Super/Subtype, Step Dimension

1. Comparing to other bank accounts, Checking accounts allows ATM withdrawal and deposit, money access via debit card and checks, and online money transfer. In addition to analyze the ending balance and the total of transactions per month. Users also would like to query the total withdraw amount and deposit amount, online money transfer, total frequency of debit card usage per month.

(1). Given the DimAccount and Monthly Periodical Fact Table, create a subtype dimension: DimCheckingAccount, and a subtype Fact Table.

(2) Customer 1 opened his checking account (A01, account number: 9915) on 12/1/2022. He’s using a debit card that connecting to his account ending with 2457. His ending balance of his checking account is $5000 in January, 2023. In February 2023, Customer 1 (C01) made 50 transactions, deposited $10000, withdrew $6000, made 3 times of debit card usage, transferred $3000 to a friend. Use this information to populate a record in the above 4 tables. At the end of februray, we capture snapshot

DimAccount (subtype)

|  |  |  |
| --- | --- | --- |
| Column Name | Description | Keys |
| AccountID | Surrogate key | PK |
| AccountNumber |  | NK |
| Open Date |  |  |

DimCheckingAmount

|  |  |  |
| --- | --- | --- |
| Column Name | Description | Keys |
| CheckingAccountID | Surrogate key | PK |
| CheckingAccountNumber |  | NK |
| ChekingOpen Date |  |  |
| ATM CardNumer |  |  |
| Onlie Trasfer number |  |  |
| Debit Card Number |  |  |
|  |  |  |

Monthly Periodical Fact Table (supertype)

|  |  |  |
| --- | --- | --- |
| Column Name | Description | Keys |
| End Date Key |  | FK |
| Account Key |  | FK |
| Customer Key |  | FK |
| Ending Balance |  |  |
| Total Number of Transactions |  |  |

Checking Periodical Fact Table (subtype)

|  |  |  |
| --- | --- | --- |
| Column Name | Description | Keys |
| End Date Key |  | FK |
| Account Key |  | FK |
| Customer Key |  | FK |
| Ending Balance |  |  |
| Total Number of Transactions |  |  |
| Total Withdraw amount |  |  |
| Totoal deposite amount |  |  |
| Total online transfer amount |  |  |
| # of debit card usage |  |  |

DimAccount

|  |  |
| --- | --- |
| Column Name | Value |
| AccountID | A01 |
| AccountNumber | XX9915 |
| Open Date | 12/1/2022 |

DimCheckingAmount

|  |  |
| --- | --- |
| Column Name | Value |
| CheckingAccountID | A01 |
| CheckingAccountNumber | XX9915 |
| ChekingOpen Date | 12/1/2022 |
| ATM CardNumer |  |
| Onlie Trasfer number |  |
| Debit Card Number | XX2457 |
|  |  |

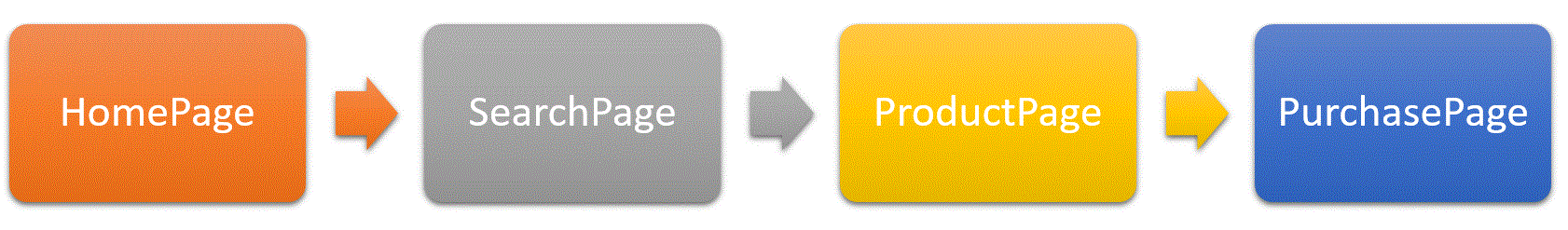
Monthly Periodical Fact Table (supertype)

|  |  |
| --- | --- |
| Column Name | Value |
| End Date Key | 2/28/2023 |
| Account Key | A01 |
| Customer Key | C01 |
| Ending Balance | $6000 |
| Total Number of Transactions | 50 |

Checking Periodical Fact Table (subtype

|  |  |
| --- | --- |
| Column Name | Description |
| End Date Key |  |
| Account Key |  |
| Customer Key | A01 |
| Ending Balance | C01 |
| Total Number of Transactions | 50 |
| Total Withdraw amount | 6000 |
| Totoal deposite amount | 10000 |
| Total online transfer amount | 3000 |
| # of debit card usage | 3 |

2. Consider the following customer, page and step dimensions. Populate the fact table to fully capture the 2 web interactions below.



**Figure 1. CustomerA Interaction**



**Figure 2. Customer B interaction**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DimCustomer Table   |  |  | | --- | --- | | CustomerKey | CustomerName | | 101 | Customer A | | 102 | Customer B | | DimPage Table   |  |  | | --- | --- | | PageKey | PageName | | 1001 | Home page | | 1002 | Search page | | 1003 | Product page | | 1004 | Purchase page | | 1005 | BingRef | |

DimStep

|  |  |  |  |
| --- | --- | --- | --- |
| StepKey | TotalSteps | ThisStep | StepsToEnd |
| 1 | 1 | 1 | 0 |
| 2 | 2 | 1 | 1 |
| 3 | 2 | 2 | 0 |
| 4 | 3 | 1 | 2 |
| 5 | 3 | 2 | 1 |
| 6 | 3 | 3 | 0 |
| 7 | 4 | 1 | 3 |
| 8 | 4 | 2 | 2 |
| 9 | 4 | 3 | 1 |
| 10 | 4 | 4 | 0 |

Taken last 4 because there are total 4 steps in the process and step key7 has 4 total steps

FactTable

|  |  |  |  |
| --- | --- | --- | --- |
| CustomerKey | PageKey | StepKey | Fact1 (Leave Empty) |
| 101 | 1001 | 7 |  |
| 101 | 1002 | 8 |  |
| 101 | 1003 | 9 |  |
| 101 | 1004 | 10 |  |
| 102 | 1005 | 4 |  |
| 102 | 1003 | 5 |  |
| 102 | 1004 | 6 |  |
|  |  |  | Add more rows as needed |