EX.NO:1
DATE :

PAYROLL SYSTEM

Aim:

To prepare necessary documents and to develop the PAYROLL SYSTEM with UML diagrams using Software Engineering Methodology

PROGRAM ANALYSIS AND PROJECT PLANNING

Problem Statement:

This project PAYROLL SYSTEM is to develop an application to analyze the salary of the employee in a company. Admin can access all details in the application such as salary details of an employee. And can also update the salary details of an employee in a company. If the employee want the salary details the he want to request admin.

SOFTWARE REQUIREMENT ANALYSIS

The Modules in the Project:

1. Admin Login.
2. Change password
3. Add or update record
4. Calculate salary.
5. Delete record.
6. View records.

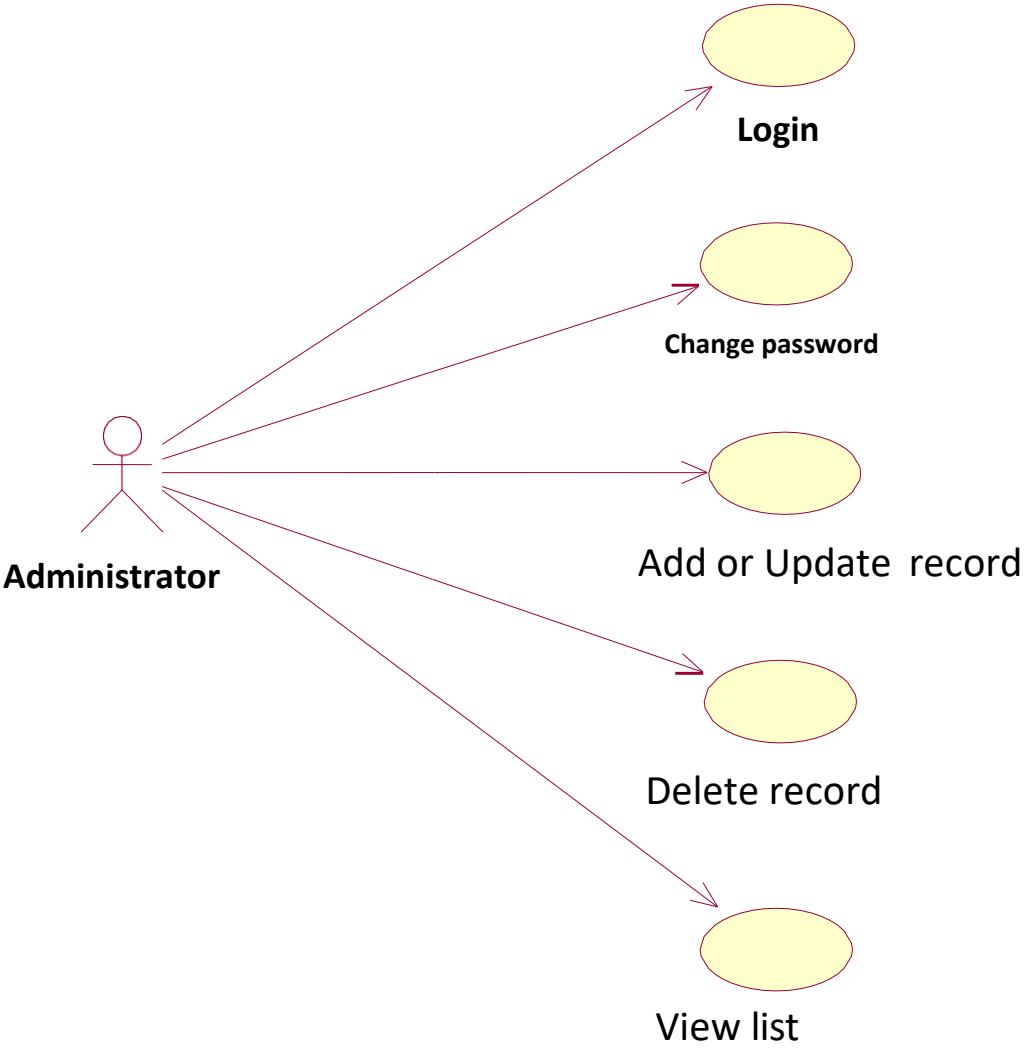
The first module is the user should login as an administrator with his login credentials such as username and password. Then the application verifies the username and password, then allow the user to continue.The second module allows the user to change current password to new password by taking input as current password, new password, confirm password.The third module is to add or update record by taking required employee details.The fourth module is to calculate salary for the entered input. The fifth module allows admin to remove a record from database.

