INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER

Staff Accommodation System for BlobFish Enterprises

A Project by

Team Significant

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Project Idea

Blobfish Enterprises provides staff accommodation for their employees. And our team Significant designs and develops a database to organize the process efficiently. The following requirements were captured during the initial phase of data collection and analysis based on the existing accommodation process.

- For each employee, the unique SSN number, full name, address (house number, street, city/town, postcode), date of birth, telephone numbers (since they may have more than one) and specialty area need to be recorded. When an employee joins the company, he or she is assigned to a senior member of staff who acts as his or her mentor. The mentor is responsible for monitoring the employee's welfare and professional development.

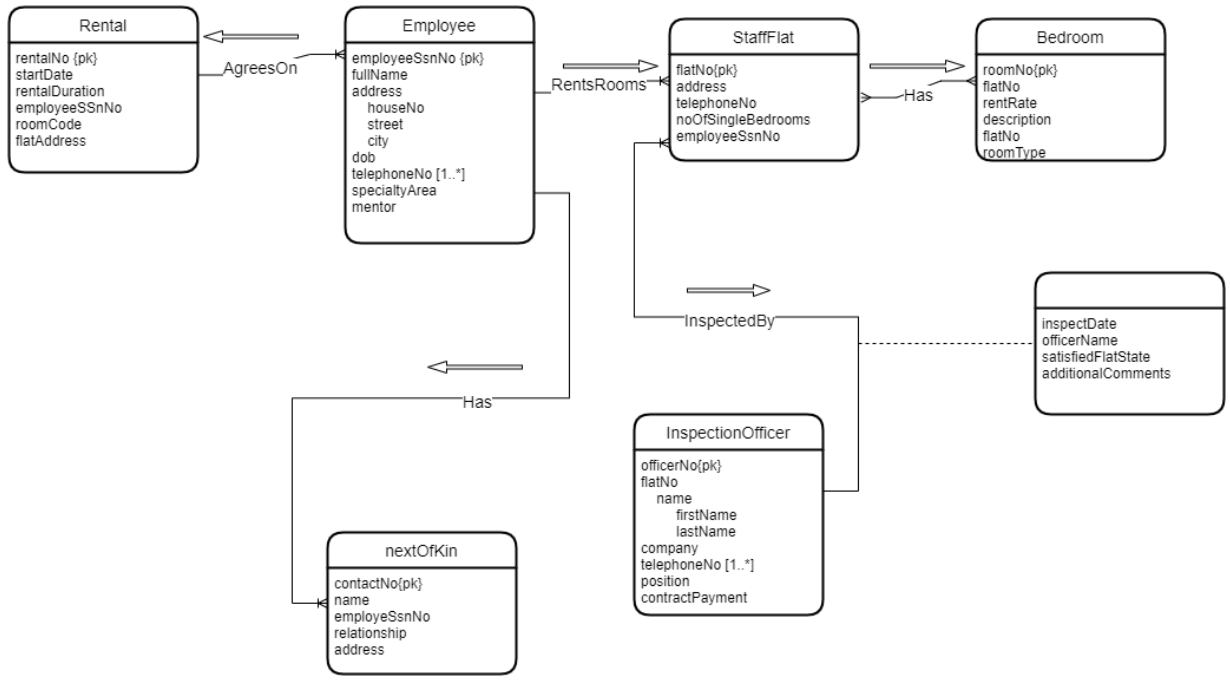
- Employees may rent a room in a staff flat. The staff flats offered by the Accommodation Office are fully furnished and provide single room accommodation for groups of 2, 3, or 4 employees. The information held on staff flats includes a flat number, address, telephone number and the number of single bedrooms available in each flat. The flat number uniquely identifies each flat. Each bedroom in a flat has a monthly rent rate, a room code, a description, a located flat number, and a room type (basic, standard). The room code uniquely identifies each room available and is used when renting a room to an employee.

- An employee may rent a room in a staff flat for various periods of time. New rental agreements are negotiated at the start of each financial year. Each individual rental agreement between an employee and the Accommodation Office is uniquely identified using a rental number. The data stored on each rental includes the rental number, start date, duration of the rental, employee's SSN number, room code and address details of the staff flat.

