CASE STUDY

PayXpert, The Payroll Management System

NAME : PRINCE PATEL

CASE STUDY : PayXpert

The PayXpert Payroll Management System features a user - friendly interface with a structured main menu and corresponding submenus, designed for ease of use and efficient navigation.

The Main Menu offers key options such as Employee Management, Payroll Processing, Tax Management, and Financial Reporting.

Each main option leads to a submenu with detailed functionalities:

For Employee Management, submenus allow users to add, update, or remove employees, and view employee details.

The Payroll Processing submenu enables salary generation, pay stub viewing, and payroll history retrieval for specific employees or pay periods.

The Tax Management section helps calculate and view tax details for employees.

In the Financial Reporting submenu, users can generate detailed financial summaries and income statements.

1 - MAIN MENU:

```
===== Welcome to PayXpert =====
Main Menu:
1. Employee Management
2. Payroll Management
3. Tax Management
4. Financial Record Management
5. Exit the system

Select an option: []
```

2 – SUB MENUS:

Employee Submenu

```
Select an option: 1
1. Fetch employee by ID
2. List all employees
3. Add a new employee
4. Modify existing employee
5. Remove an employee
6. Return to Main Menu

Select an option from the menu: []
```

Payroll Submenu

```
Select an option: 2

1. Create payroll
2. Retrieve payroll by ID
3. Get payroll for an employee
4. Get payroll for a time period
5. Return to Main Menu

Select an option: []
```

Tax Submenu

```
Select an option: 3

1. Compute tax
2. Fetch tax by ID
3. Retrieve taxes for an employee
4. View taxes for a year
5. Return to Main Menu
Select an option:
```

Financial Record Submenu

```
Select an option: 4

1. Add a new financial record
2. Fetch record by ID
3. Retrieve financial records for an employee
4. Get financial records for a specific date
5. Return to Main Menu

Choose an option:
```

3 – Functionalities :

Fetch employee by ID

```
1. Fetch employee by ID
2. List all employees
3. Add a new employee
4. Modify existing employee
5. Remove an employee
6. Return to Main Menu

Select an option from the menu: 1
Enter Employee ID: 1
+------------+-----------+----------+-------------+--------+-------------------+-------------+---------+------------------+-------------+-----------------+
| EmployeeID | FirstName | LastName | DateOfBirth | Gender | Email             | PhoneNumber | Address | Position         | JoiningDate | TerminationDate |
+============+===========+==========+=============+========+===================+=============+=========+==================+=============+=================+
|          1 | Prince    | Patel    | 2001-08-20  | M      | prince@example.com |   183686774 | Jhansi  | Senior Developer | 2021-01-16  |                 |
+------------+-----------+----------+-------------+--------+-------------------+-------------+---------+------------------+-------------+-----------------+
```

List all employees

```
1. Fetch employee by ID
2. List all employees
3. Add a new employee
4. Modify existing employee
5. Remove an employee
6. Return to Main Menu

Select an option from the menu: 2
+------------+-----------+----------+-------------+--------+-------------------+-------------+---------+------------------+-------------+-----------------+
| EmployeeID | FirstName | LastName | DateOfBirth | Gender | Email             | PhoneNumber | Address | Position         | JoiningDate | TerminationDate |
+============+===========+==========+=============+========+===================+=============+=========+==================+=============+=================+
|          1 | Prince    | Patel    | 2001-08-20  | M      | prince@example.com |   183686774 | Jhansi  | Senior Developer | 2021-01-16  |                 |
+------------+-----------+----------+-------------+--------+-------------------+-------------+---------+------------------+-------------+-----------------+
|          2 | Raman     | Singh    | 2000-11-09  | M      | raman@example.com  |  9847543210 | Kanpur  | Tester           | 2020-09-09  |                 |
+------------+-----------+----------+-------------+--------+-------------------+-------------+---------+------------------+-------------+-----------------+
```

