

DBMS PROJECT

ASSIGNMENT 1

SECTION: G

TEAM ID : 15

TEAM MEMBERS

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Payroll Management System

Problem statement

Payroll Management System is computer-operated system designed to record monitor and manage employee's payroll matters in any Organization. With an increase in the number of Employees and organizations, the financial management of the organization is becoming a complex issue. Payroll management system plays a key role in improving the organization's productivity by computerizing some of its financial functions. It also helps to overcome the limitations of the current system and will play a key role in minimizing human strain and errors.

We create the database design for payroll management system considering following instances:-

- An ADMIN have access to payroll management system who manages everything and has a unique id, username, password, email id and a default user type.
- An EMPLOYEE with unique id, Fname, Mname, Lname, gender, age, job title, date of birth, date of joining, mobile number, mail id, address, job department, project title working in

a COMPANY that has several DEPARTMENTS with a unique company id, company name, address and phone number.

- The EMPLOYEE should be at least 20 years old and at most 60 years old.
- Each EMPLOYEE works in a certain DEPARTMENT. The DEPARTMENT has a unique dept_id and name, job title.
- Each EMPLOYEE may or may not be working on a PROJECT. The PROJECT has a project id, project title, due date.
- EMPLOYEE holds a BANK ACCOUNT which has details such as account number, beneficiary name, remitter's name, employee id, transaction id, date of transaction, amount.
- There is a PAYGRADE system that determines the PAYROLL of the EMPLOYEE, it has attributes namely paygrade_id, employee_id, job_title, job_grade, basic_salary, bonuses, taxes, penalties, final_salaray, allowances, total amount.
- EMPLOYEE'S PAYROLL has Payroll id, employee id, job id, salary id, leave id, transaction id, account number, total_amount, date of transaction, pay roll report.

CONSTRAINTS

Each attribute is associated with some constraints and definitions which will be discussed here table wise.

1. TABLE USER/ADMIN

Field	Description	Type
User_id(PK)	Unique admin id	int
username	Username of admin	Varchar
password	Password to login	Varchar
Email-ID	Email id of admin	Varchar
User type(default)	Admin	Varchar

2. TABLE EMPLOYEE

Field	Description	Type
Employee_id(PK)	Unique employee id	int
Fname	First name of employee	Varchar
Mname	Middle name of	Varchar

	employee	
Lname	Last name of employee	Varchar
gender	Gender of employee	char
age	age of employee	int
DOB	Date of birth	Date
DOJ	Date of joining	Date
Dept_name(FK)	department of employee	Varchar
Job_title(FK)	Job of employee	Varchar
Ph no(unique)	Phone number of employee	Varchar
Project title(FK)	Project of employee	Varchar
Address	Address of employee	varchar
pincode	Pincode of employee	int

3. TABLE DEPARTMENT

Field	Description	Type
Dept_id(PK)	Unique id of department	int
Dept_name	Name of the dept	Varchar
Job_title	Job title of employee	Varchar

4. TABLE PROJECT

Field	Description	Type
Project_id(PK)	Unique id of project	int
Project_title	Title of the project	varchar
Due_date	Due date of project	date

5. TABLE COMPANY

Field	Description	Type
comp_id(PK)	Unique company id	int
Comp_name	Name of the company	varchar
Comp_address	Address of company	varchar
Phone_number	Mobile number of company	int

6. TABLE BANK ACCOUNT

Field	Description	Type
Account_number(PK)	Unique acc no of employee	int
Beneficiary_name	Name of beneficiary	varchar
Remitter_name	Remitter's name	varchar
Employee_id(FK)	Id of employee	int
Transaction_id(PK)	Proof of transaction	int
Date_of_transaction(PK)	Date of transaction	date
Amount_transferred(FK)	Amount transferred	int

