

# Advanced DataBases, First Delivery

## Bank Management System

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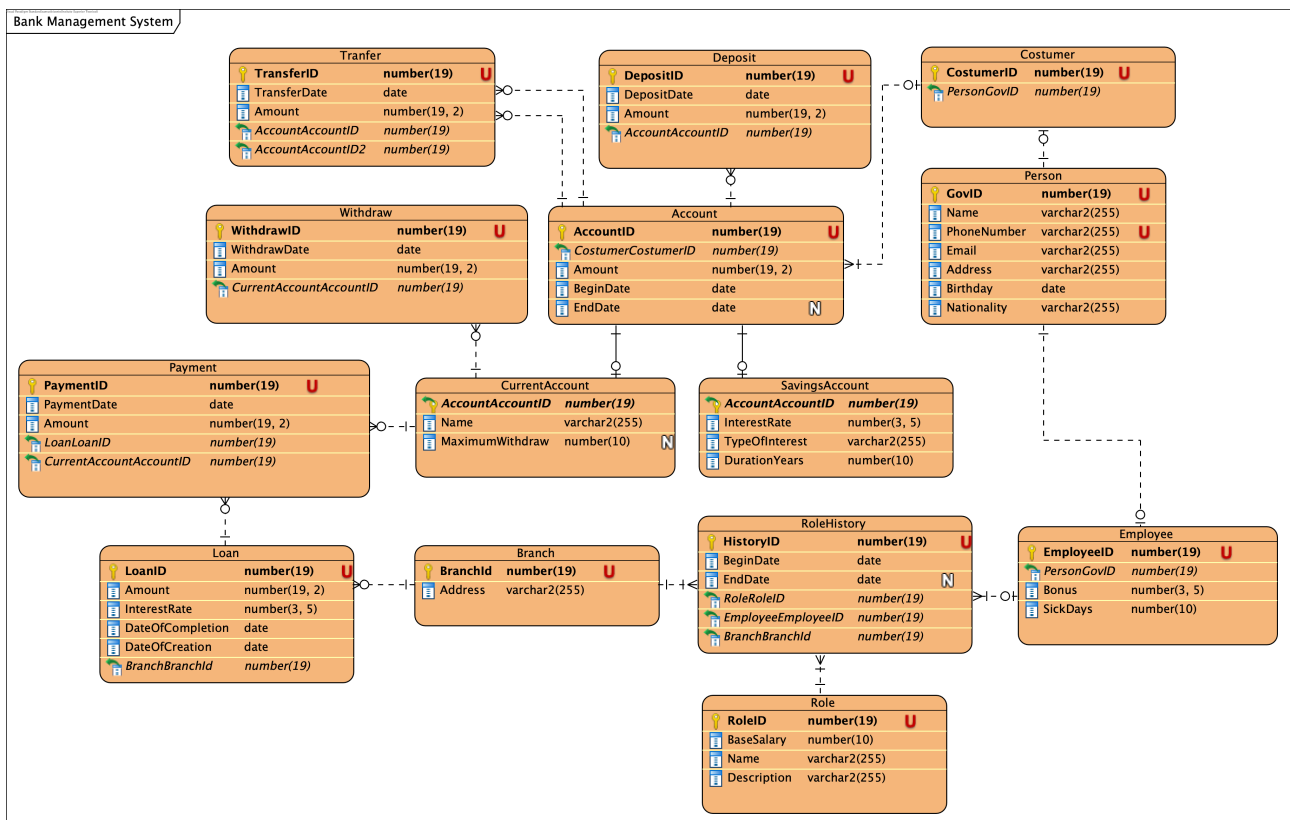
Politechnika Wrocławska

C4 Group

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### Short Description

### ERD



### Scheme

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1 CREATE TABLE Person (
2   GovID number(19) GENERATED AS IDENTITY,
3   Name varchar2(255) NOT NULL,
4   PhoneNumber varchar2(255) NOT NULL UNIQUE,
5   Email varchar2(255) NOT NULL,
6   Address varchar2(255) NOT NULL,