DATA MODELING

Data Dictionary:

Field Name	Description	Data Type	Field size	Default value	Validation
EmpId	Identification Number	Integer	10	NULL	(0-9)
EmpName	Name of the Employee	String	20	NULL	(A-Z) or (a-z)
Experience	Experience of the Employee	String	10	NULL	(0-9)
BasicSalary	Basic salary of the Employee	Number	10	NULL	(0-9)
Allowances	Other than Basic Salary	Number	10	NULL	(0-9)
Nod	Number of days per month	Integer	5	NULL	(0-9)
Nol	Number of leave taken by Employee	Integer	5	NULL	(0-9)
pf	Provident fund of the Employee	Integer	10	NULL	(0-9)
Tax	Tax of basic salary	float	10	NULL	(0-9)
Salary	Take Home Salary	Integer	10	NULL	(0-9)

USE CASE DAIGRAM:



Use case Diagram:

Use case diagram is a graph of actors, set of use cases enclosed by a system boundary, communication (participation) association between the actors and the use cases and a generalization among the use cases.

Actor:

An actor represent a set of roles that user of a use case play when interacting with the use cases. Actor identified here is Administrator and Staff.

Use case:

A use case is a description of a set of sequence of actions that a system performs to yield result of value to an actor.

The Use Cases described are,

i. Login
ii. Display Salary
iii. Calculate Current Salary
iv. Add New Records
v. Update Records

The Login use case is to describe that, the user should choose his/her category whether he/she is a administrator or staff.

The use case Display Salary describes that, the system displays the salary detail of the staff from the database.

The use case Calculate Current Salary is to describe that, the administrator or the staff can calculate the current salary of basic salary and daily allowance available with the database.

The Add New records use case describes that; the administrator can add new records to the database.

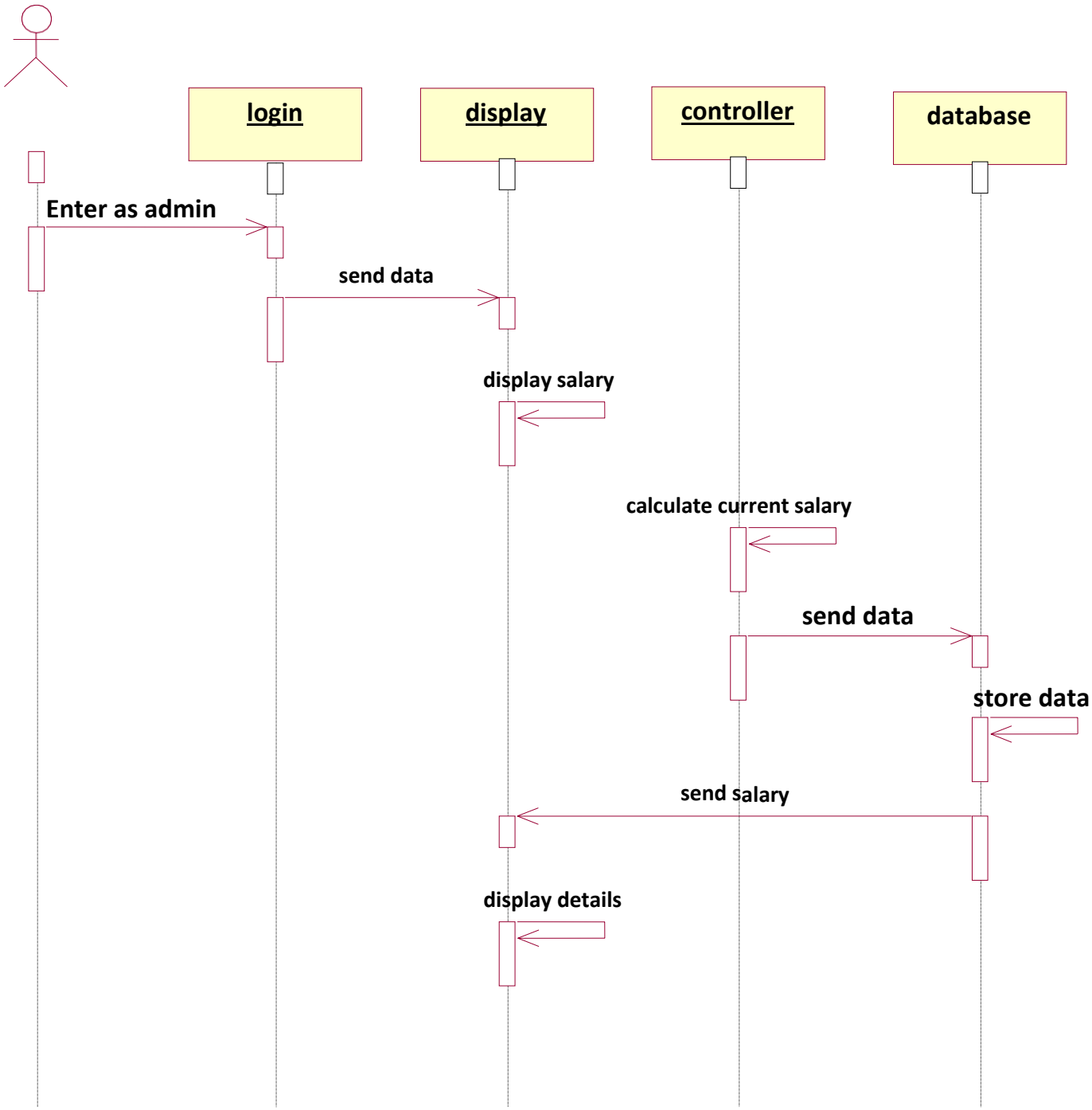
The Update Records use case describes that the Administrator can update the records.

