FACULTY OF COMPUTER AND INFORMATION TECHNOLOGY

SOFTWARE ENGINEERING DEPARTMENT

COURSE NAME: SYSTEM ANALYSIS AND DESIGN

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EMPLOYEE MANAGEMENET SYSTEM

Team Members

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Phase one

Planning phase

1.1 Introduction

Every company, whether public or private, uses an information system to keep track of the information about its employees. However, using many of the high technological systems that are available and capable of performing this function has been proven to be expensive in many countries.

In order to categorize the HR structure, the work flow, and all employee information as efficiently as possible, we will create an application and set up a system. At the end of the month, this system will assess each employee's attendance and calculate their payment.

Each employee's overtime and total working hours are also calculated. There are two administrative entities and one employee in the system.

The admin has the access to manage leave, add holidays as well as add company information and employee details. Employees can access salary information, resign, view the holiday list, and check the status of their vacation days. Because of the system's high accuracy and time-saving features, disputes between the HR team and employees will be avoided when payments are calculated.

So that both the employer and the employee can focus on their work to enhance the company's growth

1.2 Main Functionality

Managing employees is a top priority in the system and it comes with an important functions, to start with the system should come with an employee database so the employer can easily add employee details in few steps.

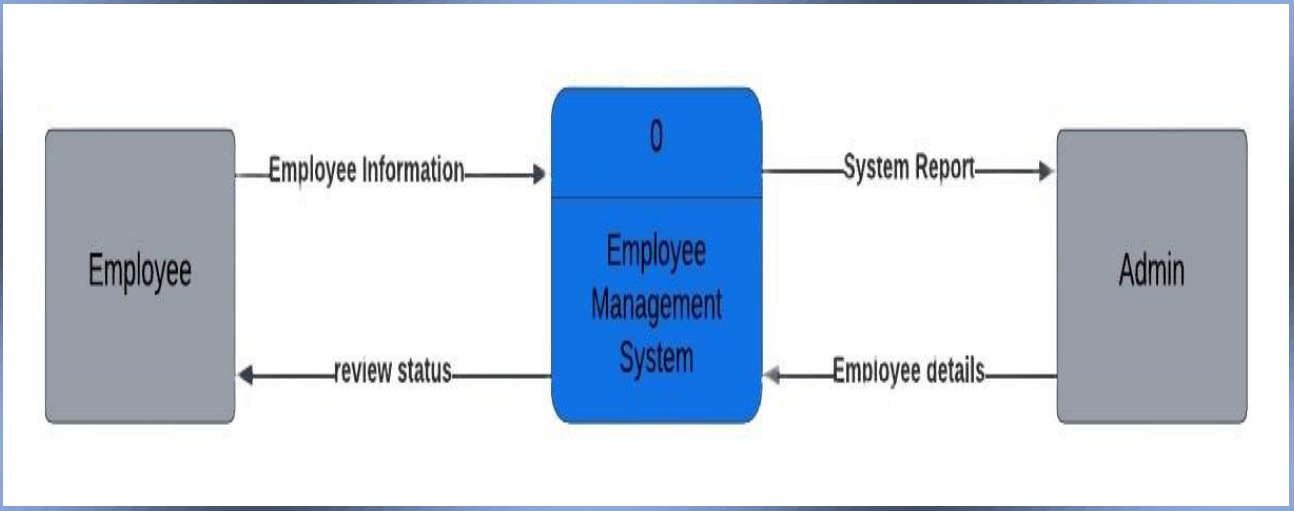
Robust attendance in the management system enables the employees to mark their attendance and leave requests from the wherever work.

An employee's self-service portal is an important feature which allows employees to access relevant files, and view information related to their health insurance, and payroll.

A robust performance management system helps the employee and the manager to get a clear picture on f where each employee stands in terms of performance. People analytics plays a significant role in improving employee management, as it helps organizations understand employee expectations and learn the underlying reasons for workforce challenges

1.3 Scope, Context Diagram

This project is helpful in maintaining the employee's record, Calculating the salary for each employee and it also focuses on Each employee's attendance and the no of leaves taken per Month/year. There is also a possibility of checking salary Report at any time so that it doesn't lead to any miscalculation



1.4 Risks

1- Not fully understand requirements.

2- Lack of data related to the project.

3- Lack of communication between team members.

4- Having Budget Issues.

5- Bad-Decision Making

6- Lack of experience, which leads to many errors

7-The conflict among stakeholders regarding the functionality

8-Non-compliance with meeting times

1.5 Feasibility study

A feasibility study is a comprehensive evaluation of a proposed project that evaluates all factors critical to its success in order to assess its likelihood of success. The main objective of the feasibility study is to test the technical, operational, and economical feasibility for adding new modules and debugging old running system.