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7 | Birthday date NOT NULL,
8 | Nationality varchar2(255) NOT NULL,
9 | PRIMARY KEY (GovID));
10
11 | CREATE TABLE Costumer (
12 |   CostumerID number(19) GENERATED AS IDENTITY,
13 |   PersonGovID number(19) NOT NULL,
14 |   PRIMARY KEY (CostumerID));
15
16 | CREATE TABLE Employee (
17 |   EmployeeID number(19) GENERATED AS IDENTITY,
18 |   PersonGovID number(19) NOT NULL,
19 |   Bonus number(3, 5) NOT NULL CHECK(Bonus>=0),
20 |   SickDays number(10) NOT NULL CHECK(SickDays<10),
21 |   PRIMARY KEY (EmployeeID));
22
23 | CREATE TABLE Account (
24 |   AccountID number(19) GENERATED AS IDENTITY,
25 |   CostumerCostumerID number(19) NOT NULL,
26 |   Amount number(19, 2) NOT NULL CHECK(Amount>=0),
27 |   BeginDate date NOT NULL,
28 |   EndDate date,
29 |   PRIMARY KEY (AccountID));
30
31 | CREATE TABLE Branch (
32 |   BranchId number(19) GENERATED AS IDENTITY,
33 |   Address varchar2(255) NOT NULL,
34 |   PRIMARY KEY (BranchId));
35
36 | CREATE TABLE RoleHistory (
37 |   HistoryID number(19) GENERATED AS IDENTITY,
38 |   BeginDate date NOT NULL,
39 |   EndDate date,
40 |   RoleRoleID number(19) NOT NULL,
41 |   EmployeeEmployeeID number(19) NOT NULL,
42 |   BranchBranchId number(19) NOT NULL,
43 |   PRIMARY KEY (HistoryID));
44
45 | CREATE TABLE Role (
46 |   RoleID number(19) GENERATED AS IDENTITY,
47 |   BaseSalary number(10) NOT NULL CHECK(BaseSalary>0),
48 |   Name varchar2(255) NOT NULL,
49 |   Description varchar2(255) NOT NULL,
50 |   PRIMARY KEY (RoleID));
51
52 | CREATE TABLE Loan (
53 |   LoanID number(19) GENERATED AS IDENTITY,
54 |   Amount number(19, 2) NOT NULL CHECK(Amount>0),
55 |   InterestRate number(3, 5) NOT NULL,
56 |   DateOfCompletion date NOT NULL,
57 |   DateOfCreation date NOT NULL,
58 |   BranchBranchId number(19) NOT NULL,
59 |   PRIMARY KEY (LoanID));
60
61 | CREATE TABLE Payment (
62 |   PaymentID number(19) GENERATED AS IDENTITY,
63 |   PaymentDate date NOT NULL,
64 |   Amount number(19, 2) NOT NULL CHECK(Amount>0),
65 |   LoanLoanID number(19) NOT NULL,
66 |   CurrentAccountAccountID number(19) NOT NULL,
67 |   PRIMARY KEY (PaymentID));
68

```

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69 CREATE TABLE SavingsAccount (
70     AccountAccountID number(19) NOT NULL,
71     InterestRate number(3, 5) NOT NULL CHECK(InterestRate>0),
72     TypeOfInterest varchar2(255) NOT NULL,
73     DurationYears number(10) NOT NULL CHECK(DurationYears>0),
74     PRIMARY KEY (AccountAccountID));
75
76 CREATE TABLE Deposit (
77     DepositID number(19) GENERATED AS IDENTITY,
78     DepositDate date NOT NULL,
79     Amount number(19, 2) NOT NULL CHECK(Amount>0),
80     AccountAccountID number(19) NOT NULL,
81     PRIMARY KEY (DepositID));
82
83 CREATE TABLE Tranfer (
84     TransferID number(19) GENERATED AS IDENTITY,
85     TransferDate date NOT NULL,
86     Amount number(19, 2) NOT NULL CHECK(Amount>0),
87     AccountAccountID number(19) NOT NULL,
88     AccountAccountID2 number(19) NOT NULL,
89     PRIMARY KEY (TransferID));
90
91 CREATE TABLE Withdraw (
92     WithdrawID number(19) GENERATED AS IDENTITY,
93     WithdrawDate date NOT NULL,
94     Amount number(19, 2) NOT NULL CHECK(Amount>0),
