A Project report
On
Payroll management system

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Subject: Analysis, Modeling and Design

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❖ Executive summary:

➢ The purpose of this project is to define the features and requirements for a web application for managing employee's payroll and paycheck statements. Payroll management system is meant to automate the current manual system using computerized equipment and cutting-edge computer software, meeting their needs so that their important data and information may be retained for a longer length of time with ease of access and modification. This online application allows you to manage and examine computerized records without having to make duplicate entries. The project explains how to handle user data for optimal efficiency and to deliver better client services.

➢ The suggested project "Payroll management system " was created to address issues that arise while using a manual system. This program is designed to eliminate, and in some cases, lessen, the problems that the current system has. Furthermore, this system is tailored to the company's specific requirements for a smooth and efficient operation. This web application has been kept as simple as possible to minimize data entry mistakes. Every organization faces human resource issues that must be overcome. Every company has its own set of personnel and payroll administration requirements. As a result, I created a unique employee and payroll management system that is tailored to the organization's managerial needs where employees can check previous and current paycheck statements and download it for future references.

❖ Scope of the project:

➢ Payroll administration is one of the most vital company functions, but it's also one of the most time-consuming and inconvenient daily duties. Because it generates no direct revenue, cutting this operation to the bare minimum in terms of time and cost saves money and increases the efficiency of the firm. Using a payroll administration system to streamline the process minimizes the risk of making mistakes.

➢ Payroll management system manages employees' data including pay slips, allowances, deductions, leave, savings, and taxes etc. payroll management system includes many features such paychecks and statements, expense, and leave management, retirement savings, taxes.

➢ Payroll statements are written statements (Monthly, Quarterly, annually) of the amount of wages paid to each employee of the organization. This project is limited within the scope of payroll system including paycheck statements only.

❖ Solution name:

➢ Payroll management system (Paynet)

❖ Solution Description:

➢ Payroll management system automatically calculate weekly, bi-weekly, or monthly wages based on hours worked, record all the payroll data for subsequent processing, direct deposit, prepare pay cheques and ledger which employees can download or print for future reference.

❖ Business benefits:

➢ Automated wage calculations
➢ Reduced payroll errors with data security
➢ User-friendly self-service apps for employees
➢ Detailed record keeping
➢ Hassle-free integration with time tracking

- ➢ Reduce liability by ensuring information is correct prior to payout
- ➢ Easier payment electronically through direct deposit

❖ Business environment:

- ➢ This solution belongs to the any small and medium-sized companies to handle their payroll management needs without having to outsource to a third-party. Primary clients are small and medium sized companies, but end users will be employees of companies. Small and mid-sized businesses may need a payroll system that performs basic functions as compared to large companies that need a detailed one. It's quite competitive in terms of its increasing usage but considering financial constraints this system provides cost-effective HR solution.

❖ Operational environment:

- ➢ This is web based online solution serving multiple users such as direct clients and end consumers. Through the portal employees can access to their payroll data and self-service processing 24/7.

❖ Solution stakeholders:

1. External stakeholders - small scale-medium scale business, employees of the organization.

2. Internal stakeholders – Project Manager, Team Leader, Technical staff, Customer support team, Sales and marketing Team, Business staff, financial staff.

❖ Solution users:

1. HR and Owner of the organization to check the payment details of all employees.

2. All employees of the organization

3. System admin

4. IT and support team

❖ Requirements Elicitation Method(s):

▪ **Interview**: To gather the information, business analyst team will address the inquiry to the stakeholders. The interview will be conducted one-on-one. The information will be gathered using a pre-determined series of questions. For a successful requirement elicitation, few things need to be taken care of such as overall purpose should be clear by communicating interview goals with interviewee and predefining few things such as location, time limit.

▪ **Brainstorming**: By involving each team members to brainstorm on design

▪ **Observation**: Observe other applications and understand how it can be made easy for the intended users to understand and comprehend the app.

▪ **Survey**: Send out questionnaire to employees who can provide more details.

❖ User Stories:

1. As a system admin, I should be able to add or remove an employee to manage the portal access.
   o **Acceptance Criteria:**
   ➢ New user with details like name, address, position, pay details are added to the system.
   ➢ New credentials to login will be forwarded to the employee.
   ➢ Employee access to the portal should be restricted if employee has left the organization.

2. As an employee, I should be able to login to the portal to check the payment details.

   o **<u>Acceptance Criteria</u>:**
   - ➤ Employee should be able to login with valid credentials.
   - ➤ User will be landed to the home page once login is successful.
   - ➤ If user has any issue with their credentials, there should be able to contact   customer support team.

