**Billing and Collection**
**By Nigel Tan and Carlos Garcia**

## User Stories

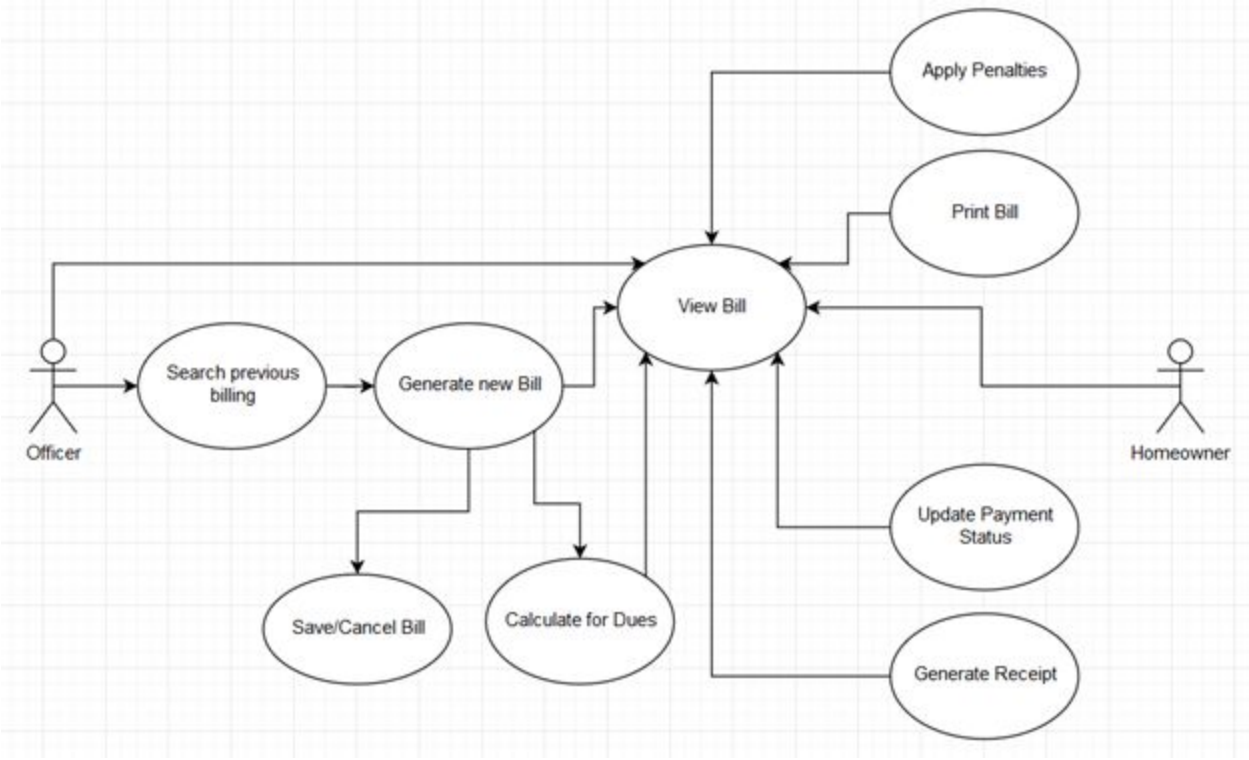
As an officer….

- I can generate a bill, so that a HO knows that they have dues to be payed
- I can print/send a bill, so that I can give a physical copy to the HO
- I can see a bill's payment status, so that I can message user to settle their dues
- I can update a bill's payment status, so that I can specify if there are still unsettled dues
- I can apply penalties, so that overdue unsettled bills can be updated
- I can generate a receipt, so that the HO has a proof of payment
- I can check previous bills, so that I can see how much a certain HO or group of HOs have payed

