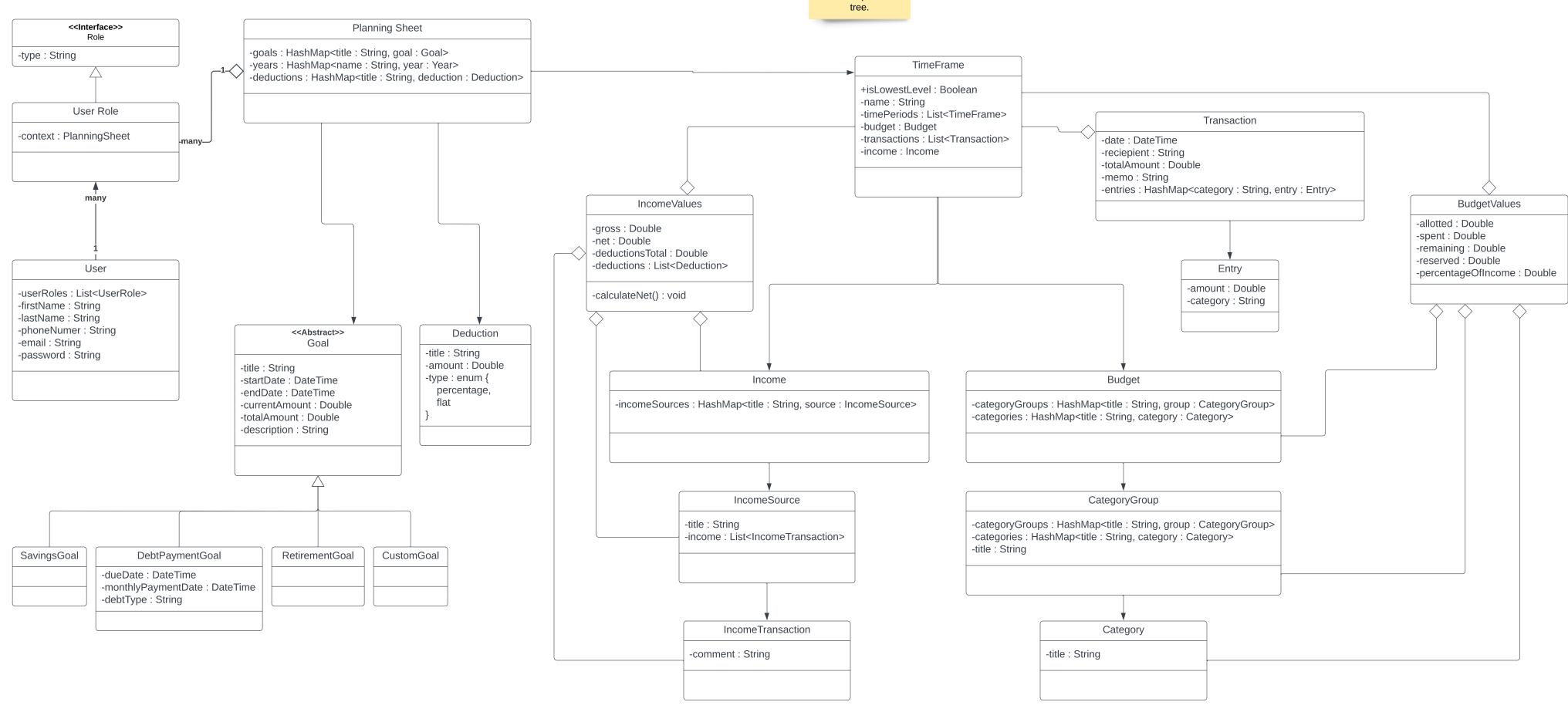**Note:** If the isLowestLevel is true, then budget, transactions, and income is initialized. If false, then timePeriods is initialized. This structure represents a tree.