3. As an employee, I should be able to enter my working hours so that HR can approve it.

   o **<u>Acceptance Criteria</u>:**
   - ➤ Employee should be able to add hours to the portal.
   - ➤ Employees should be able see their hours approval status in the portal.
   - ➤ Employees should be able to edit their working hours if it gets rejected.
   - ➤ Employees should be alerted via email if they have not added working hours before 2 days of pay cycle completion.

4. As an employee, I should be able to access my paycheck statement so that I can get more payment details.

   o **<u>Acceptance Criteria</u>:**
   - ➤ Current paycheck statement needs to be available in pdf format with details.
   - ➤ All the previous paychecks should be available for review.
   - ➤ Paycheck statement can be downloaded in pdf format.
   - ➤ Paycheck statement details should include Name, employee id, position, address, bank details, working hours, total gross pay amount.
   - ➤ Employee should get accurate amount of pay considering their working hours and pay rate.

5. As an employee, I should be able to contact customer support team to solve my queries or issues.

   o **<u>Acceptance Criteria</u>**:
   - ➤ Employee should be able to access customer care support team details and they can contact via email or live chat.

6. As a HR manager, I should be able to manage pay details of all employees in organization.

   o **<u>Acceptance Criteria</u>:**
      ➢ HR manager should be able to see detailed version of employee paycheck.
      ➢ HR manager should be able to see all employees working hours and have access to approve or reject it.
      ➢ HR manager should be able to download summary version of current as well as previous paycheck cycle to manage payments.
      ➢ HR manager should be able to set paycheck schedule whether it is biweekly or monthly.
      ➢ HR manager should be able to add/change payrate and working hours on behalf of any employees.

7. As an employee, I should be able to enter direct deposit details of bank so that I can get my paycheck amount electronically.

   o **<u>Acceptance Criteria</u>:**
      ➢ Employee has an option to credit his paycheck amount to his bank account through direct deposit.
      ➢ To opt for direct deposit, employee must enter details like account number, routing number, account type, name, and bank name etc. to the portal.

User	User goal	Use case	Use case description	Event Type
Employee	Portal access	Redirect to employee profile	User enters username and password to access the portal	External
	Add, view and edit working hours	Record and maintain working hours	User can Add working hours initially. View and edit it if required	External
	Check current approval status for hours	Display approval status	User checks whether added working hours are approved or rejected.	External
	Check current and previous pay statements	Display paycheck statements	User checks current and previous paycheck statement	External
	Download paycheck statements	Retrieve PDF statement	User downloads any paycheck statement in PDF format	External
	Get an alert if hours are not added	Send an alert	User gets an alert if working hours are not added 2 days before pay cycle.	Temporal
	Get an alert if hours are rejected	Notify Employee	User gets a notification if hours added are not approved	Internal
	Enter direct deposit details	Record a detail	User enters direct deposit details such as account number, routing number, account type, name and bank name to get payment electronically.	External
	Add, view and edit profile details	Maintain profile Details	User enters information like name, address, direct deposit in profile also, views Job role and package.	External
	Contact customer support	connect to customer support team	User contacts customer support team when issue with the system	External
HR manager	Add, Edit, View working hours of employees	Record and maintain working Hours	User enters working hours of a particular day.	External

	Edit pay rate	Maintain pay rate	User updates payrate of an employee	External
	Approve and reject working hours	Allow to approve or reject hours	User approves or rejects working hours added by an employee in the portal	External
	View paycheck statements of all employees	Produce paycheck statement	User views paycheck statements of all employees to keep a record and audit.	External
	Set paycheck schedule	Update paycheck schedule	User sets paycheck schedule i.e., bi-weekly, or monthly	External
System admin	Add new employee to portal	Add new employee	User adds new employees to give access to the portal	External
	Share user login credentials	Retrieve and share login credentials	User shares login credentials like username and password to the respective employees	External
	Restrict access for ex-employees	Restrict Ex-employees	User restricts Ex-employees from accessing portal once they leave the company	External