1- **Technical feasibility**

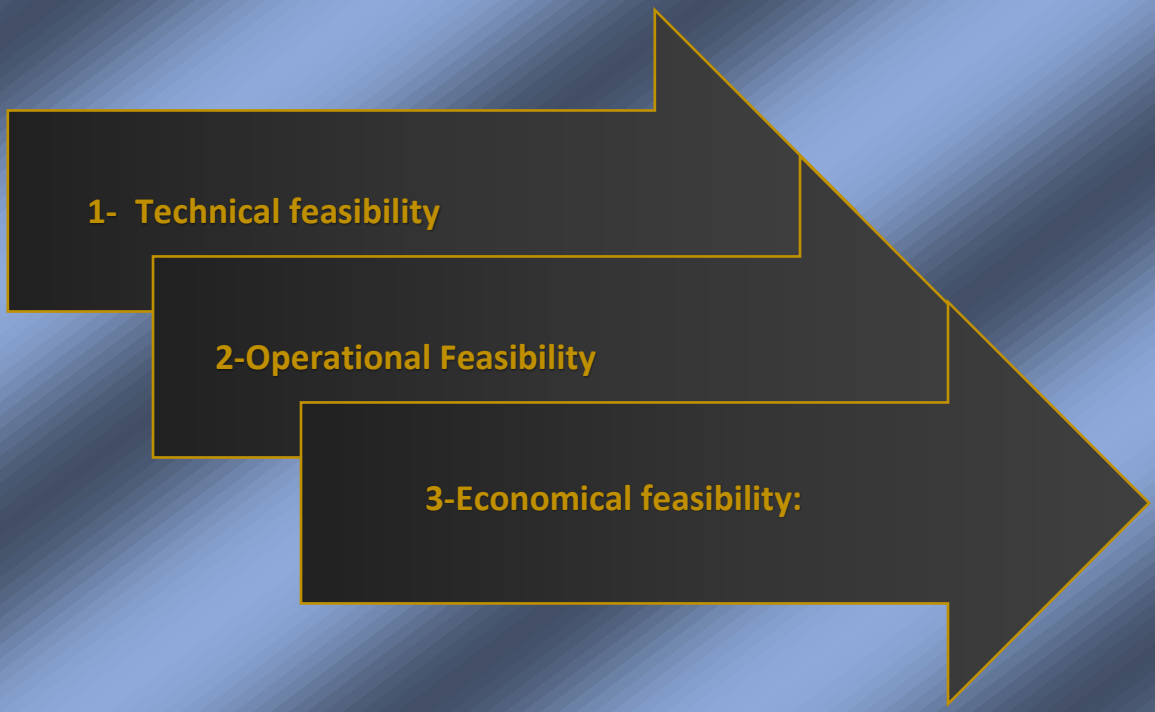
It includes the following: • Does the necessary technology exist to do what is suggested? • Do the proposed equipment have the technical capacity to hold the data required to use the new system? • Will the proposed system provide adequate response to inquiries, regardless of the number or location of users? • Can the system be upgraded if developed? • Are there technical guarantees of accuracy, reliability, ease of access and data security?

2- **Operational Feasibility**

Proposed projects are beneficial only if they can be turned out into information system. That will meet the organization's operating requirements. Operational feasibility aspects of the project are to be taken as an important part of the project implementation. Some of the important issues raised are to test the operational feasibility of a project includes the following: • Is there sufficient support for the management from the users? • Will the system be used and work properly if it is being developed and implemented? • Will there be any resistance from the user that will undermine the possible application benefits?

3- Economical feasibility:

A system can be developed technically and that will be used if installed must still be a good investment for the organization. In the economical feasibility, the development cost in creating the system is evaluated against the ultimate benefit derived from the new systems. Financial benefits must equal or exceed the costs. The system is economically feasible. It does not require any addition hardware or software.