Add a new employee

```
1. Fetch employee by ID
2. List all employees
3. Add a new employee
4. Modify existing employee
5. Remove an employee
6. Return to Main Menu

Select an option from the menu: 3
Employee ID: 3
First Name: Kumar
Last Name: Mangalam
Date of Birth (YYYY-MM-DD): 2000-10-10
Gender: M
Email: kumar@example.com
Phone Number: 37823728782
Address: Gwalior
Position: Cloud Developer
Joining Date (YYYY-MM-DD): 2019-08-10
Termination Date (YYYY-MM-DD, if applicable): 2024-10-05
```

	EmployeeID	FirstName	LastName	DateOfBirth	Gender	Email	PhoneNumber	Address	Position	JoiningDate	TerminationDate
1	3	Kumar	Mangalam	2000-10-10	M	kumar@example.com	37823728782	Gwalior	Cloud Developer	2019-08-10	2024-10-05

Modify existing employee

```
1. Fetch employee by ID
2. List all employees
3. Add a new employee
4. Modify existing employee
5. Remove an employee
6. Return to Main Menu

Select an option from the menu: 4
Employee ID to update: 3
First Name: Radhey
Last Name: Niranjan
Date of Birth (YYYY-MM-DD): 2020-01-01
Gender: F
Email: radhey@example.com
Phone Number: 9889738201
Address: Bhopal
Position: CRM
Joining Date (YYYY-MM-DD): 2022-10-10
Termination Date (YYYY-MM-DD, if applicable): 2024-05-10
```

	EmployeeID	FirstName	LastName	DateOfBirth	Gender	Email	PhoneNumber	Address	Position	JoiningDate	TerminationDate
1	3	Radhey	Niranjan	2020-01-01	F	radhey@example.com	9889738201	Bhopal	CRM	2022-10-10	2024-05-10

Remove an employee

```
1. Fetch employee by ID
2. List all employees
3. Add a new employee
4. Modify existing employee
5. Remove an employee
6. Return to Main Menu

Select an option from the menu: 5
Employee ID to delete: 3
```

EmployeeID	FirstName	LastName	DateOfBirth	Gender	Email	PhoneNumber	Address	Position	JoiningDate	TerminationDate

Create payroll

```
1. Create payroll
2. Retrieve payroll by ID
3. Get payroll for an employee
4. Get payroll for a time period
5. Return to Main Menu

Select an option: 1
Enter Employee ID: 1
Start Date (YYYY-MM-DD): 2024-10-10
End Date (YYYY-MM-DD): 2024-10-20
```

	PayrollID	EmployeeID	PayPeriodStartDate	PayPeriodEndDate	BasicSalary	OvertimePay	Deductions	NetSalary
1	1	1	2024-10-10	2024-10-20	700000.00	30000.00	50000.00	680000.00

Retrieve payroll

```
1. Create payroll
2. Retrieve payroll by ID
3. Get payroll for an employee
4. Get payroll for a time period
5. Return to Main Menu

Select an option: 2
Enter Payroll ID: 2
```

	PayrollID	EmployeeID	PayPeriodStartDate	PayPeriodEndDate	BasicSalary	OvertimePay	Deductions	NetSalary
1	2	2	2024-10-10	2024-10-20	800000.00	30000.00	50000.00	780000.00

Get Payroll for a time period

```
1. Create payroll
2. Retrieve payroll by ID
3. Get payroll for an employee
4. Get payroll for a time period
5. Return to Main Menu

Select an option: 4
Start Date (YYYY-MM-DD): 2000-12-12
End Date (YYYY-MM-DD): 2024-12-12
```

	PayrollID	EmployeeID	PayPeriodStartDate	PayPeriodEndDate	BasicSalary	OvertimePay	Deductions	NetSalary
1	1	1	2024-10-10	2024-10-20	700000.00	30000.00	50000.00	680000.00
2	2	2	2024-10-10	2024-10-20	800000.00	30000.00	50000.00	780000.00