❖ Use case Diagram:
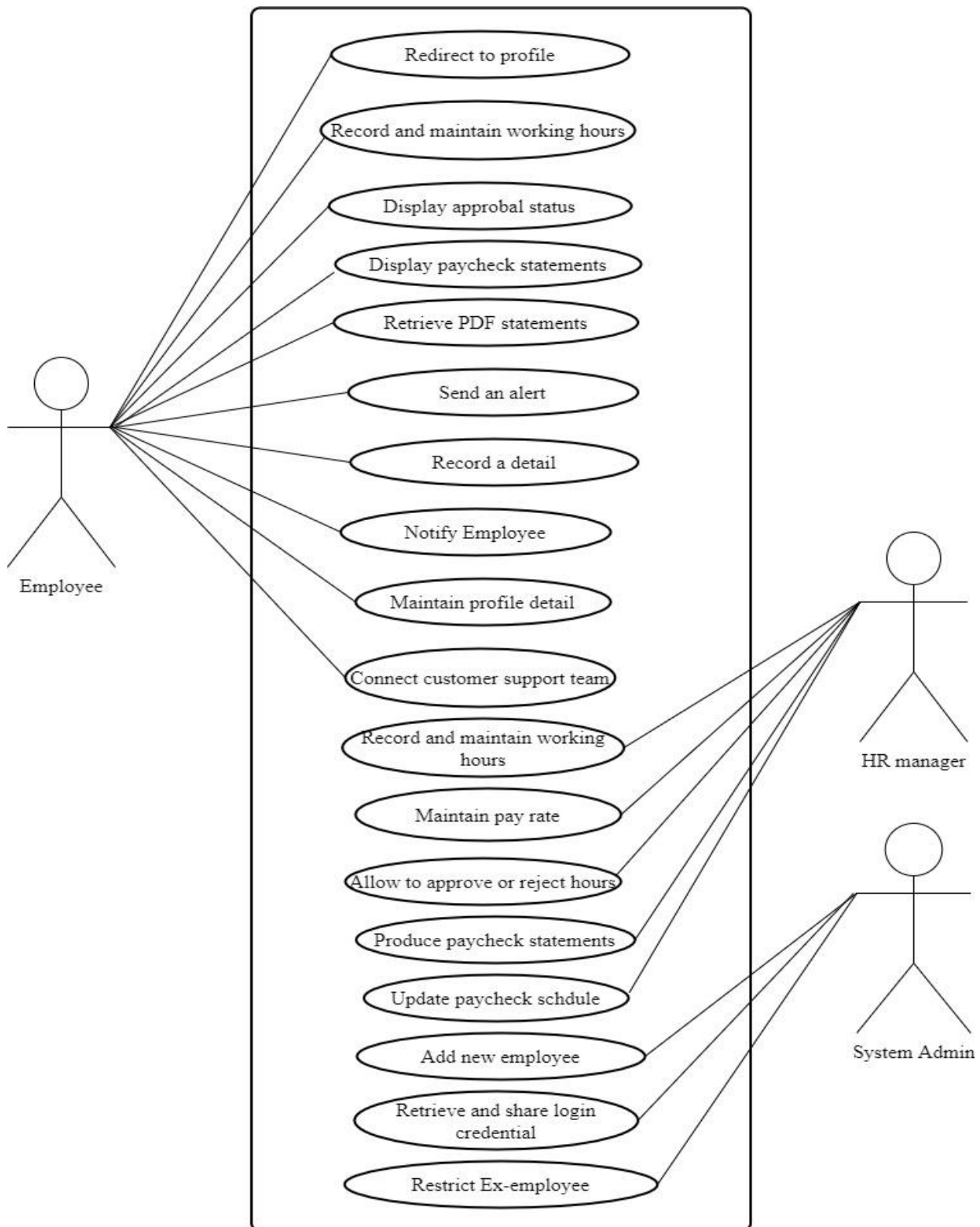
❖ **Activity diagram:**
