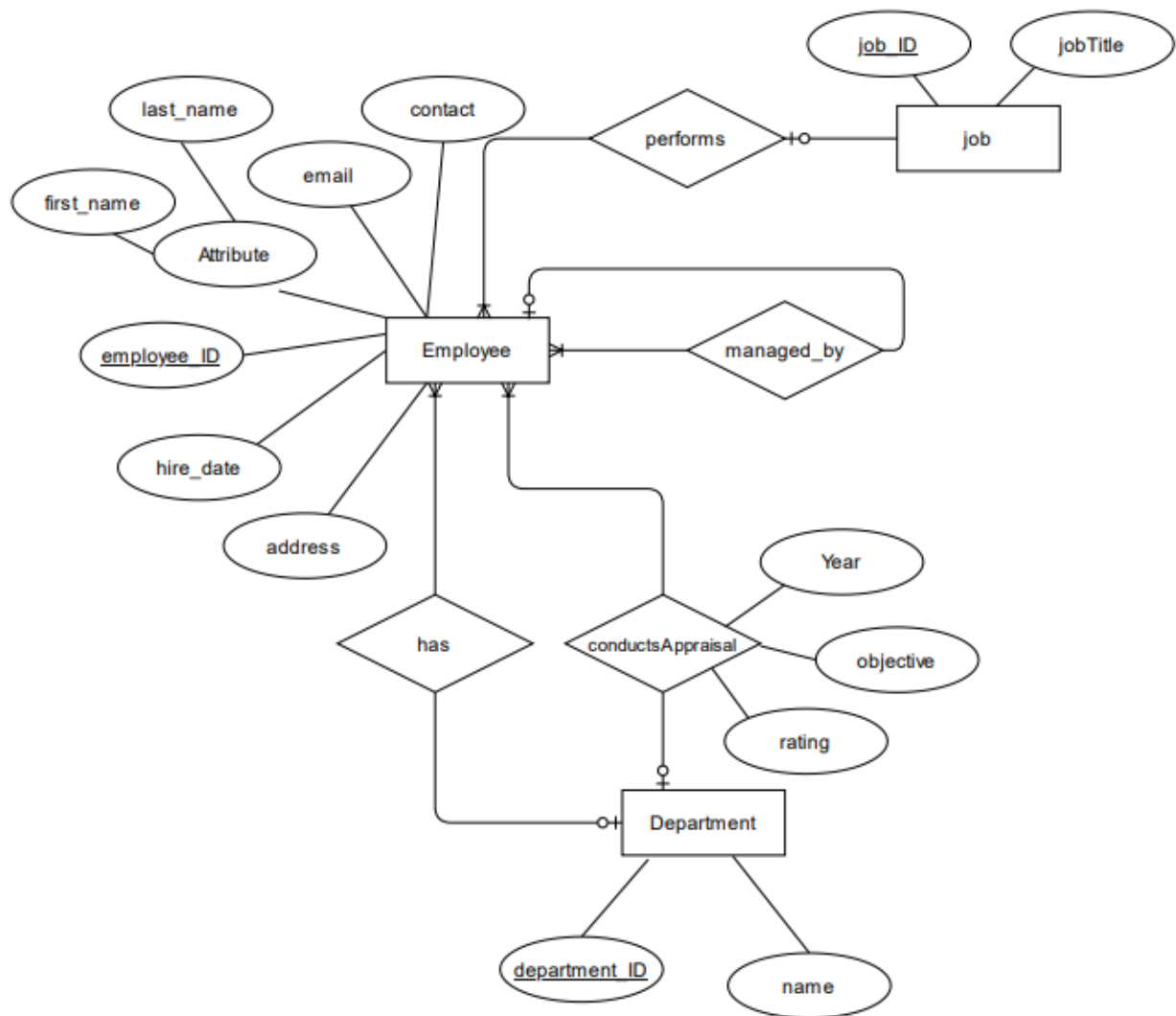
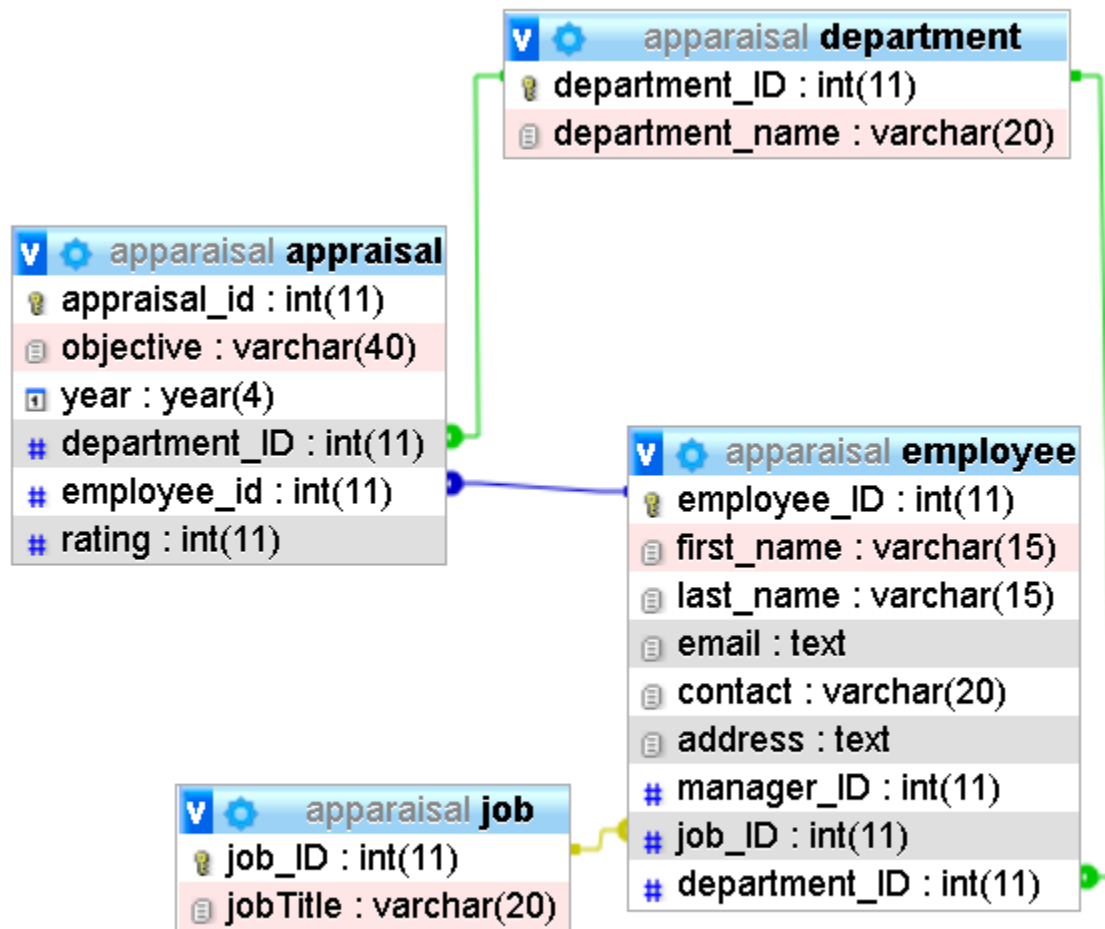