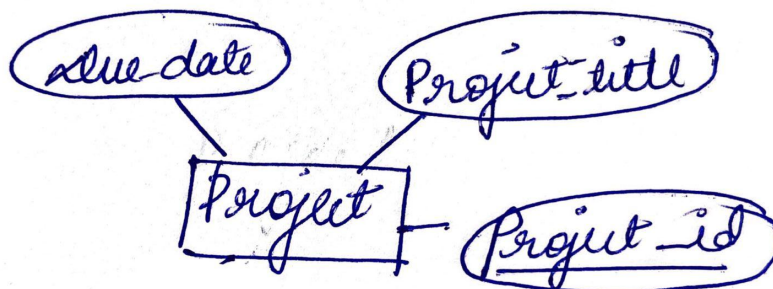
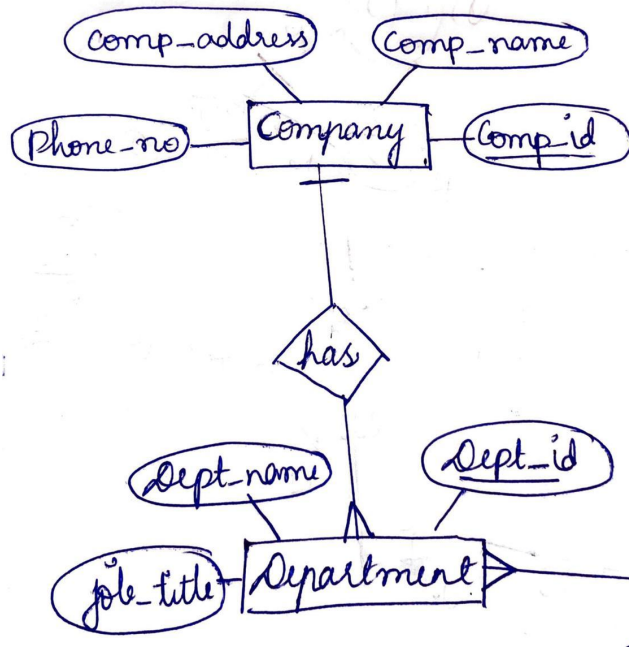
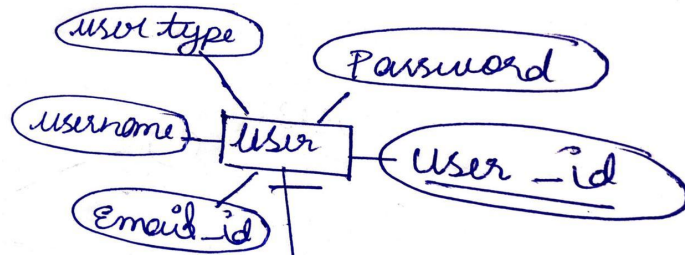
7. TABLE PAYGRADE