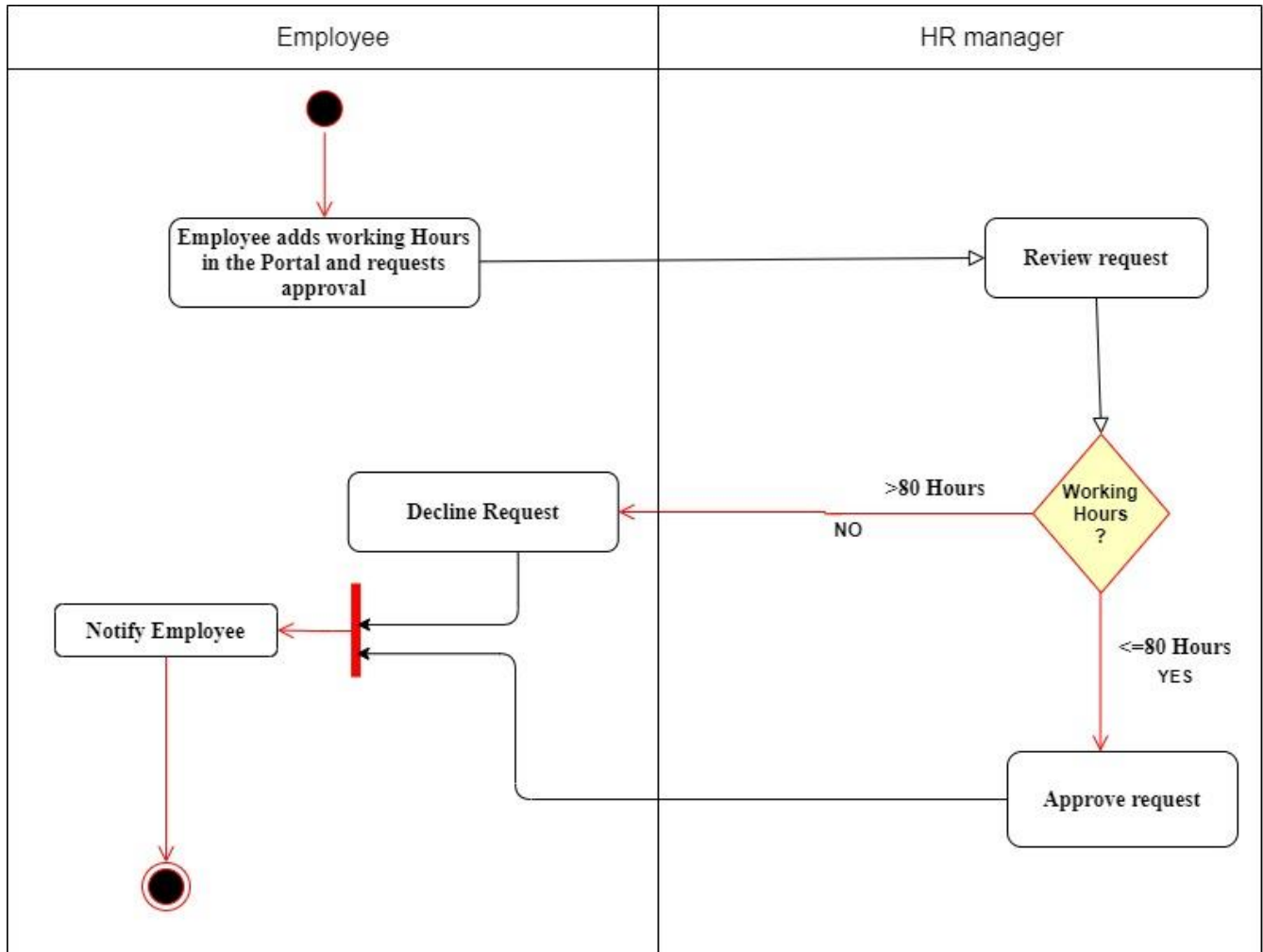
❖ <u>**Problem domain system**</u>:

- Employees
- Employee account
- HR manager
- Owner
- System admin
- Salary
- Paycheck statement
- Payroll database
- Direct deposit
- Time tracking
- IT and Support team
- Bank system
- Bank Cheque
- Paycheck schedule
- Login
- Logout
- Alert

❖ Domain class and it's attributes:

employees
empId
empName
empMobileNumber
empEmail
empSsnNumber
empAddress
empSalaryAmount

employeeAccount
empUsername
empPassword

paycheckStatement
paycheckType
payRate
companyId
workingHours
directDepositDetails
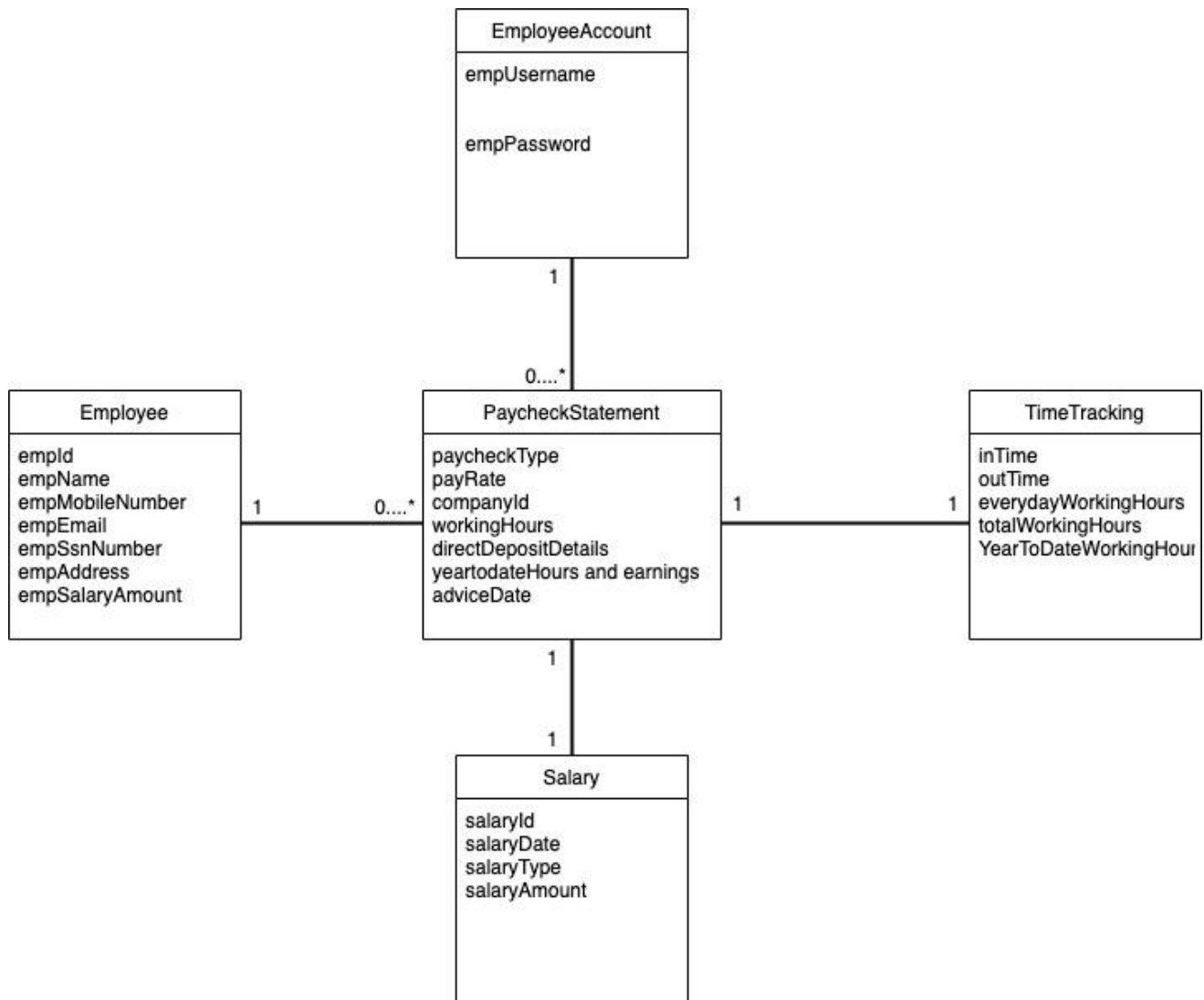yeartodateHours and earnings
adviceDate

salary
salaryId
salaryDate
salaryType
salaryAmount

timeTracking
inTime
outTime
everydayWorkingHours
totalWorkingHours
YearToDateWorkingHours