Class Diagram

<<Interface>> Role
- -type : String

User Role
- -context : PlanningSheet

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Planning Sheet
- -goals : HashMap<title : String, goal : Goal>
- -years : HashMap<name : String, year : Year>
- -deductions : HashMap<title : String, deduction : Deduction>

many — 1

User
- -userRoles : List<UserRole>
- -firstName : String
- -lastName : String
- -phoneNumer : String
- -email : String
- -password : String

TimeFrame
- +isLowestLevel : Boolean
- -name : String
- -timePeriods : List<TimeFrame>
- -budget : Budget
- -transactions : List<Transaction>
- -income : Income

Transaction
- -date : DateTime
- -reciepient : String
- -totalAmount : Double
- -memo : String
- -entries : HashMap<category : String, entry : Entry>

BudgetValues
- -allotted : Double
- -spent : Double
- -remaining : Double
- -reserved : Double
- -percentageOfIncome : Double

IncomeValues
- -gross : Double
- -net : Double
- -deductionsTotal : Double
- -deductions : List<Deduction>
- -calculateNet() : void

Entry
- -amount : Double
- -category : String

<<Abstract>> Goal
- -title : String
- -startDate : DateTime
- -endDate : DateTime
- -currentAmount : Double
- -totalAmount : Double
- -description : String

Deduction
- -title : String
- -amount : Double
- -type : enum {
    percentage,
    flat
  }

Income
- -incomeSources : HashMap<title : String, source : IncomeSource>

Budget
- -categoryGroups : HashMap<title : String, group : CategoryGroup>
- -categories : HashMap<title : String, category : Category>

SavingsGoal

DebtPaymentGoal
- -dueDate : DateTime
- -monthlyPaymentDate : DateTime
- -debtType : String

RetirementGoal

CustomGoal

IncomeSource
- -title : String
- -income : List<IncomeTransaction>

CategoryGroup
- -categoryGroups : HashMap<title : String, group : CategoryGroup>
- -categories : HashMap<title : String, category : Category>
- -title : String

IncomeTransaction
- -comment : String

Category
- -title : String

Database Structure

User
- id : Int - identity
- firstName : varchar
- lastName : varchar
- phoneNumber : varChar
- email : varChar
- password : varChar

User Role
- id : int - identity
- userID : int (notNull)
- planningSheetID : int (notNull)
- type : varChar (notNull)

PlanningSheet
- id : Int -identity
- name : varchar

Goal
- id : Int - identity
- planningSheetID : Int (notNull)
- title : varChar
- startDate : Date
- endDate : Date
- currentAmount : decimal
- description : varChar
- dueDate : Date (nullable)
- monthlyPaymentDate : Date (nullable)
- debtyType : varchar (nullable)

Deduction
- id : int - identity
- planningSheetID : Int (notNull)
- title : varChar(50)
- amount : float
- type : varchar(9)

TimeFrame
- id: int - identity
- planningSheetID : int
- parentTimeFrameID : int
- budgetValueID : int (not null)
- isLowestLevel : bit (not null)
- name : varchar(50)

Income
- id : int - identity
- timeFrameID : int (not null)
- incomeValuesID : int (not null)

Transaction
- id : int - identity
- timeFrameID : int (not null)
- -date : DateTime
- -reciepient : varchar(100)
- -totalAmount : smallMoney
- -memo : varChar(250)

Budget
- id : int - identity
- timeFrameID : int (not null)
- budgetValueID : int (not null)

BudgetValues
- id : int - identity
- allotted : smallMoney
- spent : smallMoney
- remaining : smallMoney
- reserved : smallMoney
- percentageOfIncome : Float

IncomeValues
- -gross : Double
- -net : Double
- -deductionsTotal : Double
- -deductions : List<Deduction>

Income Source
- id : int - identity
- incomeID : int (not null)
- incomeValuesID : int (not null)
- title : varChar(50) (not null)

Entry
- id : int - identity
- transactionID : int
- categoryID : int
- amount : smallMoney

CategoryGroup
- id : int - identity
- budgetID : int
- categoryGroupID : int
- budgetValueID : int (not null)
- name : varVhar(50) (not null)

Income Transaction
- id : int - identity
- incomeSourceID - int (not null)
- incomeValuesID - int (not null)
- comment : varChar(250)

Category
- id : int - identity
- categoryGroupID : int
- budgetID : int
- budgetValueID : int (not null)
- name : varChar (50) (not null)