95     CurrentAccountAccountID number(19) NOT NULL,
96     PRIMARY KEY (WithdrawID));
97
98 CREATE TABLE CurrentAccount (
99     AccountAccountID number(19) NOT NULL,
100     Name varchar2(255) NOT NULL,
101     MaximumWithdraw number(10),
102     PRIMARY KEY (AccountAccountID));
103
104 ALTER TABLE Costumer ADD CONSTRAINT FKCostumer923053 FOREIGN KEY (PersonGovID) REFERENCES Person (
105     ↪ GovID);
106
107 ALTER TABLE Employee ADD CONSTRAINT FKEmployee249023 FOREIGN KEY (PersonGovID) REFERENCES Person (
108     ↪ GovID);
109
110 ALTER TABLE Account ADD CONSTRAINT FKAccount895601 FOREIGN KEY (CostumerCostumerID) REFERENCES
111     ↪ Costumer (CostumerID);
112
113 ALTER TABLE RoleHistory ADD CONSTRAINT FKRoleHistor647811 FOREIGN KEY (RoleRoleID) REFERENCES Role (
114     ↪ RoleID);
115
116 ALTER TABLE RoleHistory ADD CONSTRAINT FKRoleHistor516821 FOREIGN KEY (EmployeeEmployeeID) REFERENCES
117     ↪ Employee (EmployeeID);
118
119 ALTER TABLE RoleHistory ADD CONSTRAINT FKRoleHistor171832 FOREIGN KEY (BranchBranchId) REFERENCES
120     ↪ Branch (BranchId);
121
122 ALTER TABLE Loan ADD CONSTRAINT FKLoan357293 FOREIGN KEY (BranchBranchId) REFERENCES Branch (BranchId)
123     ↪ ;
124
125 ALTER TABLE SavingsAccount ADD CONSTRAINT FKSavingsAcc25288 FOREIGN KEY (AccountAccountID) REFERENCES
126     ↪ Account (AccountID);
127
128 ALTER TABLE Payment ADD CONSTRAINT FKPayment955503 FOREIGN KEY (LoanLoanID) REFERENCES Loan (LoanID);

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122 ALTER TABLE Deposit ADD CONSTRAINT FKDeposit626030 FOREIGN KEY (AccountAccountID) REFERENCES Account (
    ↳ AccountID);
123
124 ALTER TABLE Tranfer ADD CONSTRAINT FKTranfer816388 FOREIGN KEY (AccountAccountID) REFERENCES Account (
    ↳ AccountID);
125
126 ALTER TABLE Tranfer ADD CONSTRAINT FKTranfer299653 FOREIGN KEY (AccountAccountID2) REFERENCES Account
    ↳ (AccountID);
127
128 ALTER TABLE Payment ADD CONSTRAINT FKPayment25568 FOREIGN KEY (CurrentAccountAccountID) REFERENCES
    ↳ CurrentAccount (AccountAccountID);
129
130 ALTER TABLE Withdraw ADD CONSTRAINT FKWithdraw546165 FOREIGN KEY (CurrentAccountAccountID) REFERENCES
    ↳ CurrentAccount (AccountAccountID);
131
132 ALTER TABLE CurrentAccount ADD CONSTRAINT FKCurrentAcc16041 FOREIGN KEY (AccountAccountID) REFERENCES
    ↳ Account (AccountID);

```

## Transactions

### 1:Description

Theres one CurrentAccount in the system. This transaction withdraws 100 units from that account and register it in the Withdraw ledger table, it also checks if the amount is permitted as by the CurrentAccount.MaximumWithdraw.

### 1:Input

### 1:Output

### 1:SQL

### 2:Description

### 2:Input

### 2:Output

### 2:SQL

### 3:Description

### 3:Input

### 3:Output

### 3:SQL

**4:Description**

**4:Input**

**4:Output**

**4:SQL**

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**5:Description**

**5:Input**

**5:Output**

**5:SQL**

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**6:Description**

**6:Input**

**6:Output**

**6:SQL**

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**7:Description**

**7:Input**

**7:Output**

**7:SQL**

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