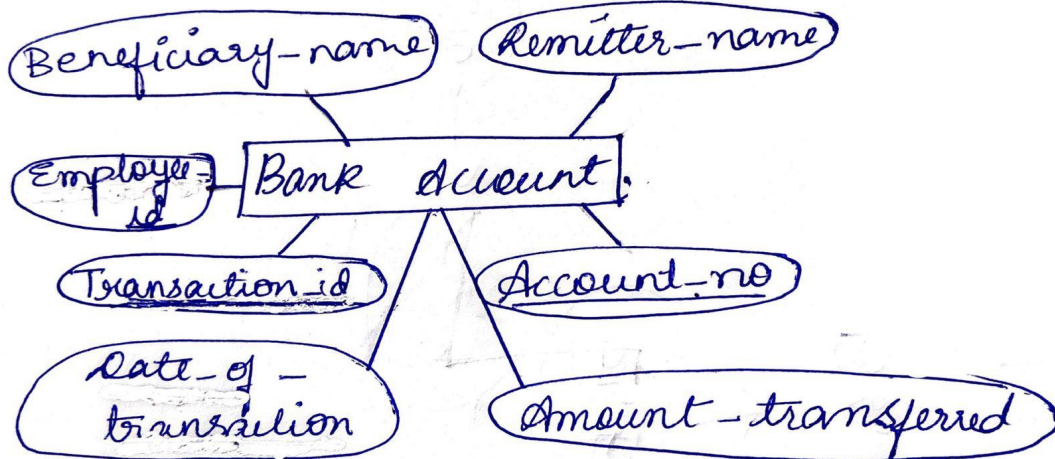
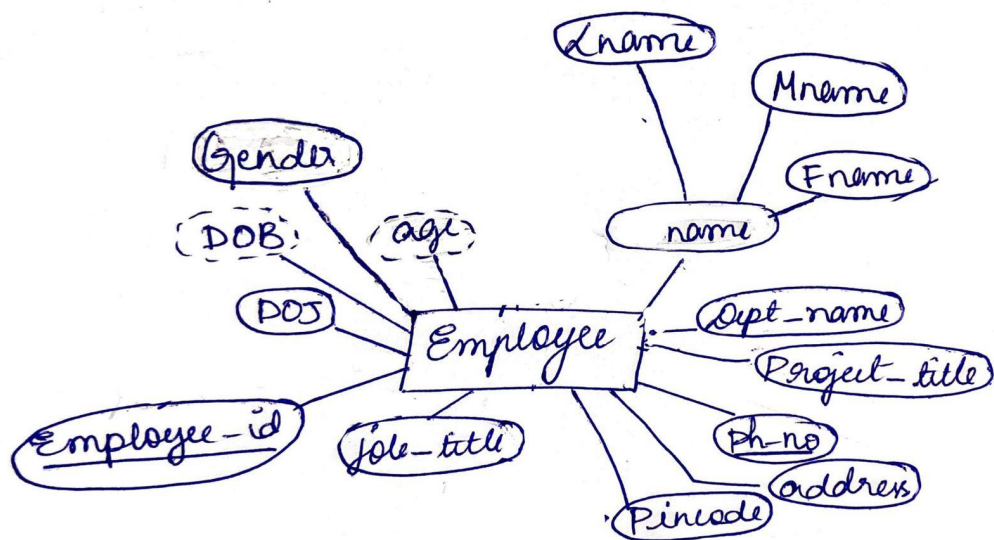
Field	Description	Type
Paygrade_id(PK)	Unque id for leave	int
Employee_id(FK)	Id of employee	int
Job_title(FK)	Jobtitle of employee	varchar
Job_grade	Employee is graded on his work which determines bonus	varchar
Basic_salary	Basic salary of employee	int
bonuses	Bonuses employee get	int
taxes	Taxes employee should pay which includes professional tax and others.	int
penalties	Penalties that is cut from employee's salary	int
Final_salary	Final salary amount employee gets after cutting down various taxes,penalties with bonuses added.	int
allowances	Employee also benefits allowances like medical allowance,food,transport etc.	int
Total amount(PK)	This includes final salary and allowances	int