Q1. ER Diagram



Q2. Table Structure



Q3. SQL statements to create table

Table Employee

```
CREATE TABLE `employee` (  
  `employee_ID` int(11) NOT NULL,  
  `first_name` varchar(15) NOT NULL,  
  `last_name` varchar(15) NOT NULL,  
  `email` text NOT NULL,  
  `contact` varchar(20) NOT NULL,  
  `address` text NOT NULL,  
  `manager_ID` int(11) NOT NULL,  
  `job_ID` int(11) NOT NULL,  
  `department_ID` int(11) NOT NULL,  
  `hire_Date` date NOT NULL  
) |
```

Indexing

```
ALTER TABLE `employee`  
  ADD PRIMARY KEY (`employee_ID`),  
  ADD KEY `department_ID` (`department_ID`),  
  ADD KEY `job_ID` (`job_ID`);
```

Constraints

```
ALTER TABLE `employee`  
  ADD CONSTRAINT `employee_ibfk_1` FOREIGN KEY (`department_ID`) REFERENCES `department` (`department_ID`) ON DELETE NO  
ACTION ON UPDATE CASCADE,  
  ADD CONSTRAINT `employee_ibfk_2` FOREIGN KEY (`job_ID`) REFERENCES `job` (`job_ID`) ON DELETE NO ACTION ON UPDATE  
-----
```

Table Department

```
CREATE TABLE `department` (  
  `department_ID` int(11) NOT NULL,  
  `department_name` varchar(20) NOT NULL  
) |
```