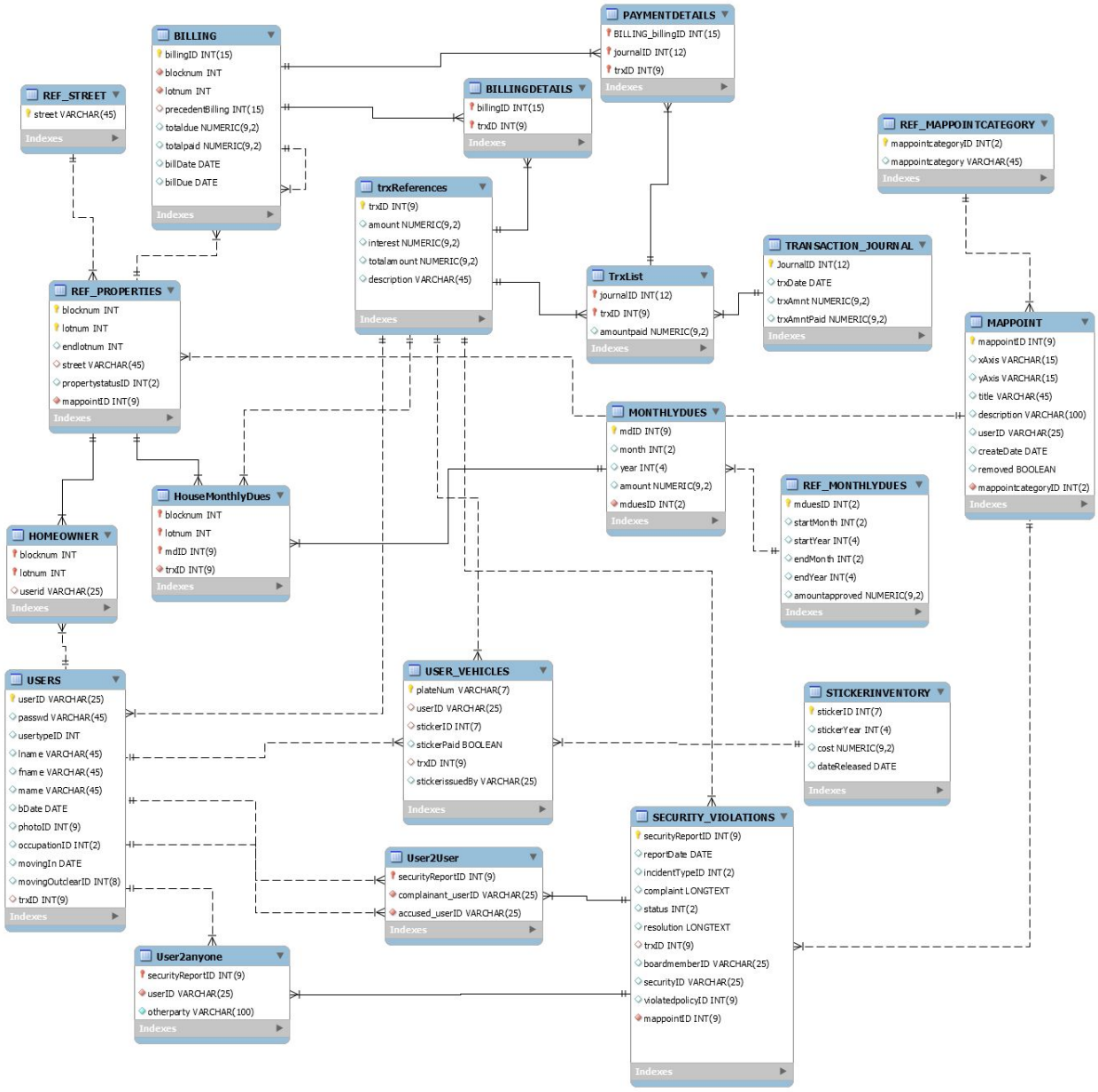
As a homeowner….