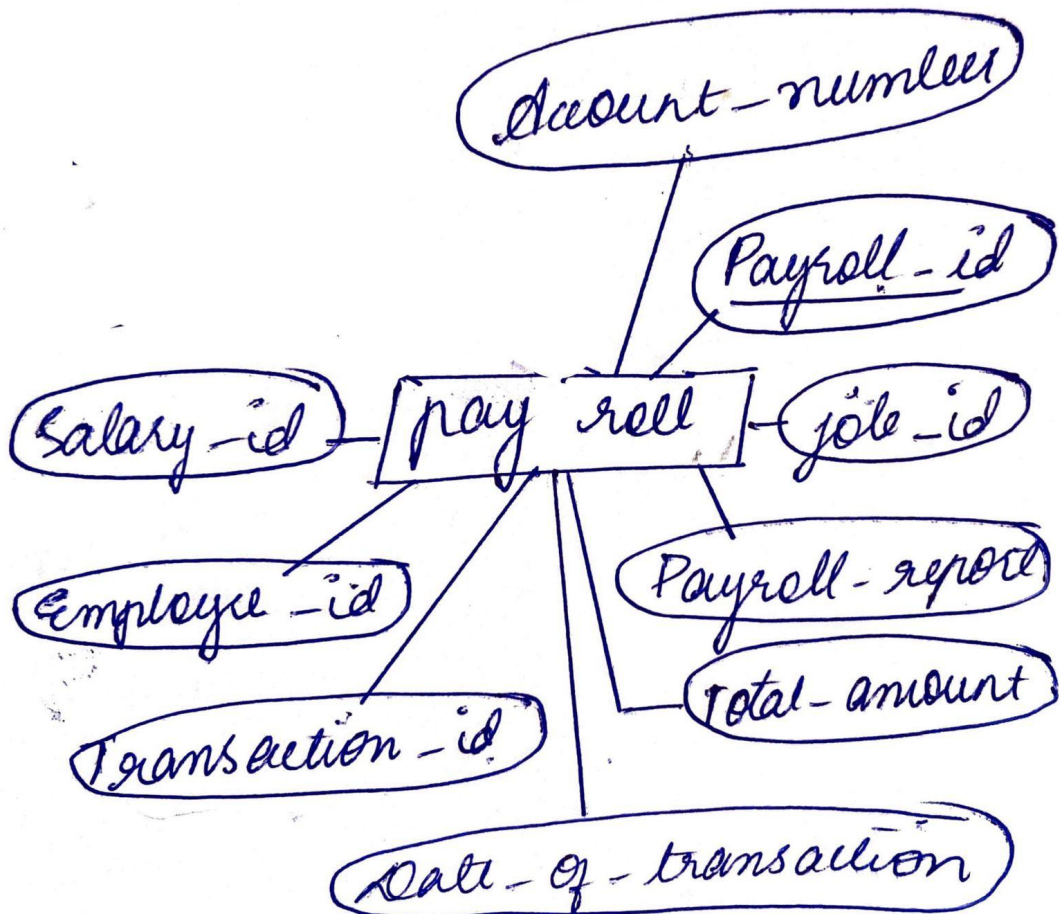
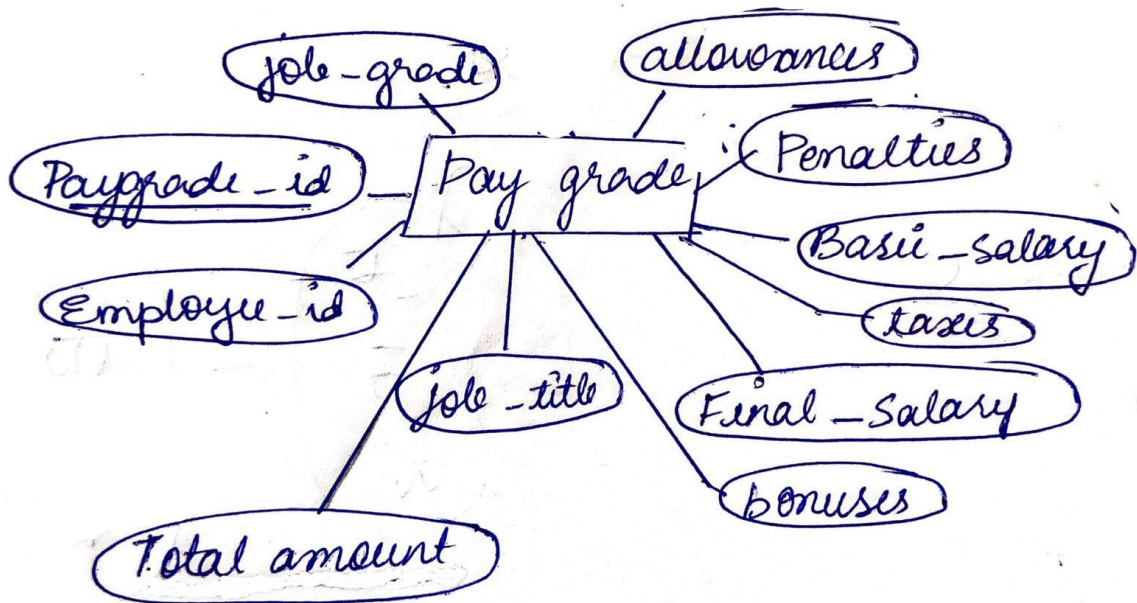
8 . TABLE PAYROLL