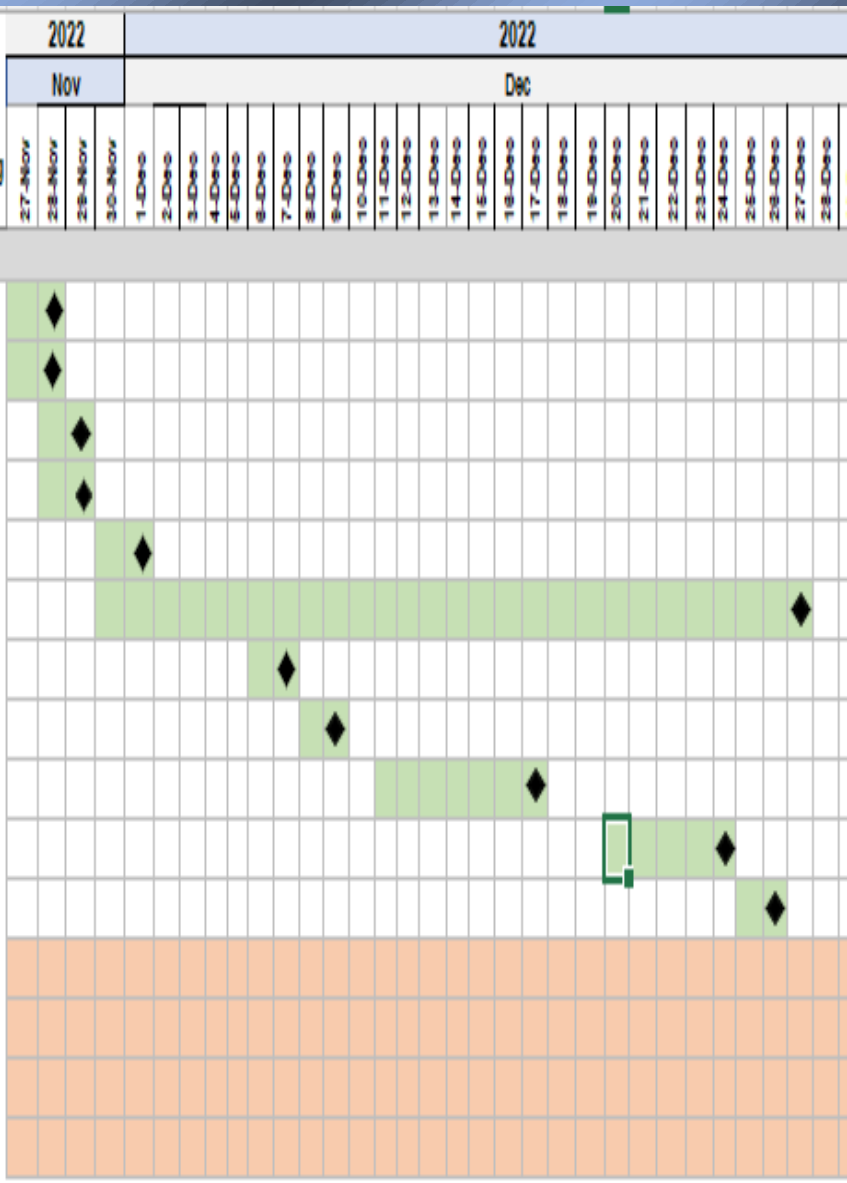
1.6 Schedule table

GANTT Chart using Microsoft Excel

Project Start Date: 27-Nov-22

Project Name: Employee Management System

Activity	Assigned	Start	End	Days	Status	%Done
Introduction	Ayaa	27-Nov	29-Nov	0	Complete	100%
Main Funcionality	Thara	27-Nov	29-Nov	1	Complete	100%
Scope of Project(Context Diagram	Rami	28-Nov	29-Nov	1	Complete	100%
Risks	Bushra	28-Nov	30-Nov	0	Complete	100%
Feasibility study	Thara	30-Nov	2-Dec	1	Complete	100%
Time Table	Nadine	30-Nov	28-Dec	29	Complete	100%
Collect Requirement	Bushra	6-Dec	8-Dec	2	Complete	100%
Functional /non-functional	Thara	8-Dec	10-Dec	2	Complete	100%
Data Flow Diagram	Nadine	11-Dec	19-Dec	9	Complete	100%
Decision Table	Ayaa	20-Dec	25-Dec	5	Complete	100%
Data Conceptual Modelling(ERD)	Rami	25-Dec	27-Dec	1	Complete	100%
Interface Design	___	___	___	___	Blocked	0
Database Design	___	___	___	___	Blocked	0
Architecture Design	___	___	___	___	Blocked	0
Testing	___	___	___	___	Blocked	0




ANALYSIS

Techniques

Used to collect Requirement

1-interviews:

This is the most common technique used for requirement elicitation.

i. One-on-one interviews.

ii. Group interviews.

Sample:

The project manager interviews the stakeholders about their needs in the project We asked some questions system like:

“What would you like the system to provide you?” And we got some answers like "When salaries are received, a notification is received with relevant information (total amount, amount after deduction, ..etc.)".

2-Brainstorming:

This technique is used to generate new ideas and find a solution for a specific issue.

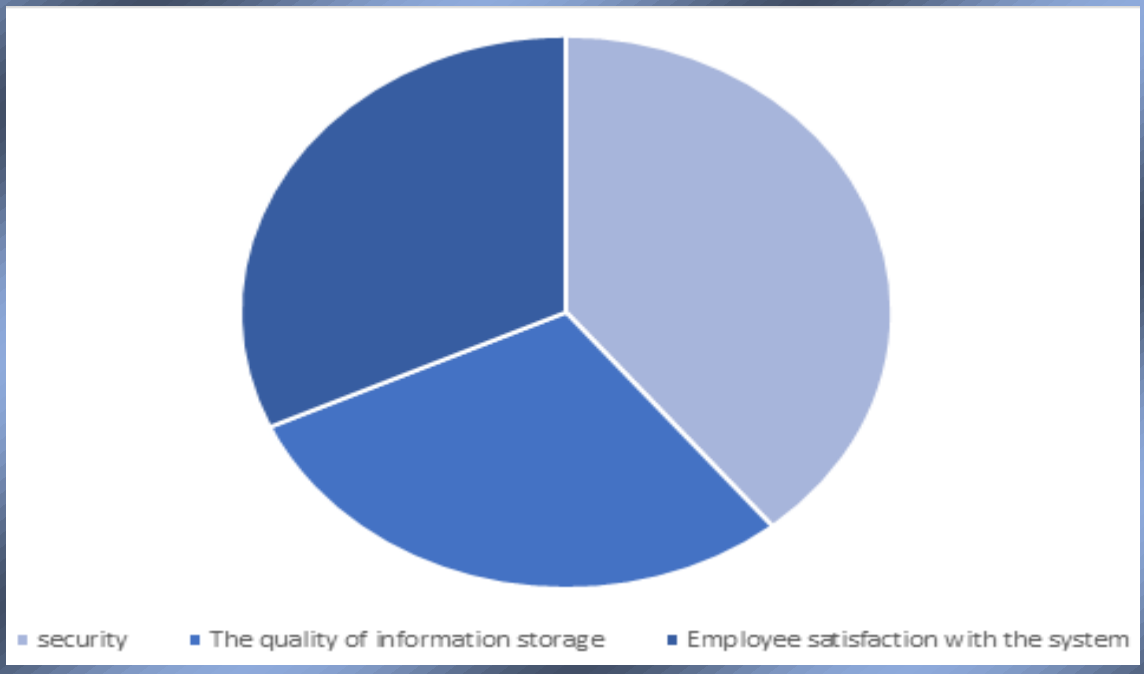
Sample:

All participants be given an equal amount of time to express their ideas. We asked some questions like: What are the options available to solve problems in the payment of salaries? And we got some answers like "Human Resources Department does not interfere in the work of accountants responsible for this, but rather oversees the process and ensuring that salaries are received successfully without any defect"

3.Survey/Questionnaire

a set of questions is given to stakeholders to quantify their thoughts After collecting the responses from stakeholders, data is analyzed to identify the area of interest of stakeholders.

Sample:



Functional and Non-functional Requirements

Non-Functional Requirements:

Non-Functional requirements are not related to the system functionality, rather define how the system should perform and its requirements are:

1-Usability

Usability defines how difficult it will be for a user to learn and operate the system. Usability can be assessed from different points of view:

i. Efficiency of use: the average time it takes to accomplish a user's goals.

ii. Intuitiveness: how simple it is to understand the interface, buttons, headings, etc.

iii. Low perceived workload: how many attempts users need to accomplish a particular task.

2- Security:

to ensure that the software is protected from unauthorized access to the system and its stored data.

3-Reliability:

it is how likely it is for the software to work without failure for a given period.

4-Performance:

It is a quality attribute that describes the responsiveness of the system to various user interactions with it. Poor performance leads to negative user experience. It also jeopardizes system safety when it's overloaded.

5-Availability:

The system's functionality and services are available for use with all operations.

6-Scalability:

It describes how the system must grow without negative influence on its performance.

Functional Requirements:

For Functional requirements are product features or functions that developers must implement to enable users to accomplish their tasks and the types of functional requirements might be:

***1-Authentication*:**

it is the act of proving an assertion, such as the identity of a computer system user.

2-Authorization levels:

it's the different access privileges to the documentation.

3-Regulations:

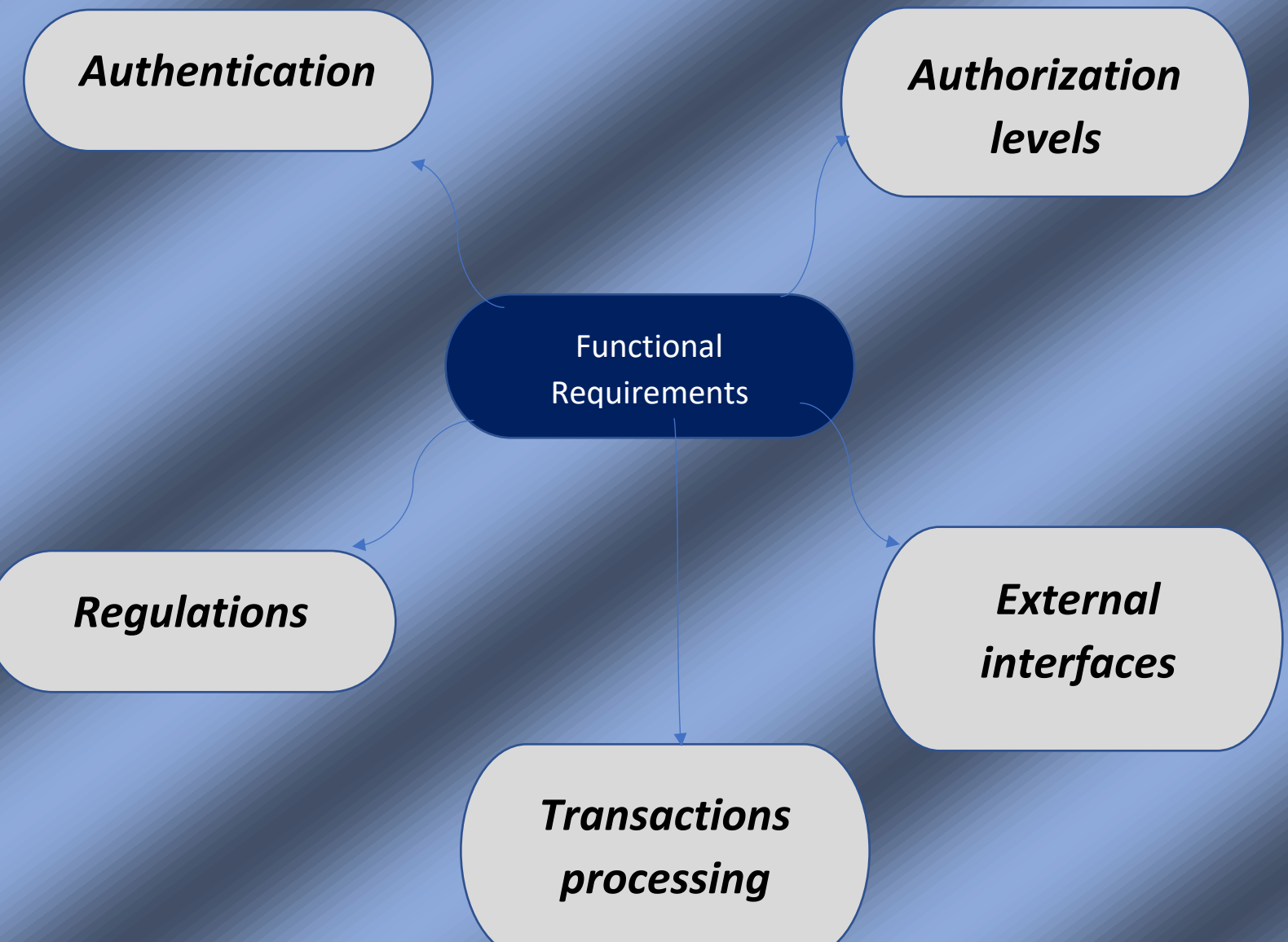
It's the adherence to laws, regulations, and guidelines created by government legislations and regulatory bodies applicable to an organization based on the industry and jurisdiction in which it operates.