- Staff flats are inspected by a third-party inspection officer on a regular basis to ensure that the accommodation is well maintained. The information recorded for each inspection is the name of the officer who carried out the inspection, the date of inspection, an indication of whether the property was found to be in a satisfactory condition (yes or no), and any additional comments.

- Information is also held on third party inspection officers, and this includes a unique officer number, name (first and last name), company working for, telephone number(s), position, and contract payment.
- Whenever possible, information on an employee's next-of-kin is stored which includes the name, relationship, address, and contact telephone number.

ERD


Rental
rentalNo {pk}
startDate
rentalDuration
employeeSSnNo
roomCode
flatAddress
AgreesOn
Employee
employeeSsnNo {pk}
fullName
address
houseNo
street
city
dob
telephoneNo [1..*]
specialtyArea
mentor
RentsRooms
StaffFlat
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address
telephoneNo
noOfSingleBedrooms
employeeSsnNo
Has
Bedroom
roomNo{pk}
flatNo
rentRate
description
flatNo
roomType
InspectedBy
inspectDate
officerName
satisfiedFlatState
additionalComments
Has
InspectionOfficer
officerNo{pk}
flatNo
name
firstName
lastName
company
telephoneNo [1..*]
position
contractPayment
nextOfKin
contactNo{pk}
name
employeeSsnNo
relationship
address

Functionalities of the database and related tables.

1. Providing a table to input the information regarding to the employees who apply for staff accommodation.
    - Employee table

2. Providing information regarding the flats and bedrooms
    - Staff Flat table
    - Bedrooms table

3. Providing information regarding the rentals
    - Rental table

4. Providing information regarding the inspection officer
    - Inspection officer table

5. Providing information regarding the next of kin
    - Next of kin table

Normalized tables

Following tables were normalized due to having multi-valued attributes

1. Employee Table
2. Inspection Officer Table

1. Employee Table

Before Normalization

Employee Table						
Employee Ssn No	Full Name	Address	dob	Tel No	Specialty Area	Mentor
778628144	Lennon Spence	57, Industrial Rd, Berkeley Heights, New Mexico	2000/04/04	+1-323-474-4747	Quality Assurance	Tyson Webster
805141893	Dallas Duran	4933 Drummond Street, New Jersy	2001/05/05	+1-972-785-8989	Cyber Security	Eleanor Kelly
306881511	Lane Turner	4660 Red Maple Drive, California	2002/06/06	+-1803-383-9696	UI UX	Jack Lindsey

After Normalization

Employee Ssn No	Full Name	Address	dob	Specialty Area	Mentor
778628144	Lennon Spence	57, Industrial Rd, Berkeley Heights, New Mexico	2000/04/04	Quality Assurance	Tyson Webster
805141893	Dallas Duran	4933 Drummond Street, New Jersy	2001/05/05	Cyber Security	Eleanor Kelly
306881511	Lane Turner	4660 Red Maple Drive, California	2002/06/06	UI UX	Jack Lindsey

Employee Ssn No	Tel No
778628144	+1-323-474-4747
778628144	+1-112-788-7878
805141893	+1-972-785-8989
306881511	+1-803-383-9696

2. Inspection Officer Table

Before Normalization

Officer No	Flat No	Name	Company	Tel No	Position	Contract Payment
1234	1	Camilla Garcia	BloBfish	+1-222-222-5656	HR	2000$
5678	2	Edgar Bates	Blobfish	+1-747-747-5554	Manager	2500$

After Normalization

Officer No	Flat No	Name	Company	Position	Contract Payment
1234	1	Camilla Garcia	BloBfish	HR	2000$
5678	2	Edgar Bates	Blobfish	Manager	2500$

Officer No	Tel No
1234	+1-222-222-5656
1234	+1-666-666-6666
5678	+1-747-747-5554

Tables

1. Employee Table

- Used to Store Information of Employees
- Data Type of each Attribute
    - Employee Ssn No - int
    - Full Name -varchar
    - Address -varchar
    - Dob -date
    - Tel No -varchar
    - Specialty Area -varchar
    - Mentor -varchar