SEQUENCE DIAGRAM

Sequence diagrams are easy and intuitive way of describing the behavior of a system by viewing the interaction between the system and its environment. A sequence diagram shows an interaction arranged in a time sequence.

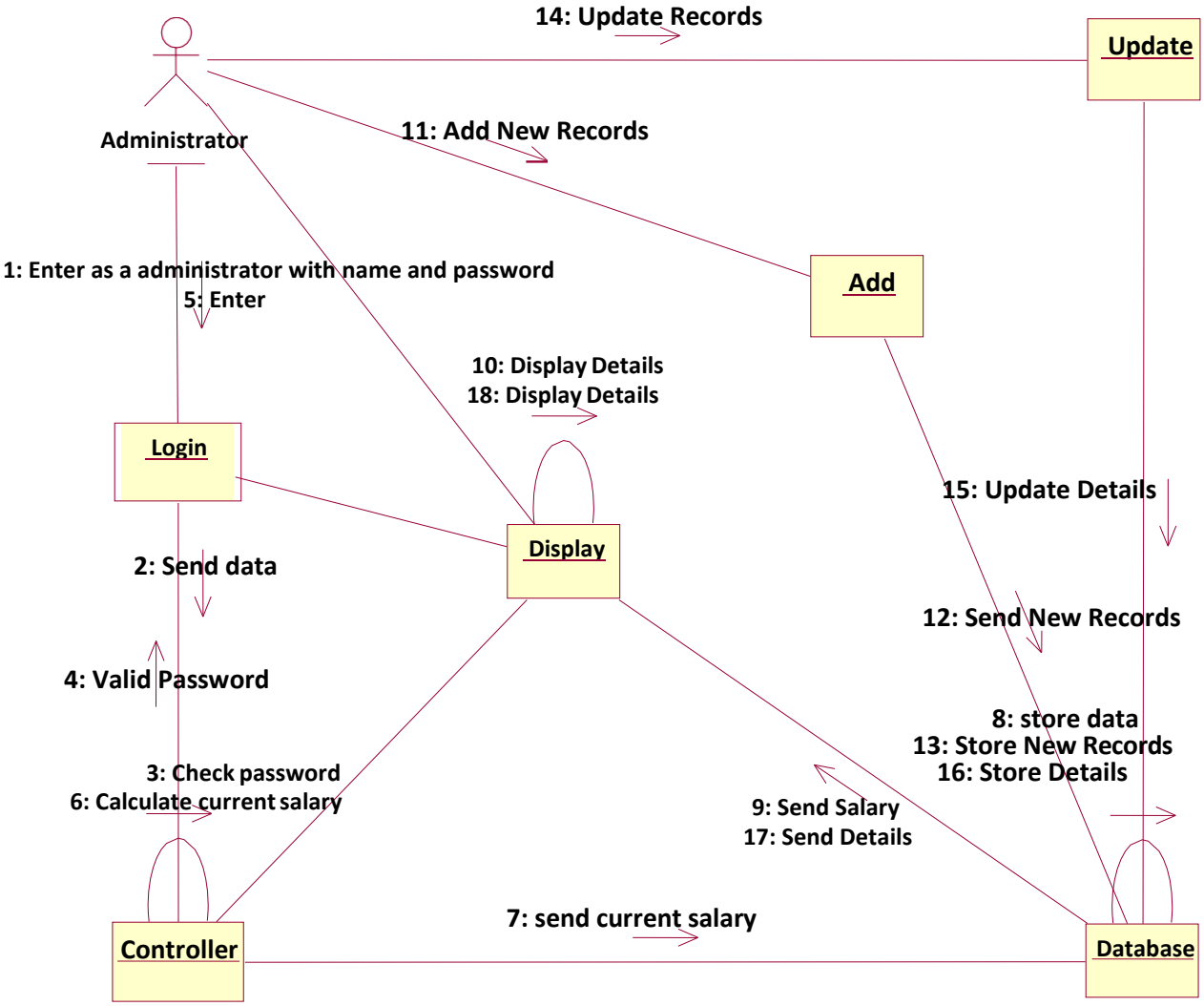
The objects used in this sequence diagram are,

