Ontology (CS6852)
Assignment 1

Team: G10

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Domain: Banking

Concepts:

People
- Customer
- Branch Manager
- Employee
- Cashier
- Teller
- Person
- Borrower
- Technician
- Securities
- CustomerCare
- Depositor

Places
- Branch
- GoldStorage (storage vaults)

Money
- Cash
- Loan (Personal, gold, house, car)
- Deposit
- Withdrawal
- Cheque

FinancialService
- Payment
- PaymentNumber
- Transaction

Machines
- ATM
- ChequeDepositMachine
- CashDepositMachine
- PassbookPrinter

Other
- Account
- Redressal (complaint)

Roles :
belongsTo : An account belong to customer
owns: Customer can owns multiple accounts
Manages: A Manager manages the branch . Branch manage account
offers: A branch offers many financial services.
worksAt: Employees work at the branch.
oversees: Manager oversees employees.
worksUnder: Various employees work under manager.
borrows: Borrower borrows loan.
withdraw: Customer withdraws cash.
deposits: Customer deposits cash and cheques.
havingPayment: Every payment has a payment number.
hasPaymentAmount: Every payment has some non zero payment amount.
asksQuery: Customer asks query to customer care.
answersQuery: Customer care answer query to customer.
maintains: Technician maintains ATM/Cheque deposit machine/Cash deposit machine/Passbook printer.

Object Properties:
1)belongsTo: (Account, Customer)
2)owns: (Customer, Account)
3)manages: (Branch, Account)
4)offers: (Branch, FinancialService)
5)worksAt: (Employee, Branch)
6)oversees: (Manager, Employee)

7)worksUnder: (Employee, Manager)
8)borrows: (Customer, Loan)
9)withdraw: (Customer, Cash)
10)deposits: (Customer, Cash)
11)deposits: (Customer, Cheque)
12)havingPayment: (Payment, Amount)
13)hasPaymentAmount: (Payment,Amount)
14)asksQuery: (Customer, CustomerCare)
15)answersQuery: (CustomerCare, Customer)
16)maintains: (Technician, ATM)
17)maintains: (Technician, Cheque deposit machine)
18)maintains: (Technician, Cash deposit machine)
19)maintains: (Technician, Passbook printer)

T-Box:

Person

1. Customer $\sqsubseteq$ Persona $\sqcap$ ($\exists$ owns.Account $\sqcup$ $\exists$ borrows.Loan)
2. BranchManager $\sqsubseteq$ Person $\sqcap$ $\exists$ manages.Branch
3. Employee $\sqsubseteq$ Person $\sqcap$ $\forall$ worksAt.Branch $\sqcap$ $\forall$ worksUnder.BranchManager
4. Technician $\sqsubseteq$ Employee $\sqcap$ ($\exists$ maintains.ATM $\sqcup$ $\exists$ maintains.ChequeDepositMachine $\sqcup$ $\exists$ maintains.CashDepositMachine $\sqcup$ $\exists$ maintains.PassbookPrinter)
5. CustomerCare $\sqsubseteq$ Employee $\sqcap$ $\forall$ answersQuery.Customer
6. Borrower = Customer $\sqcap$ $\exists$ borrows.Loan
7. Depositor $\equiv$ Customer $\sqcup$ ($\exists$ deposits.Cash $\sqcup$ $\exists$ deposits.Cheque)
8. Person $\equiv$ Customer $\sqcup$ Employee
9. Customer $\sqsubseteq$ $\exists$ deposits.Cheque $\sqcup$ $\exists$ deposits.Cash $\sqcup$ $\exists$ withdraw.Cash

Places

1. Branch $\sqsubseteq$ $\exists$ offers.GoldStorage $\sqcup$ $\exists$ offers.Loan $\sqcup$ $\exists$ processes.Withdrawal $\sqcup$ $\exists$ processes.Cheque $\sqcup$ $\exists$ processes.Payment

Money

1. Loan $\sqsubseteq$ FinancialService
2. VehicleLoan $\sqsubseteq$ Loan
3. RealEstateLoan $\sqsubseteq$ Loan
4. AgricultureLoan $\sqsubseteq$ Loan
5. GoldLoan $\sqsubseteq$ Loan

FinancialService
1. Transaction ⊑ Cheque ⊔ Cash
2. Payment ⊑ ∃ havingPayment.PaymentNumber ⊔ ∃ has.Amount
3. Transaction ⊑ FinancialService
4. Payment ⊑ FinancialService

Machines
1. Machine ≡ ATM ⊔ CashDepositMachine ⊔ ChequeDepositMachine ⊔ PassbookPrinter
2. ATM ⊑ Machine
3. CashDepositMachine ⊑ Machine
4. ChequeDepositMachine ⊑ Machine
5. PassbookPrinter ⊑ Machine

Other
1. Account ⊑ ∃ belongsTo.Customer
2. Account ⊑ ¬Person
3. SavingsAccount ⊑ Account
4. Account ≡ SavingsAccount ⊔ CurrentAccount ⊔ FixedDepositAccount