Employee Table						
Employee Ssn No	Full Name	Address	dob	Tel No	Specialty Area	Mentor
778628144	Lennon Spence	57, Industrial Rd, Berkeley Heights, New Mexico	2000/04/04	+1-323-474-4747	Quality Assurance	Tyson Webster
805141893	Dallas Duran	4933 Drummond Street, New Jersy	2001/05/05	+1-972-785-8989	Cyber Security	Eleanor Kelly
306881511	Lane Turner	4660 Red Maple Drive, California	2002/06/06	+-1803-383-9696	UI UX	Jack Lindsey

2. Rental Table

- Used to Store Information of Rentals
- Data Type of each Attribute
    - Rental No - int
    - Start Date - date
    - Rental Duration - int
    - Employee SSN Number - int
    - Room Code -varchar
    - Flat Address -varchar

Rental Table					
Rental No	Start date	Rental Duration (Months)	Employee SSN Number	Room Code	Flat Address
123	2022/12/12	5	778628144	4545	488 Locust Court, California
456	2022/12/17	7	805141893	7575	322 FairField Rd, Wisconsin

3. Staff Flat Table

- Used to Store Information of Staff flats
- Data Type of each Attribute
  - Flat No - varchar
  - Address - varchar
  - Tel No - varchar
  - No of single bedrooms -int
  - Employee SSN No -int

Staff Flat Table				
Flat No	Address	Tel No	No. Of Single bedrooms	Employee SSN No
1	488 Locust Court, California	+1-966-878-1000	2	778628144
2	322 FairField Rd, Wisconsin	+1-588-455-8585	3	805141893

4. Inspection Officer Table

- Used to Store Information of Inspection Officers
- Data Type of each Attribute
  - Officer No - int
  - Flat No -varchar
  - Name - varchar
  - Company - varchar
  - Tel No - varchar
  - Position - varchar
  - Contract Payment - decimal

Officer No	Flat No	Name	Company	Tel No	Position	Contract Payment
1234	1	Camilla Garcia	BloBfish	+1-222-222-5656	HR	2000$
5678	2	Edgar Bates	Blobfish	+1-747-747-5554	Manager	2500$

5. Bedroom Table

- Used to Store Information of Bedrooms
- Data Type of each Attribute
  - Room No - varchar
  - Flat No - varchar
  - Rent rate - decimal
  - Description - varchar
  - Room type -varchar

Bedroom Table				
Room No	Flat No	Rent rate	Description	Room Type
112B	1	12.25%	None	Basic
113S	2	15.15%	Fully air conditioned	Standard

6. Next of Kins Table

- Used to Store Information of Next of Kins
- Data Type of each Attribute
  - Contact No - varchar
  - Name - varchar
  - Employee SSN number - int
  - Relationship - varchar
  - Address - varchar

Next of Kins Table				
Contact No	Name	Employee SSN Number	Relationship	Address
+1-966-966-0000	Candy Chriss	778628144	Cousin	626 Creekside Lane, California
+1-898-898-0000	Jane Paul	805141893	Uncle	1685 Emerson Rd, Louisiana

SQL Scripts

1. Employee Table

Create Schema

CREATE TABLE `blobfish_accomodation`.`employee_tbl` (`employeeSsnNO` INT(9) NOT NULL , `fullName` VARCHAR(60) NOT NULL , `address` VARCHAR(150) NOT NULL , `dob` DATE NOT NULL , `specialtyArea` VARCHAR(30) NOT NULL , `mentor` VARCHAR(50) NOT NULL , PRIMARY KEY (`employeeSsnNO`)) ENGINE = InnoDB;

CREATE TABLE `blobfish_accomodation`.`employee_tel_no` (`telNo` VARCHAR(20) NOT NULL , `employeeSsnNo` INT(9) NOT NULL) ENGINE = InnoDB;