1. Login
2. Display
3. Add
4. Update
5. Controller
6. Database


login
display
controller
database
Enter as admin
send data
display salary
calculate current salary
send data
store data
send salary
display details

COLLOBORATION DIAGRAM :

USER: ADMINISTRATOR



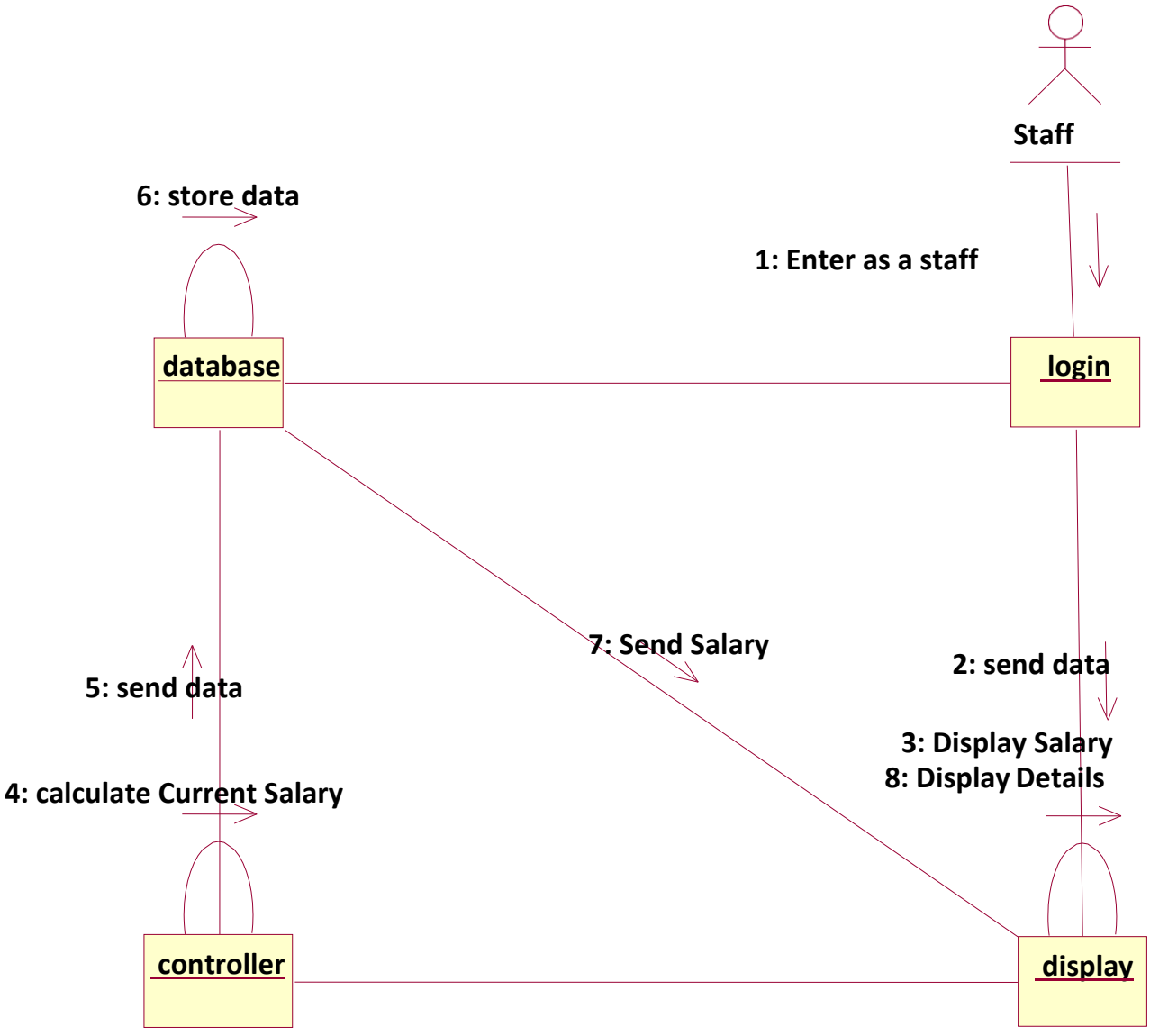
A collaboration diagram represents a collaboration, which is a set of objects related in a particular context, and interaction, which is a set of messages exchanged among the objects within the collaboration to achieve a desired outcome.