Field	Description	Type
Payroll_id(PK)	Unique pay roll id	int
Employee_id(FK)	Id of employee	int
Job_id(FK)	Id of job	int
Transaction_id(FK)	Proof of transaction	int
Account_number(FK)	Bank acc no of employee	int
Date_of_transaction(FK)	Date of money transferred	date
Payroll_report	Final report of employee	varchar
Total_amount(FK)	Total amount credited to bank account	int

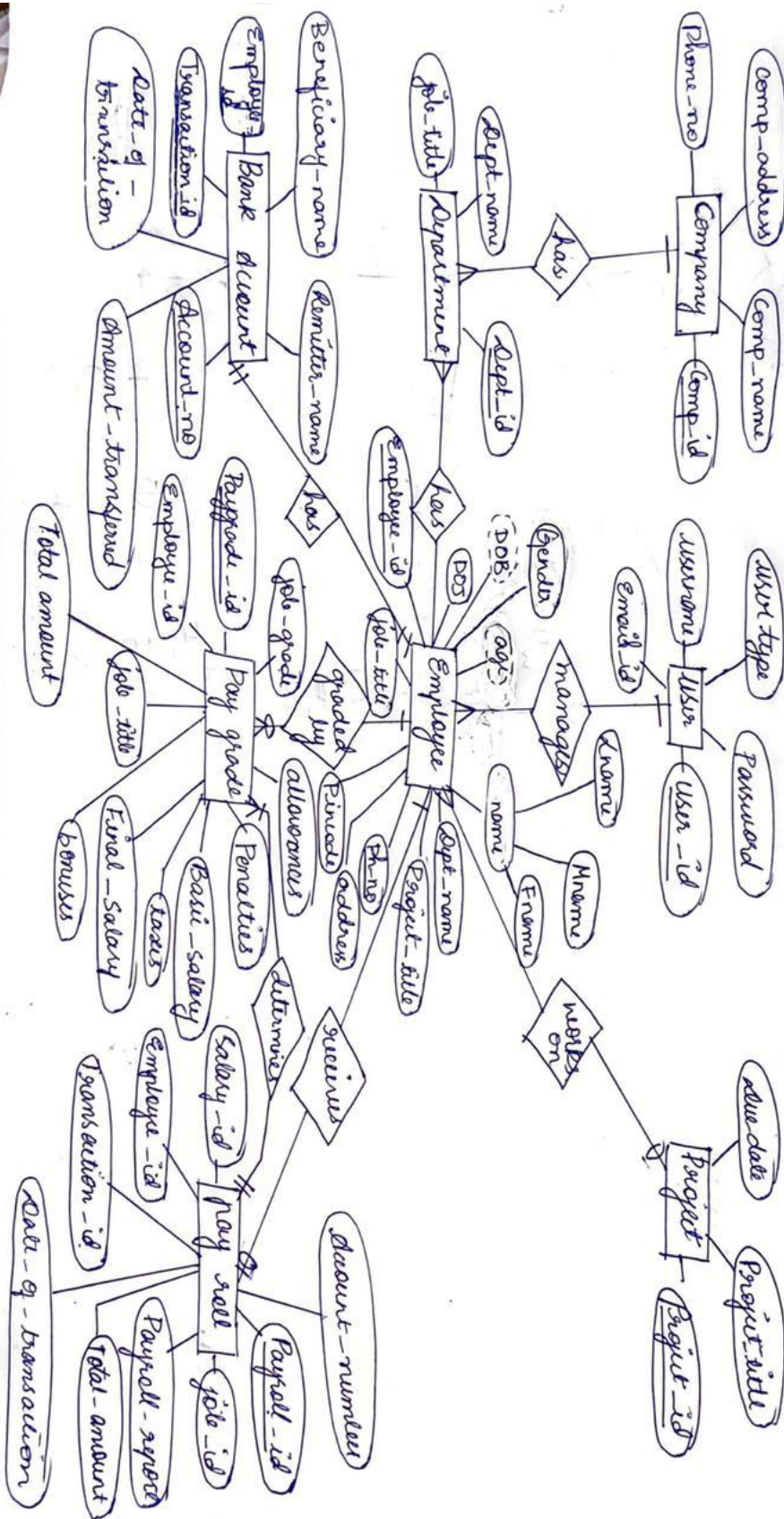
Conceptual model of the database design : ER diagram (handwritten)