Foreign key constraints

ALTER TABLE employee_tel_no
ADD FOREIGN KEY (employeeSsnNo)
REFERENCES employee_tbl(employeeSsnNo);

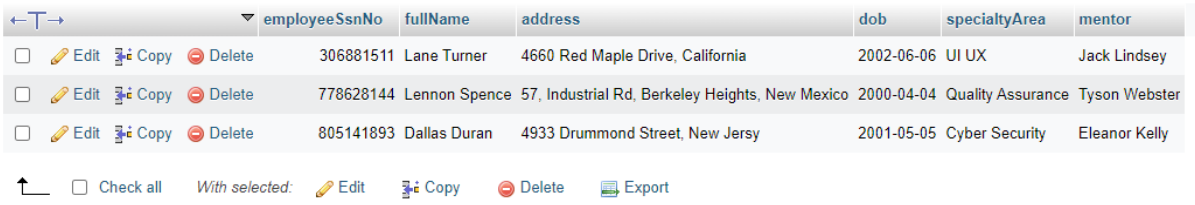
Populate Data

INSERT INTO `employee_tbl` (`employeeSsnNo`, `fullName`, `address`, `dob`, `specialtyArea`, `mentor`) VALUES (778628144, 'Lennon Spence', '57, Industrial Rd, Berkeley Heights, New Mexico', '2000/04/04', 'Quality Assurance', 'Tyson Webster'), (805141893, 'Dallas Duran', '4933 Drummond Street, New Jersy', '2001/05/05', 'Cyber Security', 'Eleanor Kelly'), (306881511, 'Lane Turner', '4660 Red Maple Drive, California', '2002/06/06', 'UI UX', 'Jack Lindsey');

INSERT INTO `employee_tel_no` (`telNo`, `employeeSsnNo`) VALUES ('+1-323-474-4747', 778628144), ('+1-112-788-7878', 778628144), ('+1-972-785-8989', 805141893), ('+1-803-383-9696', 306881511);

Queries

SELECT * FROM employee_tbl;



	employeeSsnNo	fullName	address	dob	specialtyArea	mentor
Edit Copy Delete	306881511	Lane Turner	4660 Red Maple Drive, California	2002-06-06	UI UX	Jack Lindsey
Edit Copy Delete	778628144	Lennon Spence	57, Industrial Rd, Berkeley Heights, New Mexico	2000-04-04	Quality Assurance	Tyson Webster
Edit Copy Delete	805141893	Dallas Duran	4933 Drummond Street, New Jersy	2001-05-05	Cyber Security	Eleanor Kelly

Check all With selected: Edit Copy Delete Export

SELECT * FROM employee_tel_no;

telNo	employeeSsnNo
+1-323-474-4747	778628144
+1-112-788-7878	778628144
+1-972-785-8989	805141893
+1-803-383-9696	306881511

2. Rental Table

Create schema

CREATE TABLE `blobfish_accomodation`.`rental_tbl` (`rentalNo` INT(20) NOT NULL , `startDate` DATE NOT NULL , `rentalDuration` INT(20) NOT NULL , `employeeSsnNo` INT(9) NOT NULL , `roomCode` VARCHAR(20) NOT NULL , `flatAddress` VARCHAR(50) NOT NULL , PRIMARY KEY (`rentalNo`)) ENGINE = InnoDB;

Foreign key constraints

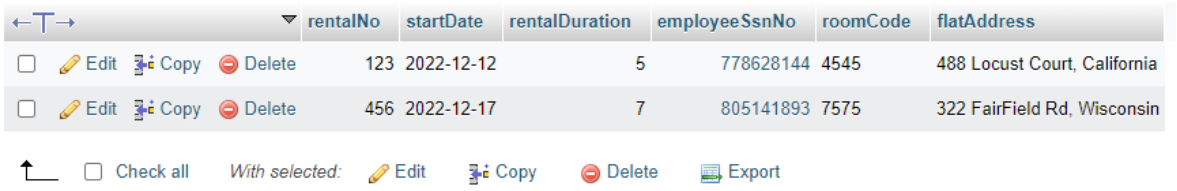
ALTER TABLE rental_tbl
ADD FOREIGN KEY (employeeSsnNo)
REFERENCES employee_tbl(employeeSsnNo);