Indexing

```
ALTER TABLE `department`  
  ADD PRIMARY KEY (`department_ID`);
```

Table Job

```
CREATE TABLE `job` (  
  `job_ID` int(11) NOT NULL,  
  `jobTitle` varchar(20) NOT NULL  
)
```

Indexing

```
ALTER TABLE `job`  
  ADD PRIMARY KEY (`job_ID`);
```

Table Appraisal

```
CREATE TABLE `appraisal` (  
  `appraisal_id` int(11) NOT NULL,  
  `objective` varchar(40) NOT NULL,  
  `year` year(4) NOT NULL,  
  `department_ID` int(11) NOT NULL,  
  `employee_id` int(11) NOT NULL,  
  `rating` int(11) NOT NULL  
)
```

Indexing

```
ALTER TABLE `appraisal`  
  ADD PRIMARY KEY (`appraisal_id`),  
  ADD KEY `department_ID` (`department_ID`),  
  ADD KEY `employee_id` (`employee_id`);
```

Constraints

```
--  
ALTER TABLE `appraisal`  
  ADD CONSTRAINT `appraisal_ibfk_1` FOREIGN KEY (`department_ID`) REFERENCES `department` (`department_ID`) ON DELETE NO  
ACTION ON UPDATE CASCADE,  
  ADD CONSTRAINT `appraisal_ibfk_2` FOREIGN KEY (`employee_id`) REFERENCES `employee` (`employee_ID`);  
--
```

Q4: SQL Statements to insert tables' data

Employee Table

```
INSERT INTO `employee` (`employee_ID`, `first_name`,  
`last_name`, `email`, `contact`, `address`, `manager_ID`,  
`job_ID`, `department_ID`, `hire_Date`) VALUES  
(1, 'John', 'King', 'johnking@gmail.com', '6-8626259', '2  
Senang Cres ', 0, 101, 4, '2019-09-03'),  
(2, 'Steven ', 'John', 'steventJohn@gmail.com', '6-9087654',  
'15 Woodlands Loop #03-47', 1, 102, 3, '2020-02-11'),  
(3, 'Andre', 'Asher', 'andre@gmail.com', '6-908765', '16  
Jalan Besut, Singapore', 2, 101, 2, '2020-02-11'),  
(4, 'Asher', 'Andre', 'asher@gmail.com', '6-9087658', '139  
Tampines Street 11 #01-34', 3, 101, 1, '2019-07-17');
```

Department Table

```
INSERT INTO `department` (`department_ID`, `department_name`) VALUES  
(1, 'Finance'),  
(2, 'IT'),  
(3, 'Marketing'),  
(4, 'Human Resources');
```

Job Table

```
INSERT INTO `job` (`job_ID`, `jobTitle`) VALUES
(100, 'Admin'),
(101, 'Accountant'),
(102, 'Marketing Manager'),
(103, 'Stock Clerk');
```

Appraisal Table

```
INSERT INTO `appraisal` (`appraisal_id`, `objective`, `year`,
`department_ID`, `employee_id`, `rating`) VALUES
(1, 'Honesty and timeliness', 2019, 1, 4, 4),
(2, 'Honesty and timeliness', 2019, 4, 1, 5),
(3, 'Honesty and timeliness', 2019, 2, 3, 5),
(4, 'Honesty and timeliness', 2019, 3, 2, 4);
```

Q5. Selection Statements

Find all employees supervised by a manager

1. select * from employee where manager_ID !=0;

employee_ID	first_name	last_name	email	contact	address	manager_ID	job_ID	department_ID
2	Steven	John	steventjohn@gmail.com	6-9087654	15 Woodlands Loop #03-47	1	102	3
3	Andre	Asher	andre@gmail.com	6-908765	16 Jalan Besut, Singapore	2	101	2
4	Asher	Andre	asher@gmail.com	6-9087658	139 Tampines Street 11 #01-34	3	101	1

Find all employees with a specific rating

2. select first_name, last_name from employee natural join appraisal where rating = 4;

first_name	last_name
Asher	Andre
Steven	John

Find all employees hired after 1st Jan 2020

3. SELECT first_name,last_name,hire_date FROM `employee` WHERE hire_Date > ('2020-01-01');

first_name	last_name	hire_date
Steven	John	2020-02-11
Andre	Asher	2020-02-11

2 rows in set (0.002 sec)