Final ER Diagram



ER Toll Usage

The ERD tool that we have used is an online ERD-making tool called ERDPlus.



ERDPlus is a web-based database modeling tool that lets you quickly and easily create

- Entity Relationship Diagrams (ERDs)
- Relational Schemas (Relational Diagrams)
- Star Schemas (Dimensional Models)

More features

- Automatically convert ER Diagrams into Relational Schemas
- Export SQL
- Export diagrams as a PNG
- Save diagrams safely on our server

ERDPlus enables drawing standard ERD components.

- Entities
- Attributes
- Relationships

The notation supports drawing regular and weak entities, various types of attributes (regular, unique, multi-valued, derived, composite, and

optional), and all possible cardinality constraints of relationships (mandatory-many, optional-many, mandatory-one and optional-one).

ERDPlus enables drawing standard Relational Schema components

- Tables (Relations)
- Table Columns (including Primary and Foreign Keys)
- Referential Integrity Constraint Lines (pointing from a Foreign Key to the Primary Key it refers to)

The tool supports quick creation of foreign keys and referential integrity lines by simple click-point-connect actions. This simplifies and quickens the process of creating relational schemas.

Convert ER Diagrams

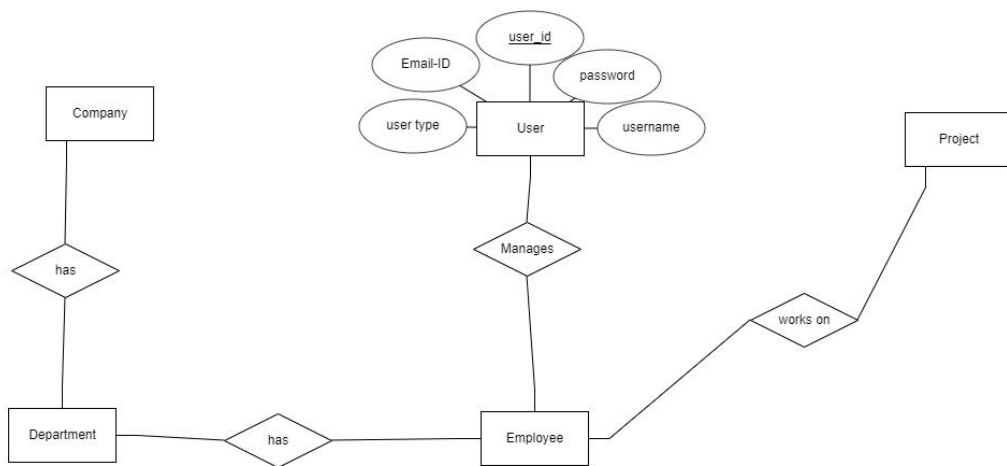
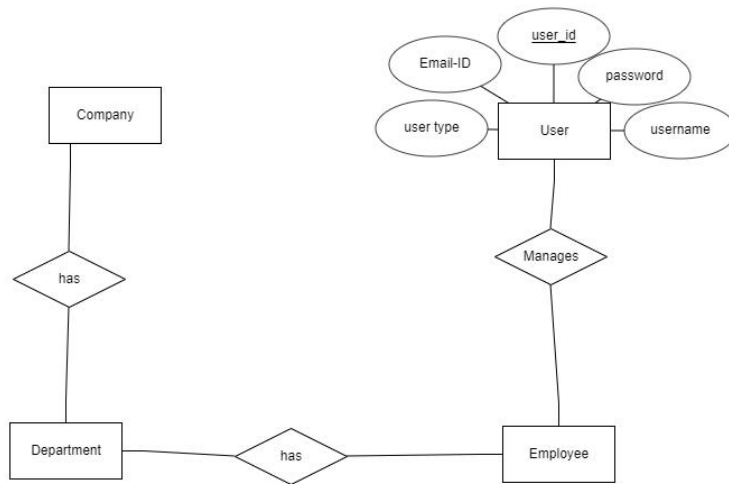
ERDPlus enables automatic conversion of ER Diagrams to Relational Schemas with one click of a button. This vastly speeds up the process of creating a Relational Schema based on an ER Diagram.