Populate data

INSERT INTO `rental_tbl` (`rentalNo`, `startDate`, `rentalDuration`, `employeeSsnNo`, `roomCode`, `flatAddress`) VALUES (123, '2022/12/12', 5, 778628144, 4545, '88 Locust Court, California'), (456, '2022/12/17', 7, '805141893', 7575, '322 FairField Rd, Wisconsin');

Queries

SELECT * FROM rental_tbl;



	rentalNo	startDate	rentalDuration	employeeSsnNo	roomCode	flatAddress
Edit Copy Delete	123	2022-12-12	5	778628144	4545	488 Locust Court, California
Edit Copy Delete	456	2022-12-17	7	805141893	7575	322 FairField Rd, Wisconsin

Check all With selected: Edit Copy Delete Export

3. Staff Flat Table

Create schema

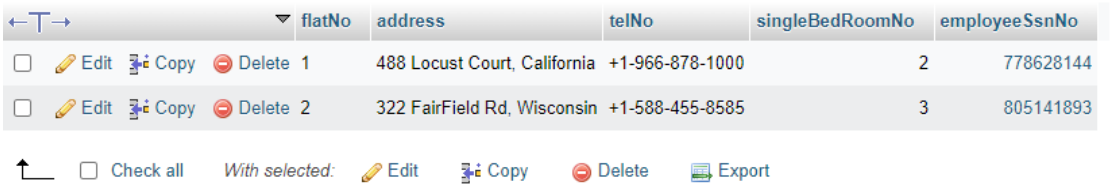
```
CREATE TABLE `blobfish_accomodation`.`staff_flat_tbl` (`flatNo` VARCHAR(10) NOT NULL , `address` VARCHAR(120) NOT NULL , `telNo` VARCHAR(20) NOT NULL , `singleBedRoomNo` INT(15) NOT NULL , `employeeSsnNo` INT(9) NOT NULL , PRIMARY KEY (`flatNo`)) ENGINE = InnoDB;
```

Foreign key constraints

```
ALTER TABLE staff_flat_tbl
ADD FOREIGN KEY (employeeSsnNo)
REFERENCES employee_tbl(employeeSsnNo);
```

Populate data

```
INSERT INTO `staff_flat_tbl` (`flatNo`, `address`, `telNo`, `singleBedRoomNo`, `employeeSsnNo`) VALUES (1, '488 Locust Court, California', '+1-966-878-1000', 2, '778628144'), (2, '322 FairField Rd, Wisconsin', '+1-588-455-8585', 3, '805141893');
```



4. Inspection Officer Table

Create schema

```
CREATE TABLE `blobfish_accomodation`.`inspection_officer_tbl` (`officerNo` INT(10) NOT NULL , `name` VARCHAR(20) NOT NULL , `company` VARCHAR(20) NOT NULL , `position` VARCHAR(10) NOT NULL , `contractPayment` DECIMAL(50) NOT NULL , PRIMARY KEY (`officerNo`)) ENGINE = InnoDB;
CREATE TABLE `blobfish_accomodation`.`employee_tel_no` (`telNo` VARCHAR(20) NOT NULL , `employeeSsnNo` INT(9) NOT NULL ) ENGINE = InnoDB;
```

Foreign key constraints

```
ALTER TABLE inspection_officer_tbl
ADD FOREIGN KEY (flatNo)
REFERENCES staff_flat_tbl(flatNo);

ALTER TABLE officer_tel_no
ADD FOREIGN KEY (officerNo)
REFERENCES inspection_officer_tbl(officerNo);
```

Populate data

```
INSERT INTO `inspection_officer_tbl` (`officerNo`, `flatNo`, `name`, `company`, `position`, `contractPayment`) VALUES (1234, 1, 'Camilla Garcia', 'BloBfish', 'HR', '2000'), (5678, 2, 'Edgar Bates', 'Blobfish', 'Manager', '2500');

INSERT INTO `officer_tel_no` (`officerNo`, `telNo`) VALUES (1234, '+1-222-222-5656'), (1234, '+1-666-666-6666'), (5678, '+1-747-747-5554');
```