❖ **The Domain model class diagram:**

> ➢ This domain model class diagram is about Paycheck statement and it's relationship.

```
                        ┌──────────────────────┐
                        │    EmployeeAccount   │
                        ├──────────────────────┤
                        │  empUsername         │
                        │                      │
                        │  empPassword         │
                        │                      │
                        └──────────────────────┘
                                   │ 1
                                   │
                                   │ 0....*
┌──────────────────────┐ ┌──────────────────────┐ ┌──────────────────────┐
│      Employee        │ │   PaycheckStatement  │ │     TimeTracking     │
├──────────────────────┤ ├──────────────────────┤ ├──────────────────────┤
│  empId               │ │  paycheckType        │ │  inTime              │
│  empName             │ │  payRate             │ │  outTime             │
│  empMobileNumber   1 │0....*  companyId    1 │1│  everydayWorkingHours │
│  empEmail            │ │  workingHours        │ │  totalWorkingHours   │
│  empSsnNumber        │ │  directDepositDetails│ │  YearToDateWorkingHour│
│  empAddress          │ │  yeartodateHours and earnings │               │
│  empSalaryAmount     │ │  adviceDate          │ │                      │
└──────────────────────┘ └──────────────────────┘ └──────────────────────┘
                                   │ 1
                                   │
                                   │ 1
                        ┌──────────────────────┐
                        │       Salary         │
                        ├──────────────────────┤
                        │  salaryId            │
                        │  salaryDate          │
                        │  salaryType          │
                        │  salaryAmount        │
                        │                      │
                        └──────────────────────┘
```
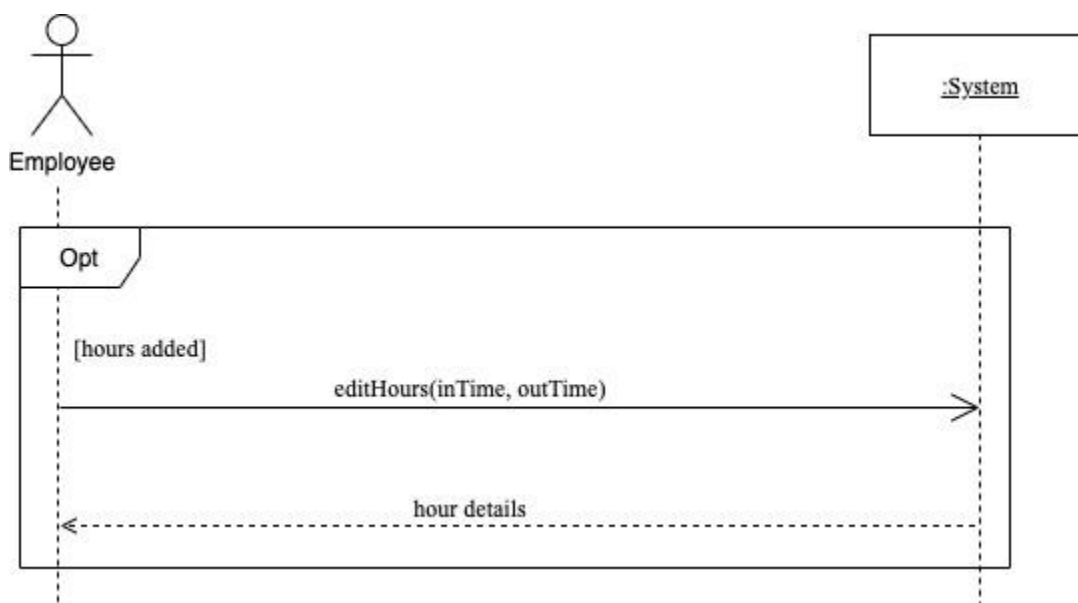
❖ SSD Diagram:

(1) **Use Case: Add direct deposit detail**

➢ This system sequence diagram explains about the interaction between user and system where user is adding direct deposit detail in the system.
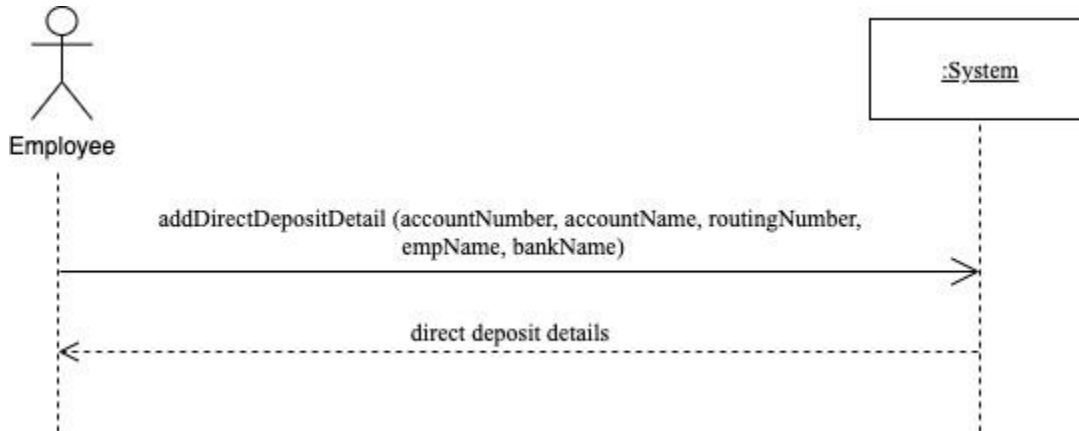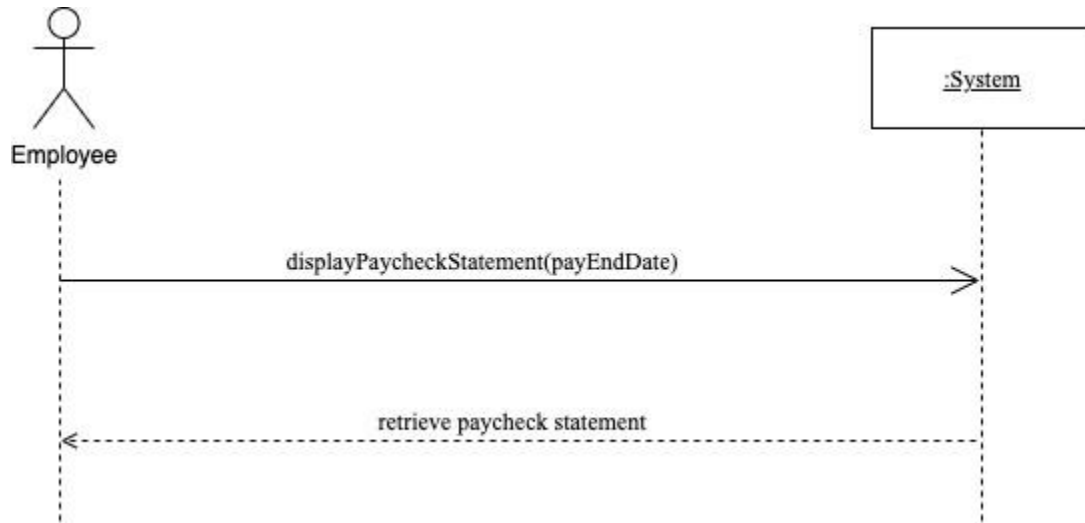

