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.