Queries

```
SELECT * FROM inspection_officer_tbl;
```

	officerNo	flatNo	name	company	position	contractPayment
Edit Copy Delete	1234	1	Camilla Garcia	BloBfish	HR	2000
Edit Copy Delete	5678	2	Edgar Bates	Blobfish	Manager	2500

Check all With selected: Edit Copy Delete Export

SELECT * FROM officer_tel_no;

officerNo	telNo
1234	+1-222-222-5656
1234	+1-666-666-6666
5678	+1-747-747-5554

5. Bedroom Table

Create schema
CREATE TABLE `blobfish_accomodation`.`bedroom_tbl` (`roomNo` VARCHAR(20) NOT NULL , `flatNo` VARCHAR(10) NOT NULL , `rentRate` DECIMAL(20,00) NOT NULL , `description` VARCHAR(150) NOT NULL , `roomType` VARCHAR(10) NOT NULL , PRIMARY KEY (`roomNo`)) ENGINE = InnoDB;

Foreign key constraints

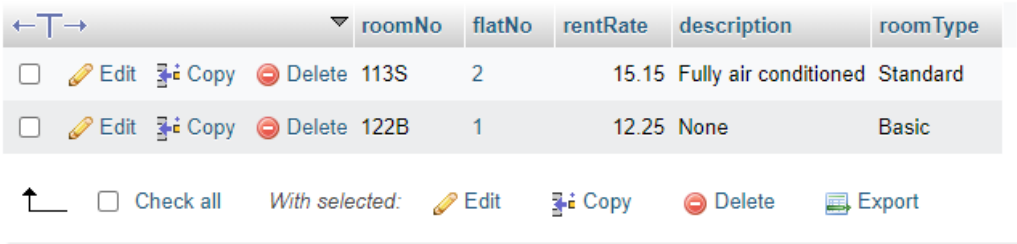
ALTER TABLE bedroom_tbl
ADD FOREIGN KEY (flatNo)
REFERENCES staff_flat_tbl(flatNo);

Populate data

INSERT INTO `bedroom_tbl` (`roomNo`, `flatNo`, `rentRate`, `description`, `roomType`) VALUES ('122B', '1', '12.25', 'None', 'Basic'), ('113S', '2', '15.15', 'Fully air conditioned', 'Standard');

Queries

SELECT * FROM bedroom_tbl;



6. Next of Kins Table

Create schema

```
CREATE TABLE `blobfish_accomodation`.`next_of_kins_tbl` (`contactNo` VARCHAR(20) NOT NULL , `name` VARCHAR(20) NOT NULL , `employeeSsnNo` INT(9) NOT NULL , `address` VARCHAR(20) NOT NULL , `relationship` VARCHAR(10) NOT NULL , PRIMARY KEY (`contactNo`)) ENGINE = InnoDB;
```

Foreign key constraints

```
ALTER TABLE next_of_kins_tbl
ADD FOREIGN KEY (employeeSsnNo)
REFERENCES employee_tbl(employeeSsnNo);
```

Populate data

```
INSERT INTO `next_of_kins_tbl` (`contactNo`, `name`, `employeeSsnNo`, `address`, `relationship`) VALUES ('+1-966-966-0000', 'Candy Chriss', 778628144, '626 Creekside Lane, California', 'Cousin'), ('+1-898-898-0000', 'Jane Paul', 805141893, '1685 Emerson Rd, Louisiana', 'Uncle');
```

Queries

```
SELECT * FROM next_of_kins_tbl;
```

←T→	contactNo	name	employeeSsnNo	address	relationship
Edit Copy Delete	+1-898-898-0000	Jane Paul	805141893	1685 Emerson Rd, Louisiana	Uncle
Edit Copy Delete	+1-966-966-0000	Candy Chriss	778628144	626 Creekside Lane, California	Cousin

Check all *With selected:* Edit Copy Delete Export