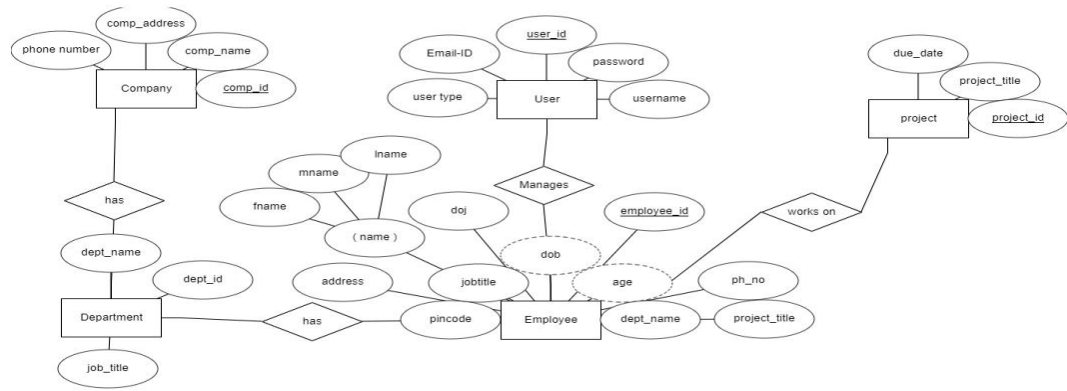
ERDPlus enables drawing Star Schema components:

- Fact Tables (Facts)
- Dimension Tables (Dimensions)

The notation distinguishes fact tables from dimension tables by using a thicker frame around fact tables. This makes star schema diagrams easier to interpret. As with relational schemas, the tool supports quick creation of foreign keys and referential integrity lines by simple click-point-connect actions. This simplifies and quickens the process of creating star schemas.