- I can view a bill, so that I know the dues that I must pay

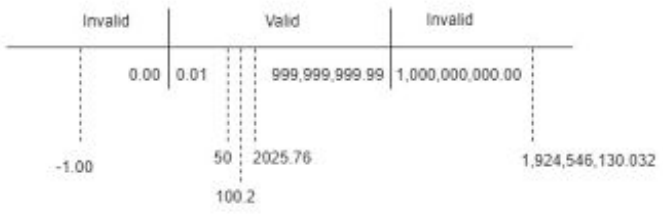
## Use Cases



## ERD


BILLING
billingID INT(15)
blocknum INT
lotnum INT
precedentBilling INT(15)
totaldue NUMERIC(9,2)
totalpaid NUMERIC(9,2)
billDate DATE
billDue DATE
Indexes
PAYMENTDETAILS
BILLING_billingID INT(15)
journalID INT(12)
trxID INT(9)
Indexes
REF_STREET
street VARCHAR(45)
Indexes
BILLINGDETAILS
billingID INT(15)
trxID INT(9)
Indexes
REF_MAPPOINTCATEGORY
mappointcategoryID INT(2)
mappointcategory VARCHAR(45)
Indexes
trxReferences
trxID INT(9)
amount NUMERIC(9,2)
interest NUMERIC(9,2)
totalamount NUMERIC(9,2)
description VARCHAR(45)
Indexes
TRANSACTION_JOURNAL
JournalID INT(12)
trxDate DATE
trxAmnt NUMERIC(9,2)
trxAmntPaid NUMERIC(9,2)
Indexes
REF_PROPERTIES
blocknum INT
lotnum INT
endlotnum INT
street VARCHAR(45)
propertystatusID INT(2)
mappointID INT(9)
Indexes
TrxList
journalID INT(12)
trxID INT(9)
amountpaid NUMERIC(9,2)
Indexes
MAPPOINT
mappointID INT(9)
xAxis VARCHAR(15)
yAxis VARCHAR(15)
title VARCHAR(45)
description VARCHAR(100)
userID VARCHAR(25)
createDate DATE
removed BOOLEAN
mappointcategoryID INT(2)
Indexes
MONTHLYDUES
mdID INT(9)
month INT(2)
year INT(4)
amount NUMERIC(9,2)
mduesID INT(2)
Indexes
HouseMonthlyDues
blocknum INT
lotnum INT
mdID INT(9)
trxID INT(9)
Indexes
REF_MONTHLYDUES
mduesID INT(2)
startMonth INT(2)
startYear INT(4)
endMonth INT(2)
endYear INT(4)
amountapproved NUMERIC(9,2)
Indexes
HOMEOWNER
blocknum INT
lotnum INT
userid VARCHAR(25)
Indexes
USERS
userID VARCHAR(25)
passwd VARCHAR(45)
usertypeID INT
lname VARCHAR(45)
fname VARCHAR(45)
mame VARCHAR(45)
bDate DATE
photoID INT(9)
occupationID INT(2)
movingIn DATE
movingOutclearID INT(8)
trxID INT(9)
Indexes
USER_VEHICLES
plateNum VARCHAR(7)
userID VARCHAR(25)
stickerID INT(7)
stickerPaid BOOLEAN
trxID INT(9)
stickerissuedBy VARCHAR(25)
Indexes
STICKERINVENTORY
stickerID INT(7)
stickerYear INT(4)
cost NUMERIC(9,2)
dateReleased DATE
Indexes
SECURITY_VIOLATIONS
securityReportID INT(9)
reportDate DATE
incidentTypeID INT(2)
complaint LONGTEXT
status INT(2)
resolution LONGTEXT
trxID INT(9)
boardmemberID VARCHAR(25)
securityID VARCHAR(25)
violatedpolicyID INT(9)
mappointID INT(9)
Indexes
User2User
securityReportID INT(9)
complainant_userID VARCHAR(25)
accused_userID VARCHAR(25)
Indexes
User2anyone
securityReportID INT(9)
userID VARCHAR(25)
otherparty VARCHAR(100)
Indexes

**Equivalence Partitioning and Boundary Analysis Diagram**




**Equivalence Partitioning Table**

| Payment Field | | |
|---|---|---|
| **Test Scenario #** | **Test Scenario Description** | **Expected Outcome** |
| 1 | User does not input payment | Not Accept |
| 2 | User inputs a negative payment value | Not Accept |
| 3 | User inputs decimal between 0-2 digits | Accept |
| 4 | User inputs decimal with more than 2 digits | Not Accept |
| 5 | User inputs integer between 1-9 digits | Accept |
| 6 | User inputs integer with more than 9 digits | Not Accept |

