**Topic: Credit Card Management System**

***PROBLEM STATEMENT***:

PREPARE A CREDIT CARD MANAGEMENT SYSTEM IN WHICH THERE IS A USER AND THE USER HAS TO LOGIN USING THE LOGIN USERNAME AND USER PASSWORD AND LOGIN ID.THE USER HAS ITS OWN USER ID, NAME, MOBILE NUMBER, EMAIL ADDRESS AND ADDRESS. EACH USER HAS ONE LOGIN ACCOUNT AND EACH LOGIN CAN BE DONE BY ONLY ONE USER.

EACH CREDIT CARD HAS CREDIT CARD NAME, ID, BALANCE, CREDIT CARD TYPE, DESCRIPTION AND THE ITS LIMITS. ONE USER HAS ONE OR MORE CREDIT CARDS BUT ONE CREDIT CARD CAN HAVE ONLY ONE USER.

THE USER CAN MAKE TRANSACTIONS THROUGH THE CREDIT CARDS HE/SHE MANAGES. EACH TRANSACTION HAS TRANSACTION ID, TRANSACTION TYPE, TRANSACTION AMOUNT, DATE. EACH USER CAN MAKE MANY TRANSACTIONS BUT EACH TRANSACTION CAN BE MADE BY ONE USER ONLY. RECORD IS KEPT OF EACH TRANSACTION AND THE CREDIT CARD BY WHICH IT IS CARRIED OUT. MANY TRANSATIONS CAN BE DONE WITH ONE CREDIT CARD BUT EACH TRANSACTION CAN BE DONE ONLY BY ONE CREDIT CARD.

A BANK CAN ISSUE THE CREDIT CARD TO ITS USER ON THE USER’S REQUESTS WHEN THE USER JOINS THE BANK. THE USER CAN OWN A CREDIT CARD ONLY AFTER THE BANK HAS SUCCESSFULLY PERMITTED THE USER TO HOLD THE CREDIT CARD.THE BANK GENERATES A CREDIT CARD FOR THE APPROVED USER.A BANK CAN GENERATE MANY CARDS BUT EACH CREDIT CARD CAN BE GENERATED ONLY BY A SINGLE BANK.

THE BANKS HAVE LINKS WITH MANY CREDIT CARD NETWORKS (VISA, MASTERCARD, ETC) WHICH PROVIDES THE USER WITH THE OPTIONS OF CREDIT CARDS. A CREDIT CARD NETWORK HAS MANY CREDIT CARDS ASSOCIATED WITH IT AND EACH CREDIT CARD IS ASSOCIATED WITH ONLY ONE CREDIT CARD NETWORK.

CREDIT CARD NETWORKS GIVES MANY OFFERS .EACH OFFER HAS AN OFFER ID AND ITS DESCRIPTION.EACH OFFER CAN BE GIVEN ONLY BY ONE CREDIT CARD NETWORK.OFFERS ARE OFFERED ON CREDIT CARDS THAT THE USER HOLDS.EACH CREDIT CARD CAN HAVE MANY OFFERS BUT EACH OFFER CAN BE ON ONLY ONE CREDIT CARD.

***DESCRIPTION:***

WE HAVE CREATED AN ENTITY-RELATIONSHIP DIAGRAM FOR A CREDIT CARD MANAGEMENT SYSTEM. VARIOUS ENTITIES, ATTRIBUTES, AND RELATIONSHIPS AS DESCRIBED IN THE PROBLEM STATEMENT HAVE BEEN LISTED HERE.EACH ENTITY CONTAINS PRIMARY KEY AND UNIQUE KEY.

***ENTITIES:***

* USER
* LOGIN ACCOUNT
* CREDIT CARD
* TRANSACTION
* BANK
* CREDIT CARD NETWORK
* OFFER

***ATTRIBUTES:***

* LOGIN ACCOUNT - LOGIN USERNAME, PASSWORD, LOGIN ID
* USER – USER ID, NAME, MOBILE NUMBER, EMAIL ADDRESS, ADDRESS
* CREDIT CARD – NAME, ID, BALANCE, TYPE, DESCRIPTION, LIMITS
* TRANSACTION – TRANSACTION ID, TYPE, AMOUNT, DATE
* BANK – BRANCH, BANK NAME, IFSC CODE
* CREDIT CARD NETWORK – CREDIT CARD NAME
* OFFER – OFFER\_ID, DESCRIPTION

***RELATIONSHIPS:***

* USER **HAS**LOGIN ACCOUNT (ONE TO ONE RELATIONSHIP [CARDINALITY RATIO: 1:1])
* USER **JOINS**A BANK (MANY TO MANY RELATIONSIP [CARDINALITY RATIO: M:N])
* USER **OWNS**A CREDIT CARD (ONE TO MANY RELATIONSHIP [CARDINALITY RATIO: 1:M])
* USER **MAKES**TRANSACTIONS (ONE TO MANY RELATIONSHIP [CARDINALITY RATIO: 1: N])
* TRANSACTIONS ARE **DONE\_BY**CREDIT CARD (MANY TO ONE RELATIONSHIP [CARDINALITY RATIO: P:1])
* BANK **LINKS**THROUGH THE CREDENTIAL NETWORK (MANY TO MANY RELATIONSHIP [CARDINALITY RATIO: M: N])
* BANK **GENERATES**CREDIT CARD (ONE TO MANY RELATIONSHIP [CARDINALITY RATIO: 1: N])
* CREDIT CARD NETWORK IS **ASSOCIATED\_WITH** CREDIT CARD (ONE TO MANY RELATIONSHIP [CARDINALITY RATIO: P:1])
* CREDIT CARD NETWORK **GIVES**OFFER (ONE TO MANY RELATIONSHIP CARDINALITY RATIO 1:N)
* OFFERS ARE **OFFERED\_ON**CREDIT CARD (MANY TO ONE RELATIONSHIP CARDINALITY RATIO: M:1)