ER Diagram Drafted Using Tool

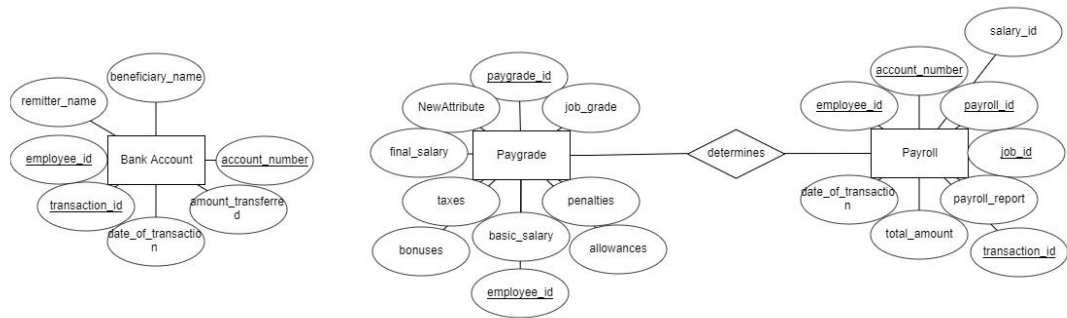




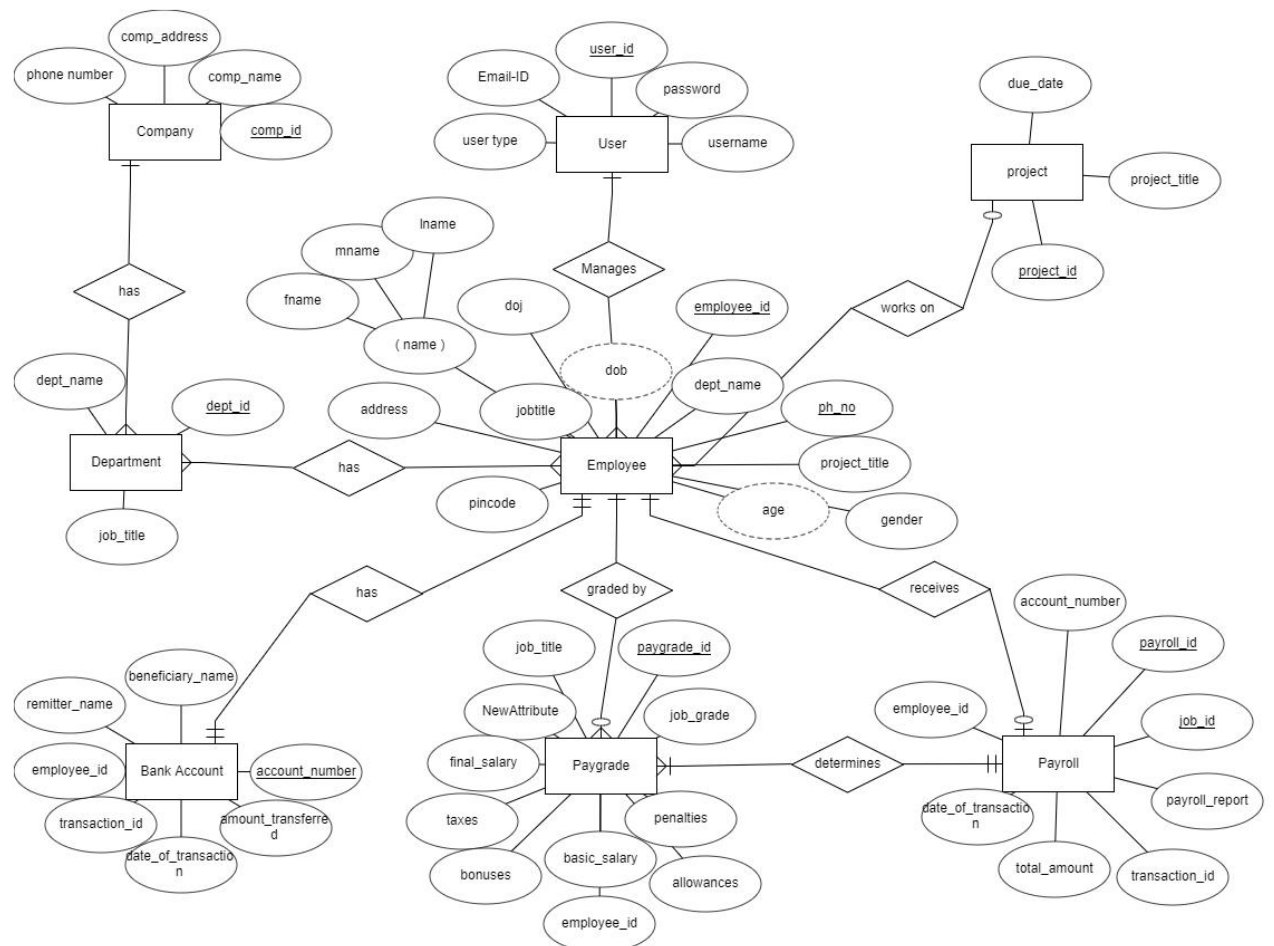
Bank Account

Paygrade

Payroll



Final ER Diagram



Resources:-

1. <https://erdplus.com/>
2. https://www.rcciit.org/students_projects/projects/mca/2018/GR5.pdf