Interior Design and Home decor

The company in consideration is Imagine Walls - an interior design and home decor company. Our project is aimed at building a software product for this company to manage its resources, keep track of its projects, get customer reviews, etc.

WORK DONE BY THE COMPANY (for general understanding):
The company takes in projects from customers, that include demands to furnish/decorate particular rooms of their houses, such as bedroom, bathroom, kitchen etc. The company keeps track of the site where the project is located.
The company has tie-ups with furniture companies, to help get products at low rates. The company keeps track of a list of furniture available and their costs.
The company then provides a few ready-made designs to the customers according to the room that needs to be decorated. These ready-made designs include room-specific furniture. These furniture come from the list of available furniture provided above.
The customer can also choose to create their own custom design. They can choose furniture from the list above.
The company keeps track of the employees. The employee has a designation, such as designer, manager etc. The company also has a list of contractors for work such as labour, painting, plumbing etc. These contractors do not work for the company per se, but the company hires them for projects. Each project is assigned a project manager, designers, contractors etc. Finally, the customer can give reviews for the project.

PROBLEM STATEMENT:

The company takes in projects from customers to decorate single or multiple rooms of the house. The PROJECT has a unique Project ID. It has a Start date and an Estimated end date.

The project has one SITE where the project is being worked on, recognized by a Site ID. Each site has a unique ID, an Address consisting of Flat/House no, Street, City, State, Pin-code, and a Site Size, which consists of Length and Breadth in acres.

Each project has a Project Manager, one or more Senior Designers and one or more Junior Designers, all recognized by their employee ID. The company also has other employees with designations such as CEO, Financial advisor etc. Each EMPLOYEE has an ID, a designation, salary, date of birth, age, join date, phone number and email ID.

Each project also has one or more CONTACTORS, recognized by an ID. Contractors do work such as plumbing, electrician work, floor work etc. Each contractor can work on multiple

projects, and each project can have multiple contractors. Each contractor has a unique ID, name, type of work done by them, phone no. and emailID.

Each project is associated with a CUSTOMER, recognized by a unique customerID. Each customer has a Name, Phone no, Email ID, address and a unique ID.

Each project has a list of ROOMS of the house to be worked on, recognized by a room ID. Each room here has a name/category such as bedroom, kitchen etc, and a design ID, which specifies the DESIGN for that particular room. One room can have only 1 design.

Each design will have an ID, a room name, the size of the room, a list of productIDs used for the room which comes from a PRODUCT table, and the total cost for that design. The application will provide the user with an interface to create their own custom design or use a default design.

Each product has a unique product ID, a Type ID and Type Name to specify what kind of product it is (eg: Sofa, Bed etc), a description, a room name that the product belongs to (ed: hall, kitchen etc), cost of the product and the companyID of the COMPANY we buy the product from. Note that this is because our company has tie-ups with such product companies to provide us such goods at reduced costs.

Each of these tie-up companies has a company ID, name, Email, Phone no, Address and the product ID of the products it sells.

The project also keeps track of the PAYMENTS to be made. Each payment is related to a specific project ID and associated customer ID, the Cost price and the Selling price of the project, the advance paid by the customer and the remnant fee(derived attribute). The difference between the selling price and the cost price is the profit received by the company.

Each customer can also give FEEDBACK for one project. Each feedback should relate to a customerID, a projectID (not necessarily a project of that customer), date of feedback and a rating.

TECHNOLOGIES TO BE USED (tentative):

- DB - PostGreSQL
- Backend - Python
- Front end - React/HTML

AN APPROXIMATE LIST OF TABLES:

1. ***Projects***
   Overview of all active projects

Attributes

- ProjectID PK
- Site FK
- Project manager FK
- Senior Designers FK (list)
- Junior Designers FK (list)
- Contractors FK (list)
- Start date
- Estimated end date
- CustomerID Secondary Key

2. ***Site details***

   A table that gives the details of the site where the project is going on

   Attributes

   - Site ID PK
   - Address -> (Flat/House no, Street, City, State, Pin-code) Composite
   - Site size -> (Length, Breadth) Composite

3. ***Employees:***

   List of employees such as project managers, senior designers

   Attributes

   - EmployeeID PK
   - Designation {Project manager, Sr. Designer, Jr. Designer, Executives}
   - Salary
   - DOB
   - Age Derived
   - Join date
   - Phone number
   - EmailID
   - EmpAddress

4. ***Company tie ups for furniture/products***

   List of companies from whom we buy furnitures, tiles etc

   Attributes

   - ProductID } PK
   - CompanyID }
   - Company Name
   - Phone
   - Email
   - Address