(2) Use case: Edit Hours

➢ This system sequence diagram explains about the interaction between user and system where user is adding hours detail in the system.
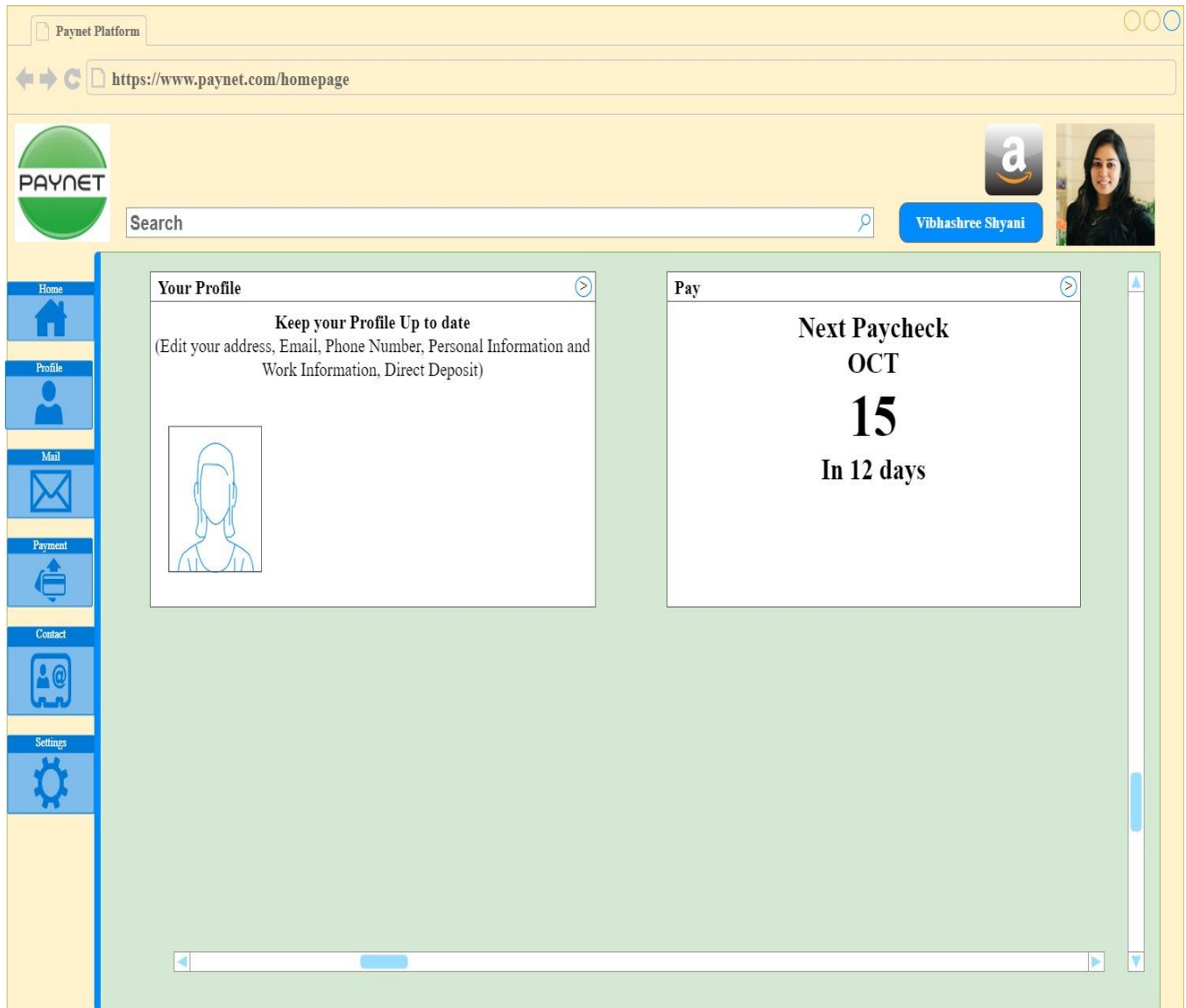
(3) Use Case: Display paycheck statement