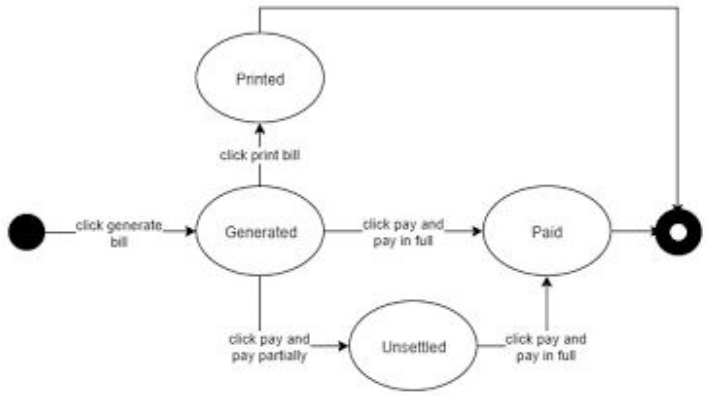
**Boundary Analysis Table**

| Payment Field | | |
|---|---|---|
| **Test Scenario #** | **Test Scenario Description** | **Expected Outcome** |
| 1 | User inputs 0 | Not Accept |
| 2 | User inputs 0.01 | Accept |
| 3 | User inputs 999,999,999.99 | Accept |
| 4 | User inputs 1,000,000,000.00 | Not Accept |

**Decision Table**

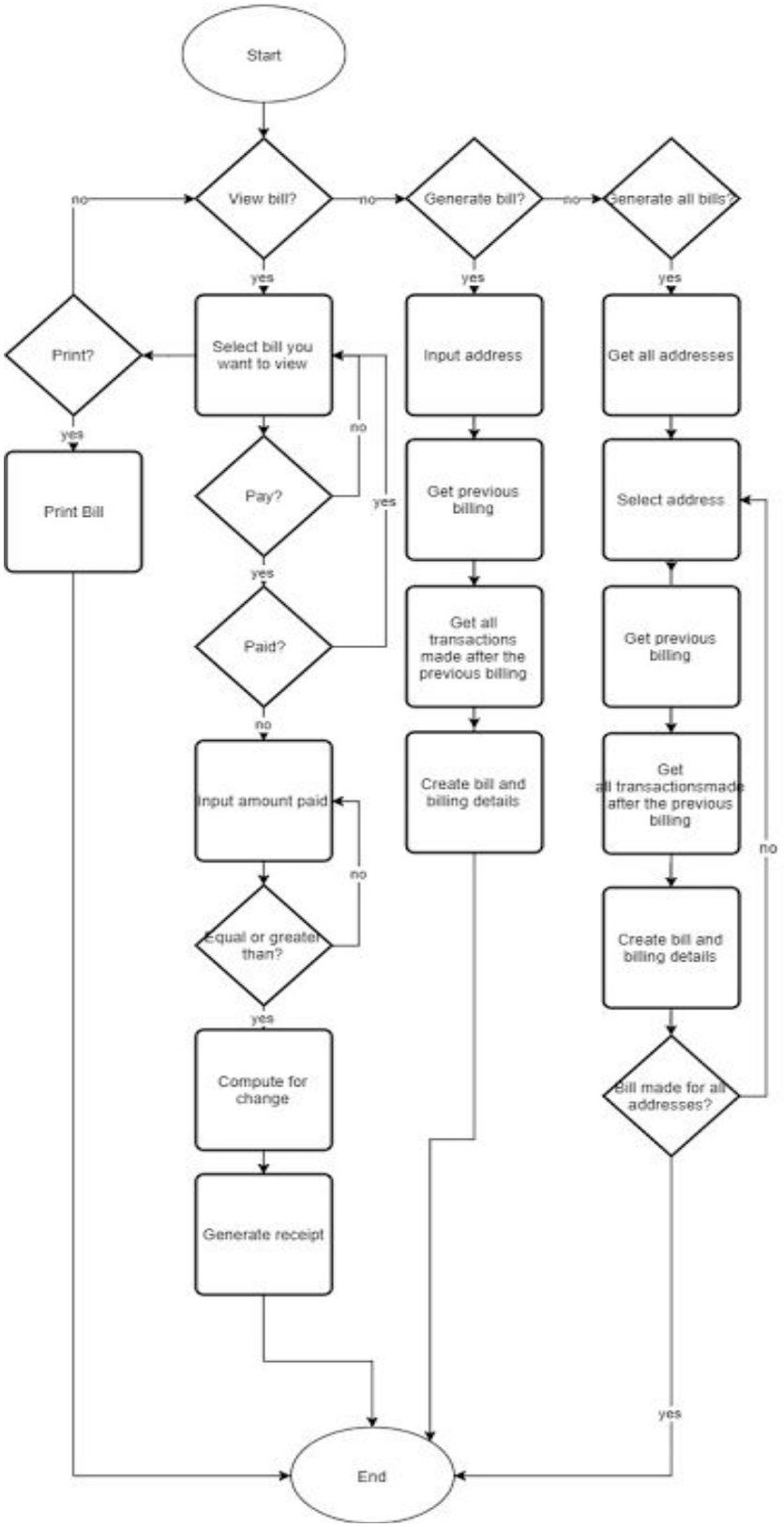
| | | | | | | |
|---|---|---|---|---|---|---|
| Conditions | Homeowner inputted? | Y/N | Y/N | Y/N | - | - |
| | Address inputted? | Y | Y/N | Y | - | - |
| | Bill for address generated today? | N | N | - | - | - |
| | Generate button pressed? | Y | - | - | - | - |
| | Generate all button pressed? | - | Y | - | - | - |
| | Bill selected? | - | - | Y | Y | Y |
| | Pay button pressed? | - | - | - | Y | - |
| | Payment amount >= to total due? | - | - | - | Y | - |
| | Print button pressed? | - | - | - | - | Y |
| | | | | | | |
| Actions | Generate | X | | | | |
| | Generate All | | X | | | |
| | View  Bill | | | X | | |
| | Pay Bill | | | | X | |
| | Print Bill | | | | | X |