In this collaboration diagram, the objects are represented as rectangle, the actors are stick figures. Whereas the sequence diagram illustrates the object and actor interaction overtime, the collaboration diagram shows the object and actor interaction without reference to time.

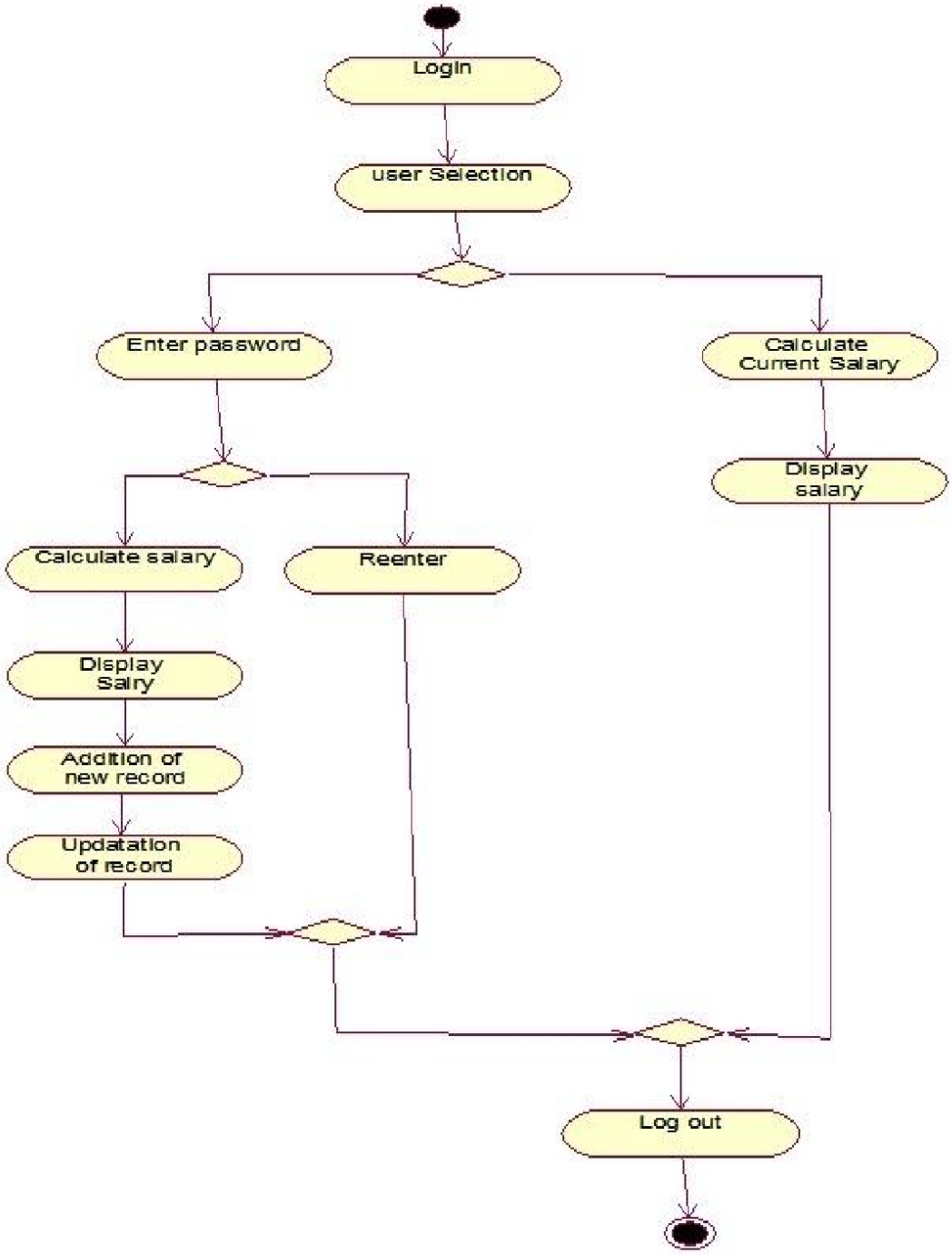
In our PAYROLL SYSTEM each object interacts with each other or collaborates with each other; it gets represented by the solid line drawn between them.