Compute tax

```
1. Compute tax
2. Fetch tax by ID
3. Retrieve taxes for an employee
4. View taxes for a year
5. Return to Main Menu
Select an option: 1
Employee ID: 1
Tax Year: 2024
Total Tax: 244999.99999999997 rupees
```

Fetch tax using Tax ID

```
1. Compute tax
2. Fetch tax by ID
3. Retrieve taxes for an employee
4. View taxes for a year
5. Return to Main Menu
Select an option: 2
Tax ID: 2
Tax (taxId = 2, employeeID = 2, taxYear = 2024, taxableIncome = 800000.00, taxAmount = 37000.00)
```

Retrieve tax for an employee

```
1. Compute tax
2. Fetch tax by ID
3. Retrieve taxes for an employee
4. View taxes for a year
5. Return to Main Menu
Select an option: 3
Employee ID: 1
Tax (taxId = 1, employeeID = 1, taxYear = 2024, taxableIncome = 700000.00, taxAmount = 30000.00)
```

View taxes for a year

```
1. Compute tax
2. Fetch tax by ID
3. Retrieve taxes for an employee
4. View taxes for a year
5. Return to Main Menu
Select an option: 4
Tax Year: 2024
Tax (taxId = 1, employeeID = 1, taxYear = 2024, taxableIncome = 700000.00, taxAmount = 30000.00)
Tax (taxId = 2, employeeID = 2, taxYear = 2024, taxableIncome = 800000.00, taxAmount = 37000.00)
```

Add a new financial record

```
1. Add a new financial record
2. Fetch record by ID
3. Retrieve financial records for an employee
4. Get financial records for a specific date
5. Return to Main Menu

Choose an option: 1
Record ID: 4
Employee ID: 2
DATE (YYYY-MM-DD): 2024-01-01
Description: Bonus
Amount: 20000
Record Type: Salary
```

	RecordID	EmployeeID	RecordDate	Description	Amount	RecordType
1	4	2	2024-01-01	Bonus	20000.00	Salary

Retrieve financial records for an employee

```
1. Add a new financial record
2. Fetch record by ID
3. Retrieve financial records for an employee
4. Get financial records for a specific date
5. Return to Main Menu

Choose an option: 3
Employee ID: 2
FinancialRecord[ID=2, EmployeeID=2, Date=2024-10-10, Description=Award, Amount=6000.00, Type=Salary]
```

Get financial records for a specific date

```
1. Add a new financial record
2. Fetch record by ID
3. Retrieve financial records for an employee
4. Get financial records for a specific date
5. Return to Main Menu

Choose an option: 4
Record Date: 2024-10-10
FinancialRecord[ID=1, EmployeeID=1, Date=2024-10-10, Description=Bonus, Amount=5000.00, Type=Salary]
FinancialRecord[ID=2, EmployeeID=2, Date=2024-10-10, Description=Award, Amount=6000.00, Type=Salary]
```

Exiting Main Menu

```
===== Welcome to PayXpert =====
Main Menu:
1. Employee Management
2. Payroll Management
3. Tax Management
4. Financial Record Management
5. Exit the system

Select an option: 5
Thanks for using our services.
```

Employee exception

```
Select an option: 1
1. Fetch employee by ID
2. List all employees
3. Add a new employee
4. Modify existing employee
5. Remove an employee
6. Return to Main Menu

Select an option from the menu: 1
Enter Employee ID: 4546
Error: Wrong Input.
```

Tax Exception

```
1. Compute tax
2. Fetch tax by ID
3. Retrieve taxes for an employee
4. View taxes for a year
5. Return to Main Menu
Select an option: 2
Tax ID: 12
Error retrieving tax by ID: Employee associated with tax ID No tax data available for Tax ID 12 could not be located.
```

Record Exception

```
1. Add a new financial record
2. Fetch record by ID
3. Retrieve financial records for an employee
4. Get financial records for a specific date
5. Return to Main Menu

Choose an option: 2
Record ID: 9
Error fetching by record ID: FinancialRecordException.__init__() takes 1 positional argument but 2 were given
```