**State Transition Diagram and Table**

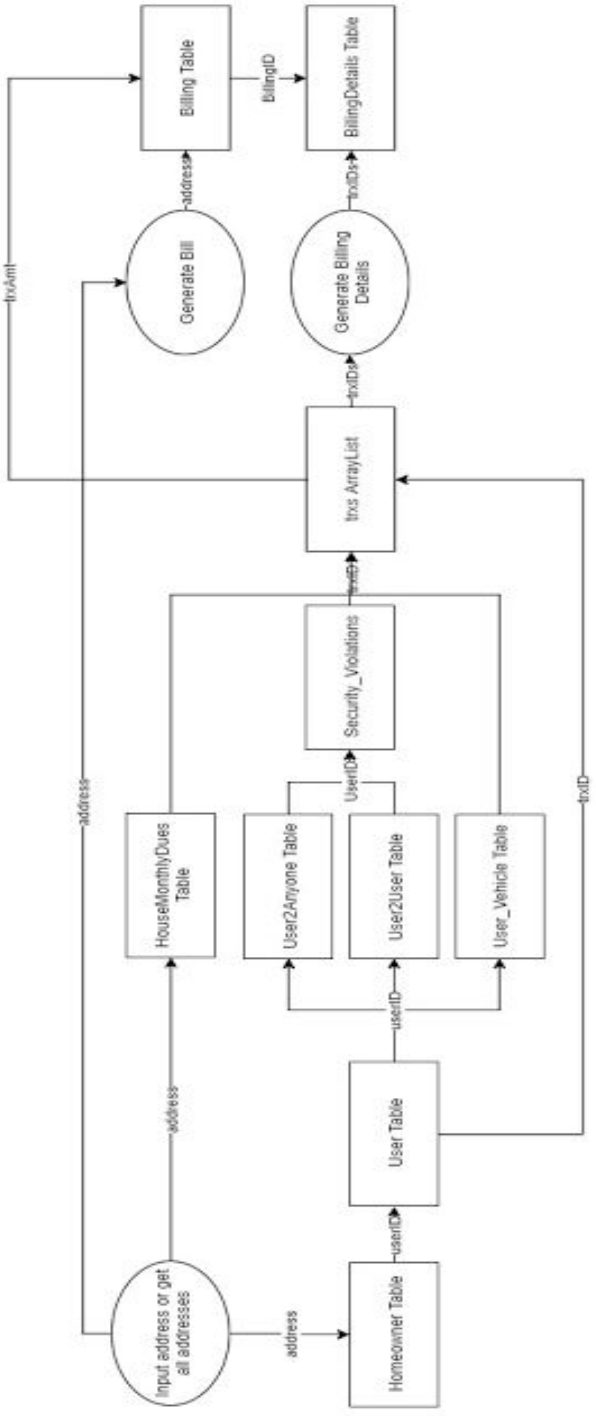


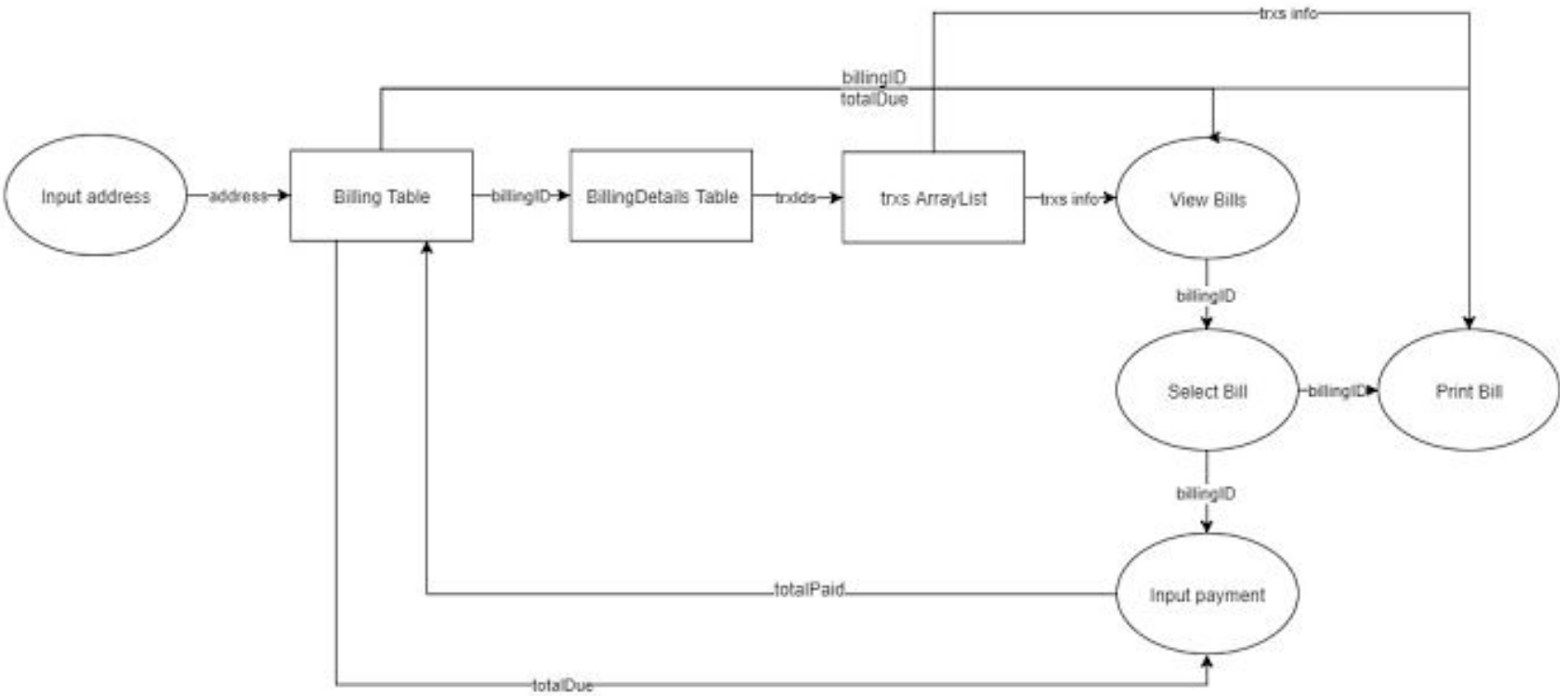

| Current State | Event | Next State |
|---|---|---|
| None | Click generate bill | Generated |
| Generated | Click print bill | Printed |
| Generated | Click pay and pay in full | Paid |
| Generated | Click pay and don't pay | Unsettled |
| Unsettled | Click pay and pay in full | Paid |

**Flowchart**


Start
View bill?
Generate bill?
Generate all bills?
no
no
no
yes
yes
yes
Print?
Select bill you want to view
Input address
Get all addresses
yes
no
Print Bill
Pay?
Get previous billing
Select address
yes
yes
Paid?
Get all transactions made after the previous billing
Get previous billing
no
Input amount paid
Create bill and billing details
Get all transactionsmade after the previous billing
no
Equal or greater than?
Create bill and billing details
yes
Compute for change
Bill made for all addresses?
Generate receipt
yes
End

**Data Flow Diagram**




trxs info
billingID
totalDue
Input address
address
Billing Table
billingID
BillingDetails Table
trxIds
trxs ArrayList
trxs info
View Bills
billingID
Select Bill
billingID
Print Bill
billingID
Input payment
totalPaid
totalDue