COLLOBORATION DIAGRAM:

User: STAFF



ACTIVITY DIAGRAM:



The activity diagram describes the sequencing of activities with support for both conditional and parallel behavior.

The Activity diagram is used to describe the various activities taking place in an application. Here in our PAYROLL SYSTEM, we have various activities starting from login.

After login, the user selection activity gets performed, where the user can be an administrator or staff.

If the user is a administrator, then they have to enter their name and password and only when those details are valid they can access the system. They can calculate the current salary obtained by the staffs, they can add new records, and they can update the values of the records which gets stored in the database.

If the user is a staff then they can view their salary detail and they can calculate their current salary.

CLASS DAIGRAM:4

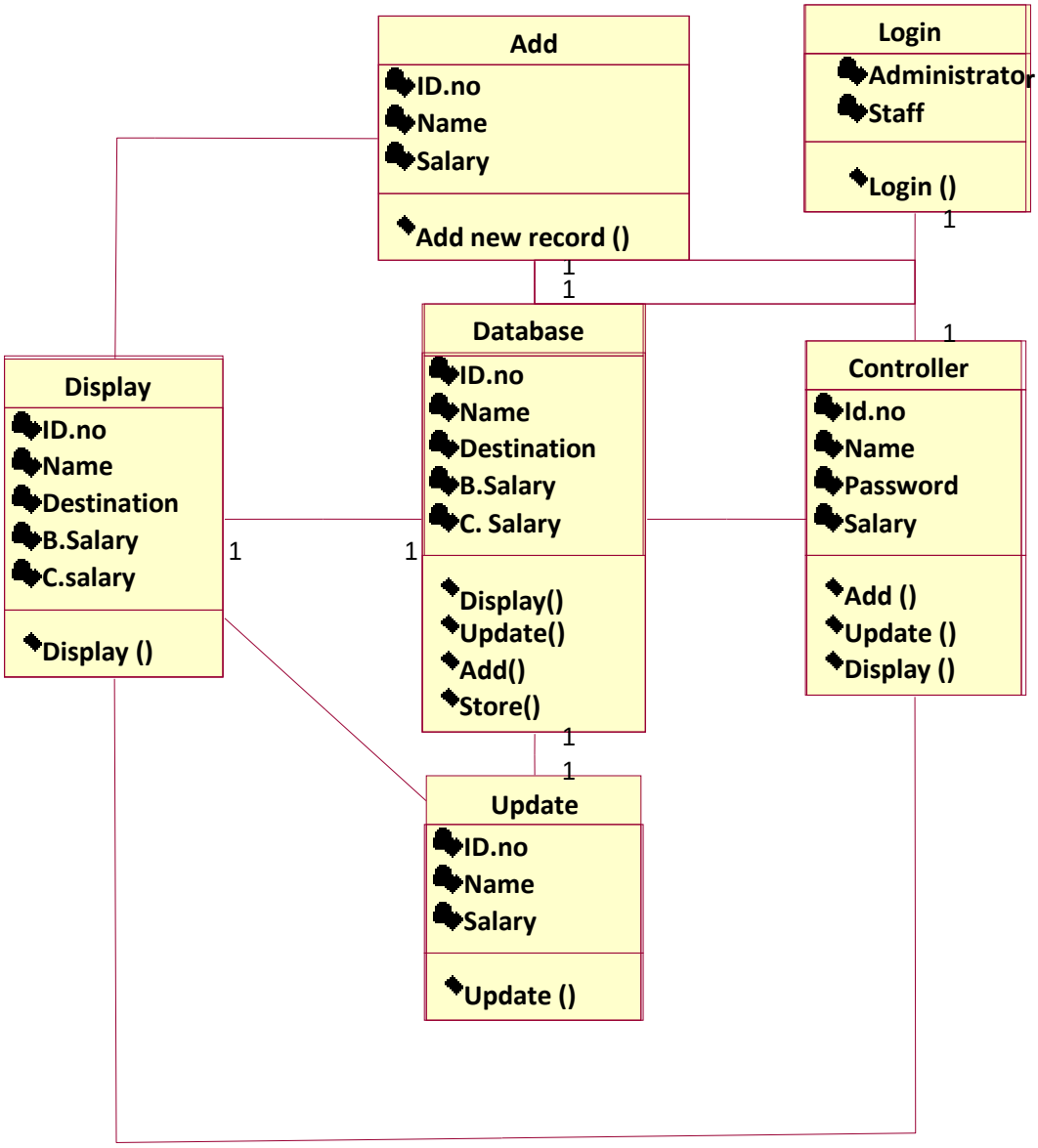
Class diagrams show the interactions between classes in the system. Class diagram also shows the attributes and operation of a class and the constraints that apply to the way objects are connected.

