 10,

"type": "Int32",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "Int32",

"path": [

"amount"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

600,

1960,

1800,

1200,

500,

750,

1500,

850,

2000,

1000

],

"bsonType": "Int32"

}

]

},

{

"name": "transaction\_date",

"path": [

"transaction\_date"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": false,

"types": [

{

"name": "String",

"path": [

"transaction\_date"

],

"count": 10,

"probability": 1,

"unique": 10,

"hasDuplicates": false,

"values": [

"2023-11-07T17:45:00Z",

"2023-12-18T10:01:00Z",

"2023-11-17T11:00:00Z",

"2023-11-13T10:30:00Z",

"2023-11-03T14:30:00Z",

"2023-11-11T14:00:00Z",

"2023-11-05T12:15:00Z",

"2023-11-15T15:15:00Z",

"2023-11-09T09:30:00Z",

"2023-11-01T10:00:00Z"

],

"bsonType": "String"

}

]

},

{

"name": "transaction\_type",

"path": [

"transaction\_type"

],

"count": 10,

"type": "String",

"probability": 1,

"hasDuplicates": true,

"types": [

{

"name": "String",

"path": [

"transaction\_type"

],

"count": 10,

"probability": 1,

"unique": 2,

"hasDuplicates": true,

"values": [

"withdrawal",

"deposit",

"deposit",

"deposit",

"withdrawal",

"withdrawal",

"deposit",

"withdrawal",

"deposit",

"deposit"

],

"bsonType": "String"

}

]

}

]

}

Collection Name: Transactions Collection

account\_id: This field holds the special identification number of the bank account linked to every transaction. It is not always unique and has the data type "String" (there are duplicates).

amount: The transaction amount is shown as a numerical value in this field. It is specific to each transaction and has the data type "Int32".

transaction\_date: The time and date of each transaction are shown in this field. It is specific to each transaction and is of the data type "String".

transaction\_type: The type of transaction, such as "withdrawal" or "deposit," is represented by this field. The data type is "String," and there are several sorts of transactions, including duplicates.

**Business Purpose:**

**The "Transactions Collection" serves the business purpose of storing data regarding specific financial transactions. Maintaining a transaction history, facilitating account management, and tracking financial transactions all depend on this collection.**