➢ This system sequence diagram explains about the interaction between user and system where user is asking to display paycheck statement in the system.

❖ Homepage Mock-up:

> The below mockup screen represents as home screen where once user logs in they should be able to see all details like Profile, Next paycheck date etc.

❖ Main Page Mock-Up:

➢ The below mockup screen represents as main screen where once user logs in they should be able to see all details related to the paycheck statement such as previous and current paycheck details.

Paynet Platform

https://www.paynet.com/homepage

PAYNET

Search   Vibhashree Shyani

Payment >> Paycheck Statement

6 Months ▾

Payend Date ▾	ADV Date ▾	ADV Number ▾	Net Pay ▾	Details ▾
09/15/2021	09/17/2021	38718410	$2,182.56	View
09/15/2021	09/17/2021	38718411	$2,801.09	View
08/31/2021	09/03/2021	38526382	$2,801.09	View
08/15/2021	08/19/2021	38325434	$2,901.09	View
07/31/2021	08/04/2021	38143696	$2,801.09	View
07/15/2021	07/19/2021	4855469	$2,901.09	View
07/15/2021	07/01/2021	4848503	$517.24	View
06/30/2021	07/02/2021	37765660	$2,801.09	View
06/15/2021	06/29/2021	37654444	$16,642.50	View
06/15/2021	06/18/2021	37583741	$2,901.09	View

Home
Profile
Mail
Payment
Contact
Settings

❖ Detailed Report:

Paycheck Statement

Amazon
Abc street,
Sunnyvale, CA 94089

PAYNET

Check No: 12345
Check Date: 10/15/2021
Pay Period: 10/01/2021 - 10/15/2021

Non-Negotiable

Vibhashree Shyani

Abc Street,
Apt#123
San Jose, CA 95051

Employee ID: 00001014
Location: San Jose-HQ
Business Title: Business Analyst

Department: Dept-1
Pay Rate: $200,000 Annual

Net Pay

USD **$2700.00**

Hours and Earning				
Description	**Hours**	**Current Earnings**	**Hours**	**Year-to-Date**
Regular	100.00	2700.00	200.00	5400.00
Reimbursement	0.00	0.00	0.00	0.00
Holiday	0.00	0.00	0.00	0.00
Bonus	0.00	0.00	0.00	0.00
Gross Pay	**100.00**	**2700.00**	**200.00**	**5400.00**

Direct Deposit		
Account Type	**Account No.**	**Deposit Amount**
Checking	XXXX1234	2700.00
Total		**2700.00**

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❖ Conclusion and recommendations:

➢ This project was created with the intention of being utilized by the organization's employees, HR manager, and administrative staff. It's designed for small and medium-sized businesses with a small workforce. This framework's major goal is to reduce time, make the system more cost-effective, and handle records more effectively. With the aid of this system, the administrator now has all the information at his fingertips and can quickly create a proper record depending on their needs. Finally, we can state that this system will not only automate the procedure but will also save the manager or administrator important time that can be better employed by his company.

➢ This system is easy to use and completely secure and controlled by admin.

➢ This system is easily compatible with most of the web browsers.

➢ Calculations are automated so it is highly accurate.

➢ Admin can view all the records whenever necessary with ease.

➢ In the future, a leave structure may be added to the system, and a regular backup method for the employee database could be introduced to avoid disasters.

➢ The system may be built in such a way that existing functionality could be upgraded.

❖ Bibliography:

➢ Systems Analysis & Design in a Changing World, Seventh Edition. John W. Satzinger, Robert B. Jackson, Stephen D. Burd, ISBN 978-1305117204