4-External interfaces:

the interface that connects to the Internet or a Wide Area Network (WAN).

5-Transactions processing:

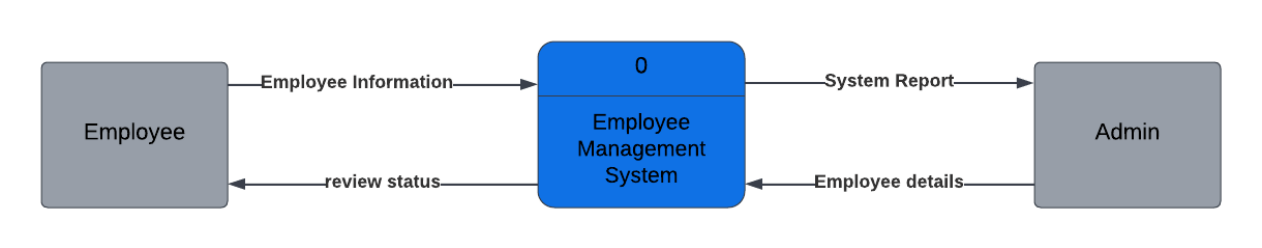
Transaction processing is information processing in computer science that is divided into individual, indivisible operations called transactions.



Data Flow Diagram

Process modeling represented in Data Flow Diagram:

1.Context Diagram

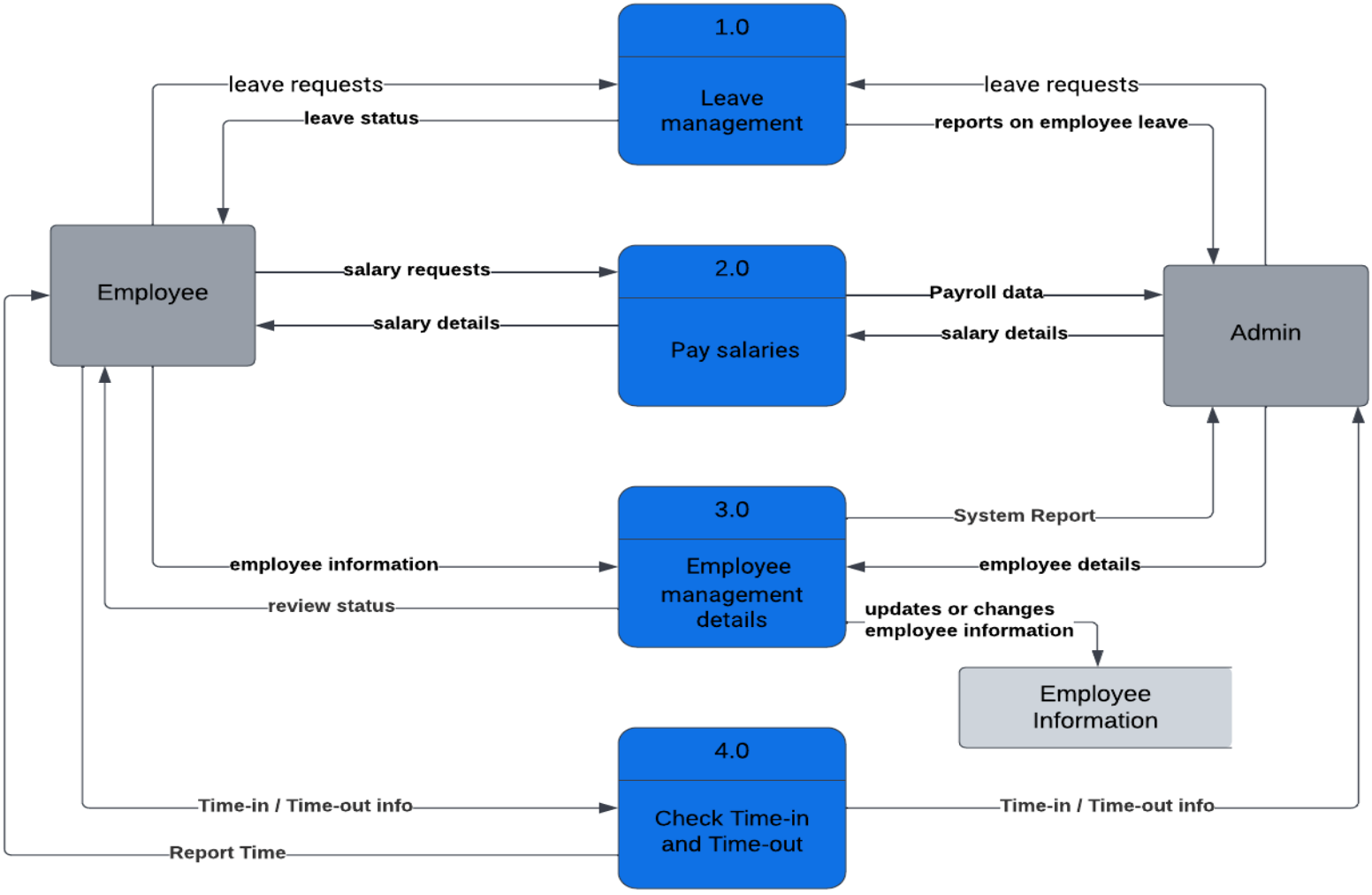


2. DFD Level 0

Data flow diagram, level-0 will describe the main processes that the system includes.

We will start with an external entity that will be the source of the data, then this data will go through multiple processes, each process must have a meaning and give a new output until the processes are done.

The final output will go to another external entity that represents the destination of data.



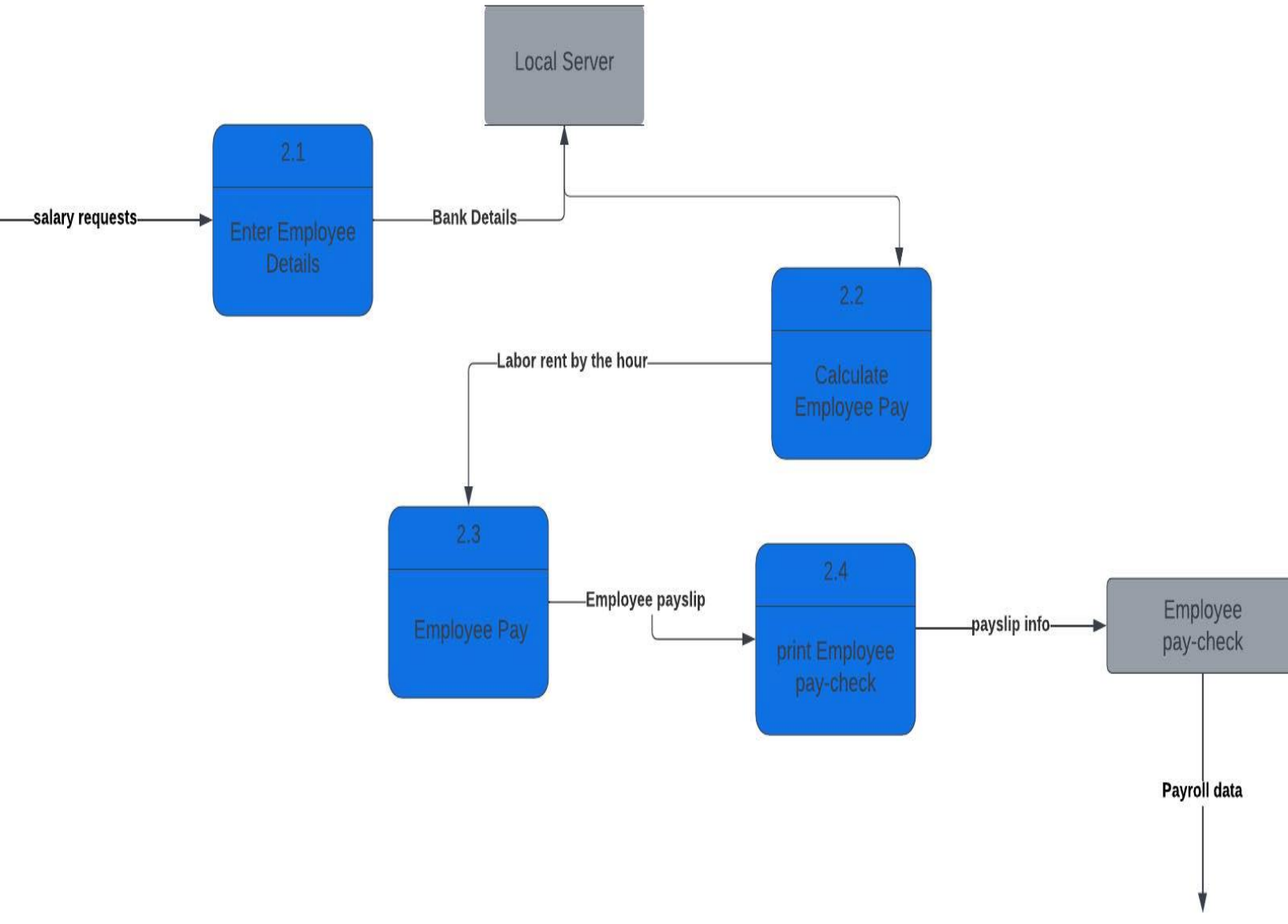
3.DFD Level 1

Data flow diagram, level-1 shows a decomposing of some processes that have more details. Used to identify the internal activities done in a specific process.