5. ***Contractors***

   List of people we hand out the contracts to, like electricians, plumbing

   Attributes

   - ContractorID PK
   - ProjectID FK
   - Name
   - Type of work {electrician, flooring installer, painter, carpenter, plumber}

- Phone
- Email

6. ***Design***
   List of some custom designs for each room as well as user-required designs
   Attributes
   - DesignID PK
   - Size (small,med,large)
   - RoomName (bedroom, bathroom, kitchen, living room, dining room)
   - ProductID FK (list of furnitures)
   - Design cost
7. ***Products***
   List of each furniture/product along with the company we get it from
   Attributes
   - ProductID PK
   - TypeID
   - Type name
   - Description
   - RoomName
   - CompanyID FK
   - Cost
8. ***Payment dues and advances***
   List of payment dues
   Attributes
   - ProjectID FK
   - Cost Price
   - Selling Price
   - Customer ID FK
   - Advance paid
   - Remnant fee Derived
   - Profit Derived

9. ***Customer feedback & rating***
   Customers can give feedback
   Attributes
   - CustomerID FK } PK
   - ProjectID FK }
   - Feedback
   - Date
   - Rating
10. ***Room***
    List of rooms, specific to each project
    Attributes
    - *Design ID FK*
    - *Project ID FK*

- *Room Name*
- *Room size*

11. ***Customer***

List of customers

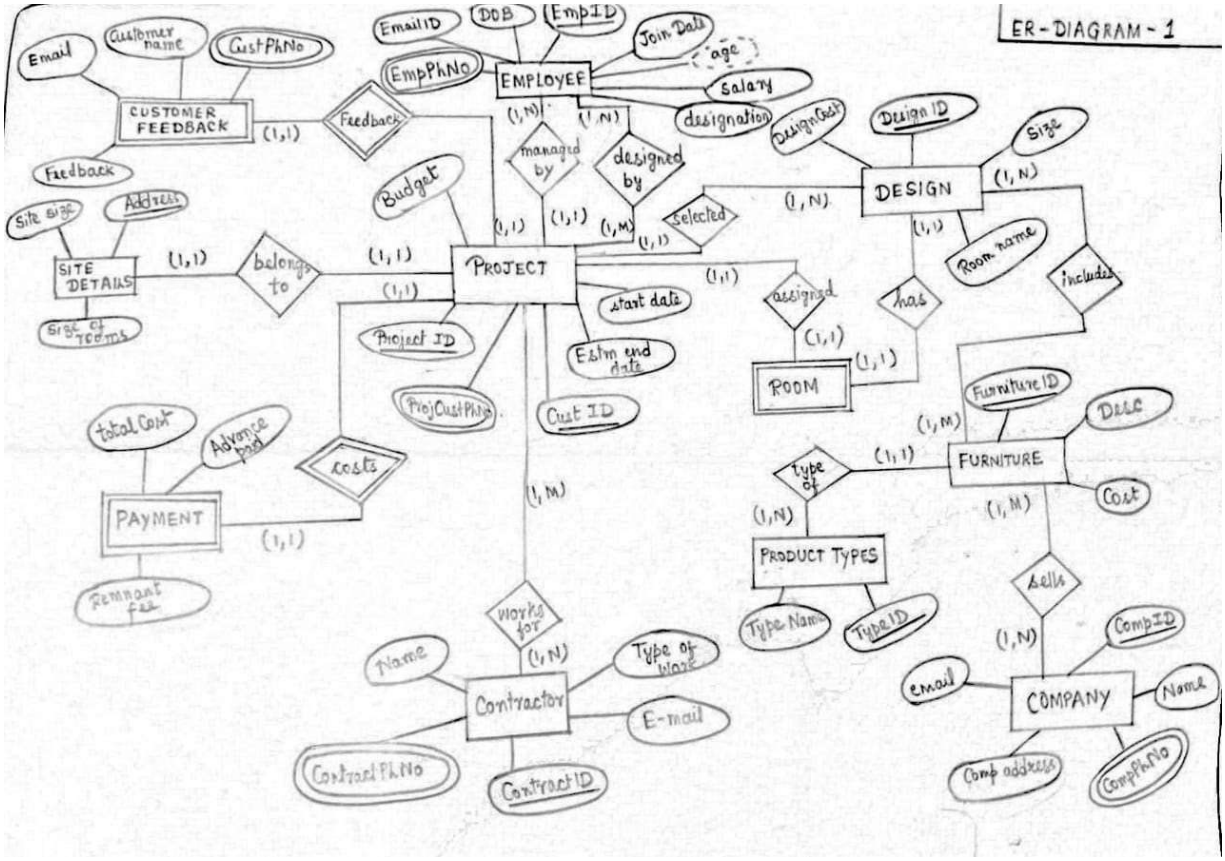
Attributes

- CustomerID PK
- PhNo
- Customer name
- Email ID
- Address

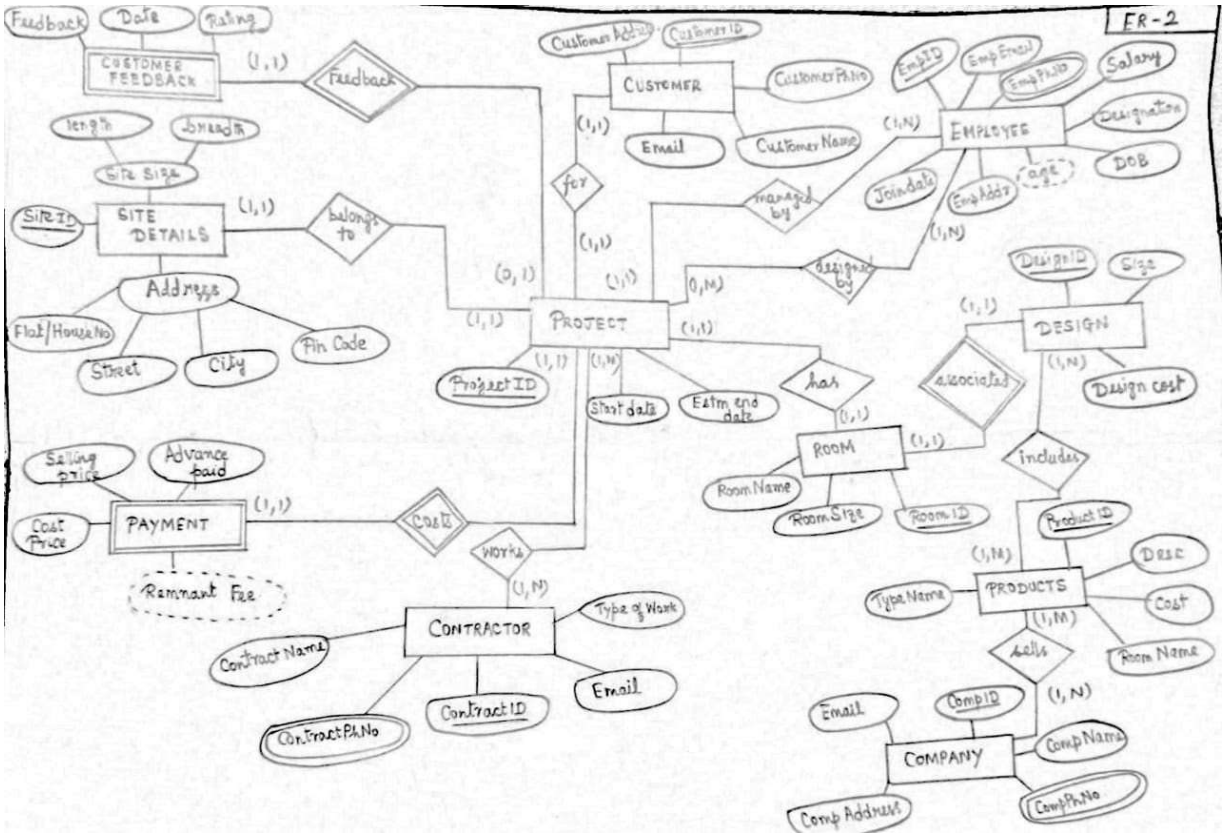
NOTE: This list is purely tentative, given simply for a better understanding and a basis for the problem statement. The actual list of tables might vary.

ER DIAGRAMS EVOLUTION:

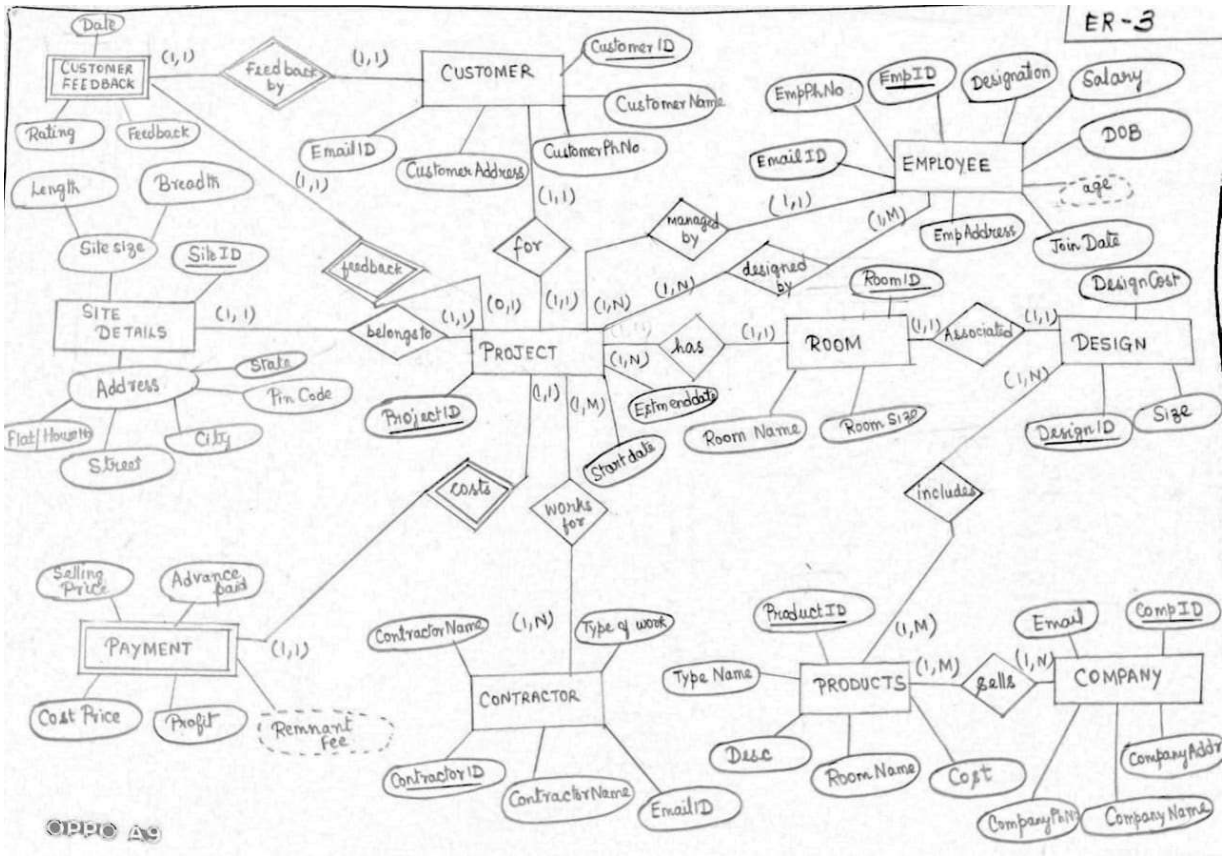
ERD-1:



ERD-2:


ER-2
CUSTOMER FEEDBACK
Feedback
Date
Rating
Length
Breadth
Site Size
SITE DETAILS
SiteID
belongs to
Address
Flat/House No
Street
City
Pin Code
CUSTOMER
CustomerID
CustomerName
CustomerPhNo
Email
for
PROJECT
ProjectID
Start date
Estm end date
EMPLOYEE
EmpID
EmpEmail
EmpPhNo
Salary
Designation
DOB
age
EmpAddr
Joindate
managed by
assigned by
DESIGN
DesignID
Size
Design cost
associated
has
ROOM
RoomName
RoomSize
RoomID
includes
PRODUCTS
ProductID
Desc
Cost
RoomName
TypeName
sells
COMPANY
CompID
CompName
CompPhNo
CompAddress
Email
PAYMENT
Selling price
Advance paid
Cost Price
Remnant Fee
Costs
works
CONTRACTOR
ContractName
ContractPhNo
ContractID
Email
Type of Work

ERD-3 (final):



ER TOOL USED:

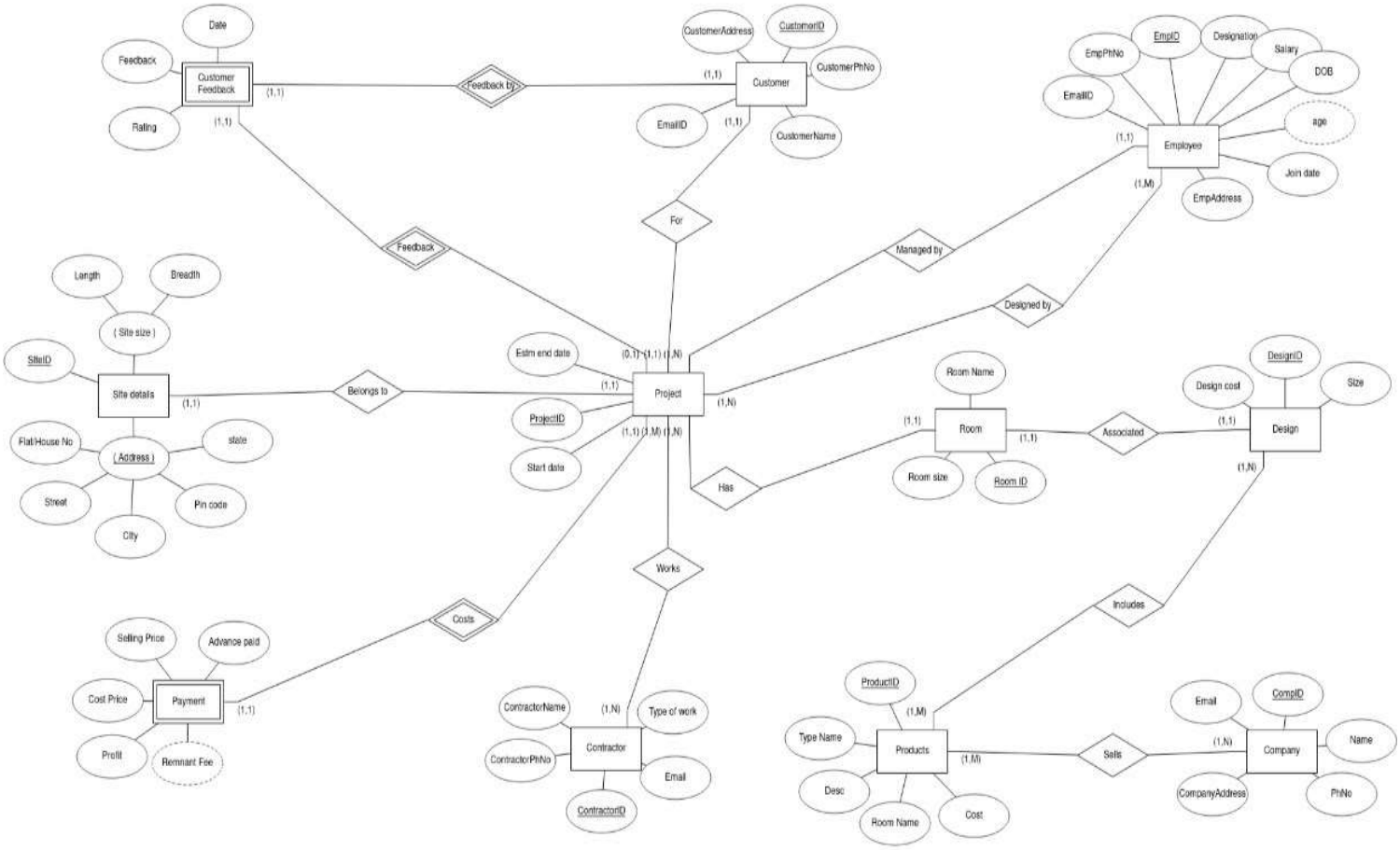
The software tool used to develop the final ER diagram is ERDPlus. ERDPlus is a web-based database modelling tool. We can build our diagram by adding shapes and connecting lines, and can then export the generated diagram, both as an image as well as a .erdplus file, for any further editing. ERDPLus has a somewhat dated design but is held in high regard in the industry. Not only can we generate an ER diagram, with both cardinality ratio and participation, or min-max notation, but we can also convert the same to a relational schema. Moreover, it is free and user friendly.

REFERENCE LINK FOR THE TOOL:

https://erdplus.com

https://trevor.io/blog/top-7-entity-relationship-diagram-tools/#erdplus

FINAL ER DIAGRAM:



CONTRIBUTION OF EACH MEMBER:

All components of the project have been equally distributed among all the members of the team, each of us having spent approximately 7 hours each.

Smruthi Gowtham - PES1UG19CS488:
Described the application, decided domain and problem statement, clearly listing out the tables, attributes, keys etc. Assisted Spandan in creating the base diagram for the ER diagram. Formulated the problem statement. Wrote the 9-page final report.

Spandar Sar - PES1UG19CS498:
Described the application, decided domain and problem statement, clearly listing out the tables, attributes, keys etc. Created the base diagram for each of the ER diagrams. Drew the final diagram using the software.

Suhail F Sheikh - PES1UG19CS513
Collaborated with Spandan in creating the base diagram for the ER diagram. Drew all three ER diagrams, including the final diagram, on paper. Proofread the final document to check for inconsistencies. Assisted in deciding the cardinality ratio, participation etc.