Classes contain information and behavior that acts on that information. Each class on class diagram is represented by rectangle divided into three sections. The first section shows the class name, second section shows the attributes the class contains and last section contains the operation of the class.

In our PAYROLL SYSTEM, the classes identified are

a. Login
b. Display
c. Add
d. Update
e. Controller
f. Database

Each class has its own attributes and operations.



Login class - The attributes defined is administrator and staff.
The method identified is login.

Display class - The attributes are id.no, name, destination, b.salary, c.salary.

The operation identified is Display.

Add class - The attributes are id.no, name, destination, b.salary, c.salary.

The operation defined is adding new record.

Update class - The attributes are id.no, name, salary,

The operation defined is update.

Controller class -The attributes it has is id.no, name, password, salary.

The operations carried out by this class are added, update and display.

Database class - The attributes are id.no, name, destination, b.salary, c.salary.

The operations defined are store, display, update, and add.

The Solid line between the classes shows the Association relationship between them.

SOFTWARE DEVELOPMENT

Login Form:

```
Private Sub Command1_Click()
If Text1.Text = "rv" And Text2.Text = "mk" Then
  payroll.Show
Else
MsgBox ("Invalid input")
End If
End Sub
```

Payroll Form:

```
Dim id As Integer
Private Sub cmdadd_click()
 If Adodc1.Recordset.RecordCount = 0 Then
 id = 0
 Else
 Adodc1.Recordset.MoveLast
```

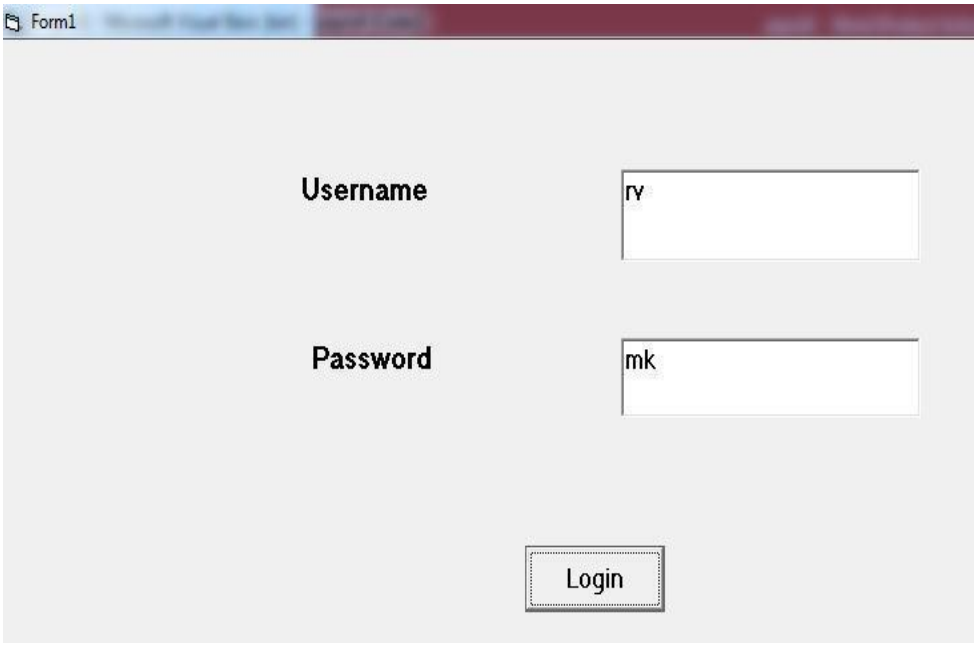
```
 id = Mid(Adodc1.Recordset("empid"), 2, 3) + 1
 End If
  Adodc1.Recordset.AddNew
  textid = Format(id, "E000")
  textname.SetFocus
End Sub
Private Sub cmdexit_click()
End
End Sub
Private Sub cmdsave_click()
Dim flag As Boolean
flag = False
Select Case combodesig
Case "manager"
If Val(textbasic.Text) > 15000 And Val(textbasic.Text) <= 25000 Then
textda.Text = Val(textbasic) * 0.08
texthra.Text = Val(textbasic) * 0.03
textdeduct.Text = Val(textbasic) * 0.01
textgross.Text = Val(textbasic) + Val(textda) + Val(texthra)
textnet.Text = Val(textgross) - Val(textdeduct)
flag = True
Else
MsgBox "input basic pay between 15k and 25k", vbInformation + vbOKOnly
```

```
End If
Case "engineer"
If Val(textbasic.Text) > 15000 And Val(textbasic.Text) <= 20000 Then
textda.Text = Val(textbasic) * 0.07
texthra.Text = Val(textbasic) * 0.04
textdeduct.Text = Val(textbasic) * 0.01
textgross.Text = Val(textbasic) + Val(textda) + Val(texthra)
textnet.Text = Val(textgross) - Val(textdeduct)
flag = True
Else
MsgBox "input basic pay between 15k and 20k", vbInformation + vbOKOnly
End If
Case "clerk"
If Val(textbasic.Text) > 5000 And Val(textbasic.Text) <= 15000 Then
textda.Text = Val(textbasic) * 0.04
texthra.Text = Val(textbasic) * 0.02
textdeduct.Text = Val(textbasic) * 0.01
textgross.Text = Val(textbasic) + Val(textda) + Val(texthra)
textnet.Text = Val(textgross) - Val(textdeduct)
flag = True
Else
MsgBox "input basic pay between 5k and 15k", vbInformation + vbOKOnly
End If
```