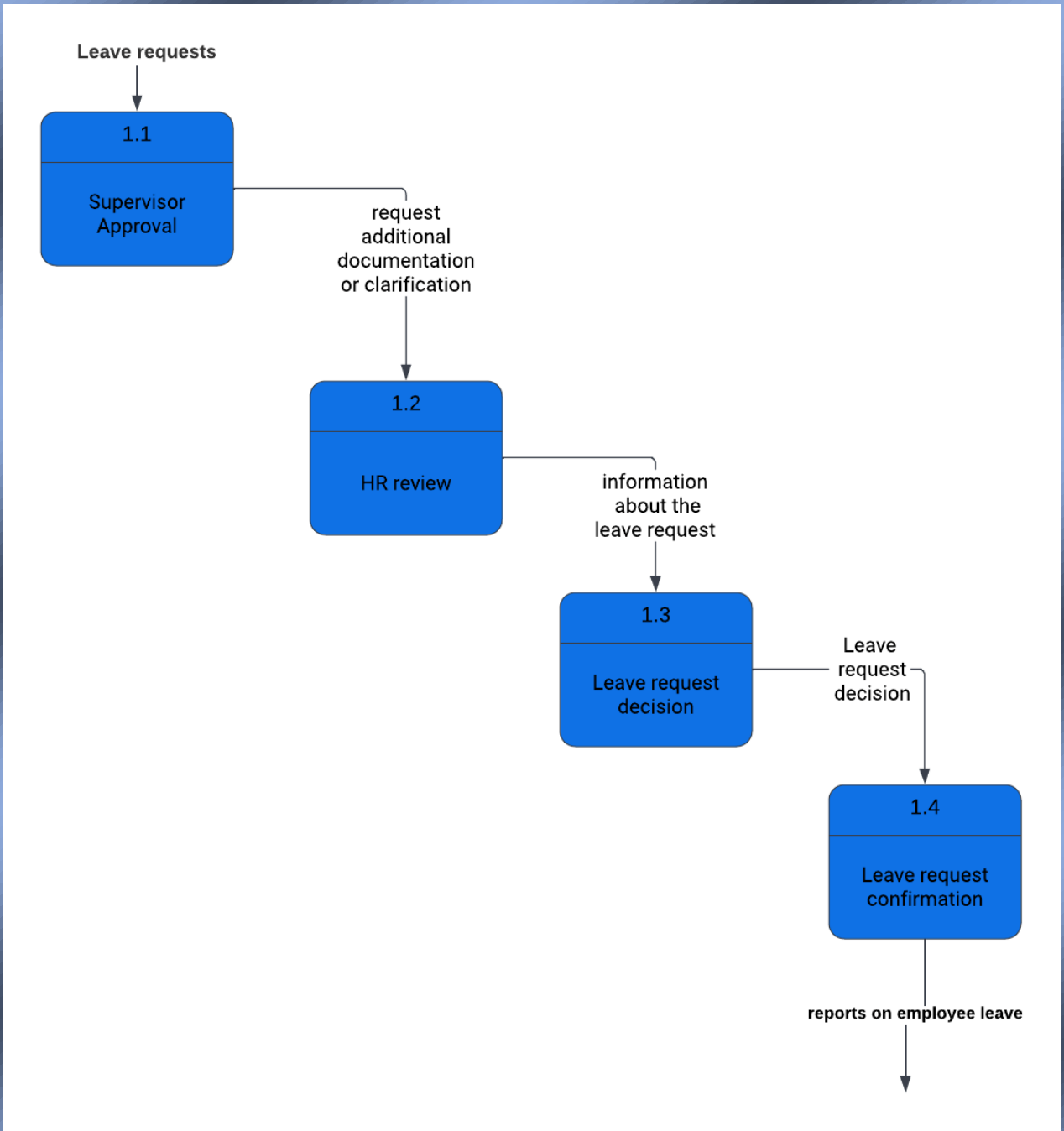
In our project we have three processes that decomposed into

Level-1:

i. Pay Salaries



ii. Leave Management



Decision Table

Logic modeling using Decision Table

1.*Table 1 : explain Who are the employees and what are the working hours allocated to them*

	Condition & Action	Rules			
		1	2	3	4
Condition	Employee Type	S	H	H	H
	Hours Work	X	>154	<154	=154
	Evaluation	X	X	X	X
	Holidays	X	X	X	X
Action	Pay base salary	–			
	Calculate hourly wage		–	–	–
	Calculate overtime		–		
	Produce absence report			–	