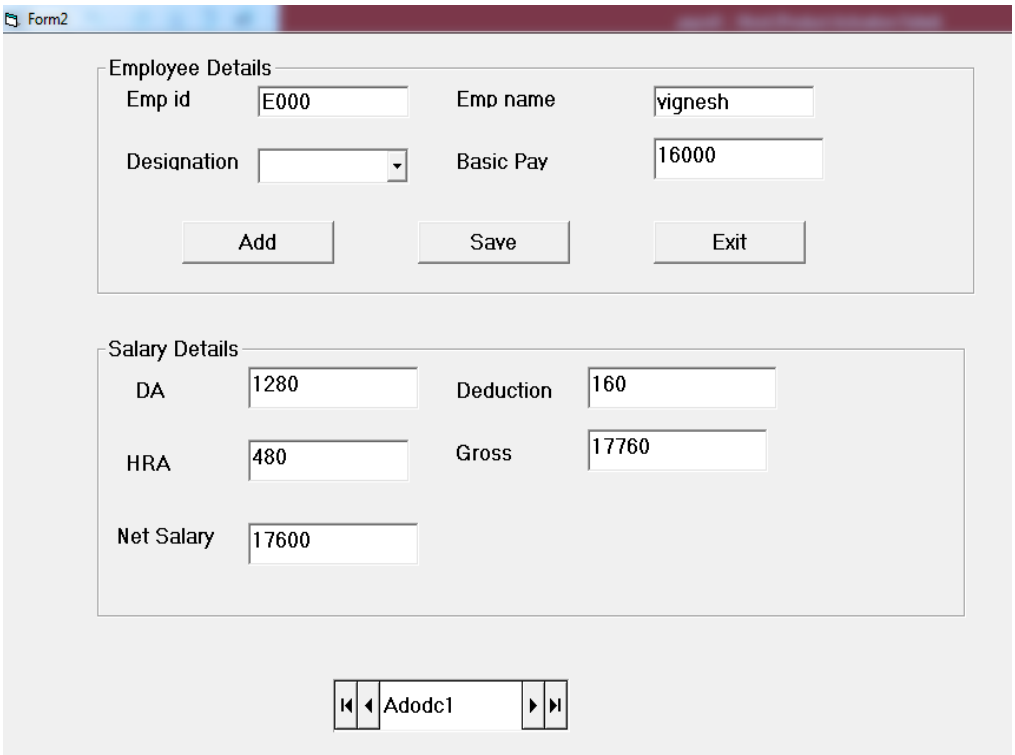
```
Case "messenger"
If Val(textbasic.Text) > 5000 And Val(textbasic.Text) <= 10000 Then
textda.Text = Val(textbasic) * 0.03
texthra.Text = Val(textbasic) * 0.02
textdeduct.Text = Val(textbasic) * 0.01
textgross.Text = Val(textbasic) + Val(textda) + Val(texthra)
textnet.Text = Val(textgross) - Val(textdeduct)
flag = True
Else
MsgBox "input basic pay between 5k and 10k", vbInformation + vbOKOnly
End If
End Select
If flag Then
Adodc1.Recordset.Update
MsgBox "employee details saved", vbOKOnly
End If
End Sub
```

Output:

Form1:



Form2:



SOFTWARE TESTING:

TEST CASES:

- If an unauthorized user attempts to access the system, the system should not allow them to access.

- If the password entered by the administrator is incorrect, the system should display the bad password message and allows them to reenter the password or to terminate the process.

RESULT:

Thus the **PAYROLL SYSTEM** is developed with all necessary documents and UML diagrams using Software Engineering methodology.