2.explain how much holidays of each employee and show the percentage of employee evaluation yearly

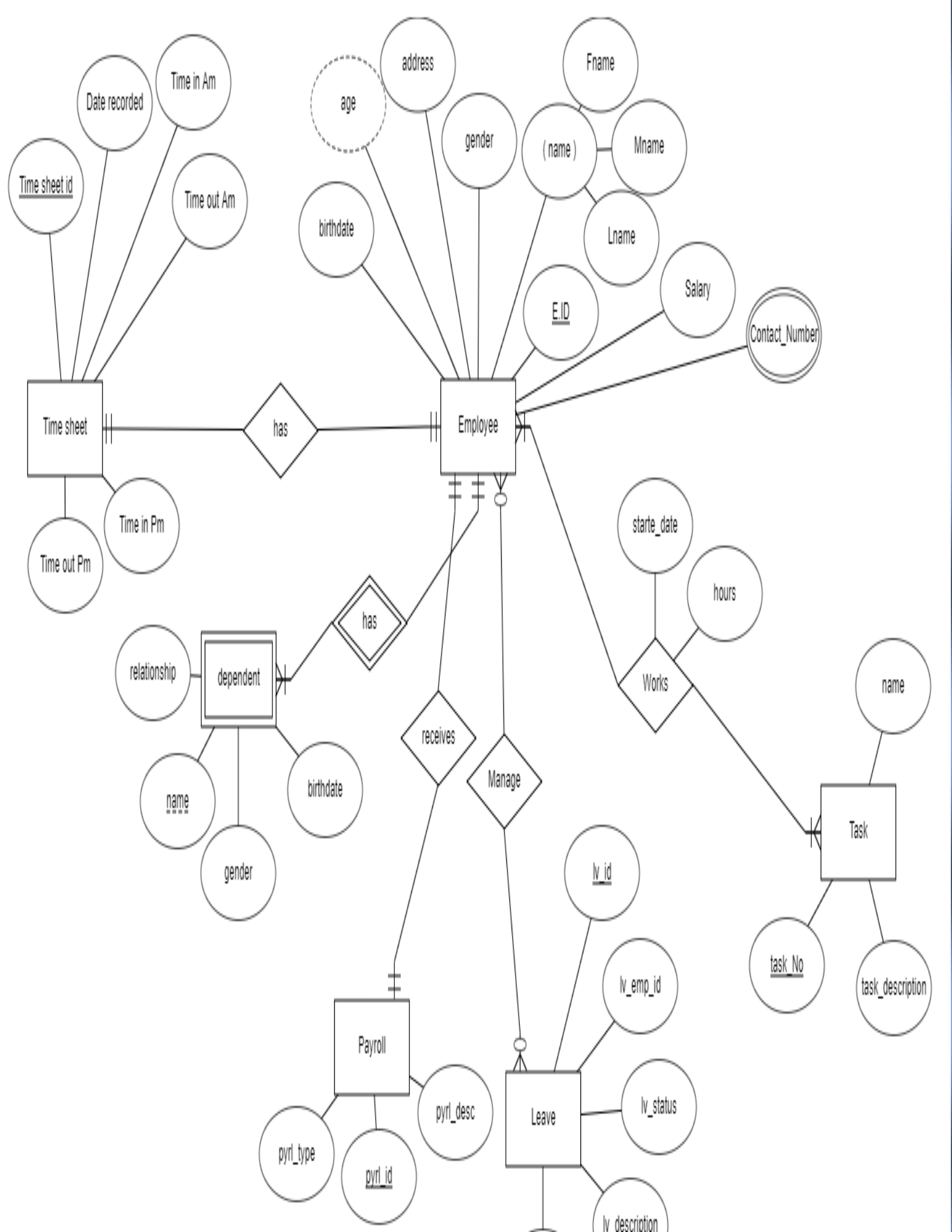
	Condition & Action	Rules	
		1	2
Condition	Holidays	X	X
	Evaluation	<=20%	>=80%
Action	Discount	–	
	Bonus		–

Entity Relational Diagram

In this Entity relationship diagram (ERD) we used a graphical representation that depicts relationships among the system

1. Employee: The employee entity is responsible on several things as its showing on the diagram
2. Time Sheet: Time Sheet is the amount of time an employee works on tasks
3. Task: task entity is a generic activity representing work needed to be done
4. PayRoll: Pay roll entity is responsible for paying payees
5. Furlough: Leave of Absence entity is an extended period of unpaid leave an employer grants an employee for special reasons.

6. Dependent entity that have a certain requirement is met by another entity


Time sheet id
Date recorded
Time in Am
Time out Am
Time sheet
Time out Pm
Time in Pm
has
age
address
gender
birthdate
Fname
(name)
Mname
Lname
E.ID
Salary
Contact_Number
Employee
has
relationship
dependent
name
gender
birthdate
receives
Manage
starte_date
hours
Works
name
Task
task_No
task_description
lv_id
lv_emp_id
Payroll
pyrl_type
pyrl_id
pyrl_desc
Leave
lv_status
lv_description

And that brings us to the end, thank you for your time and the attention.