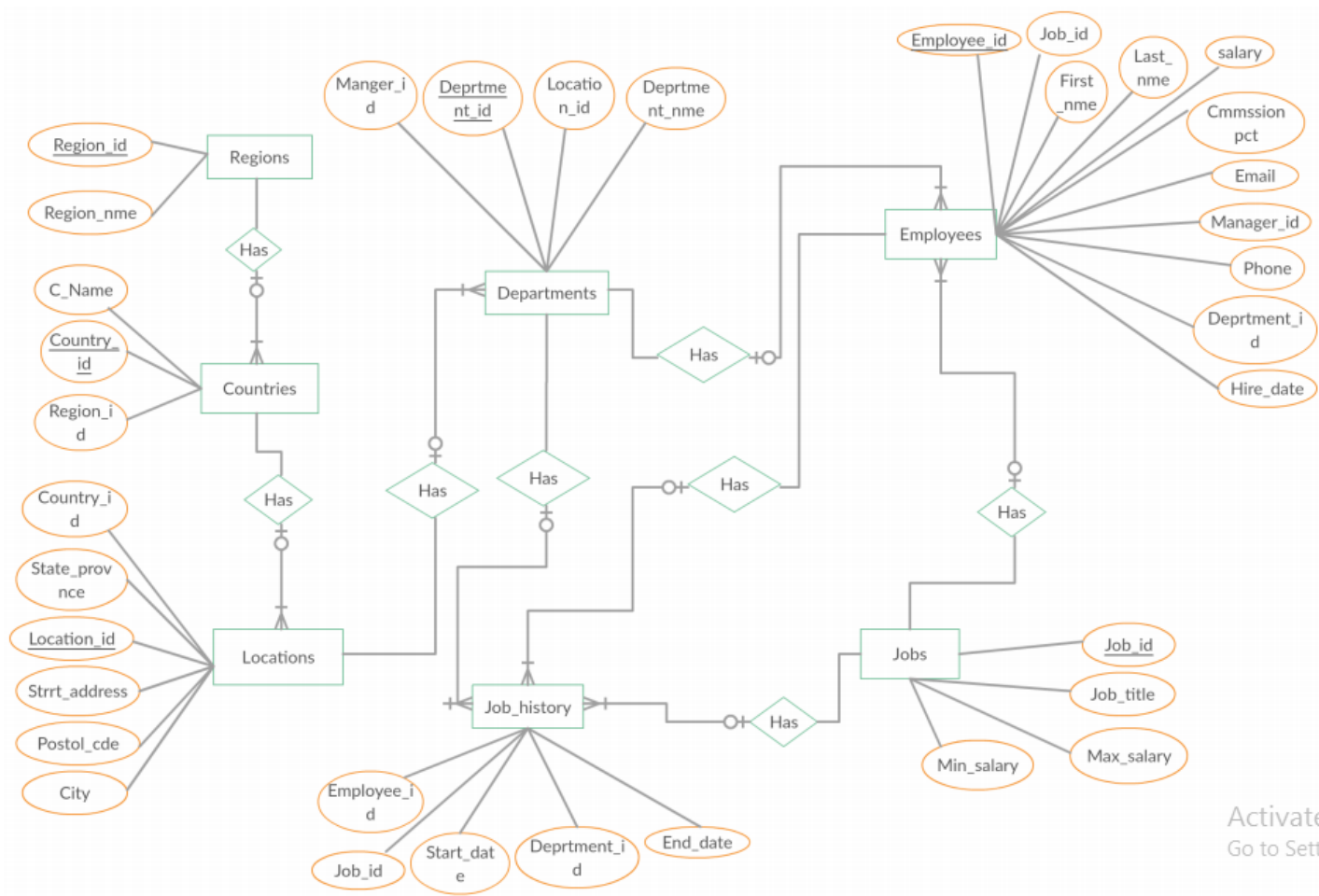


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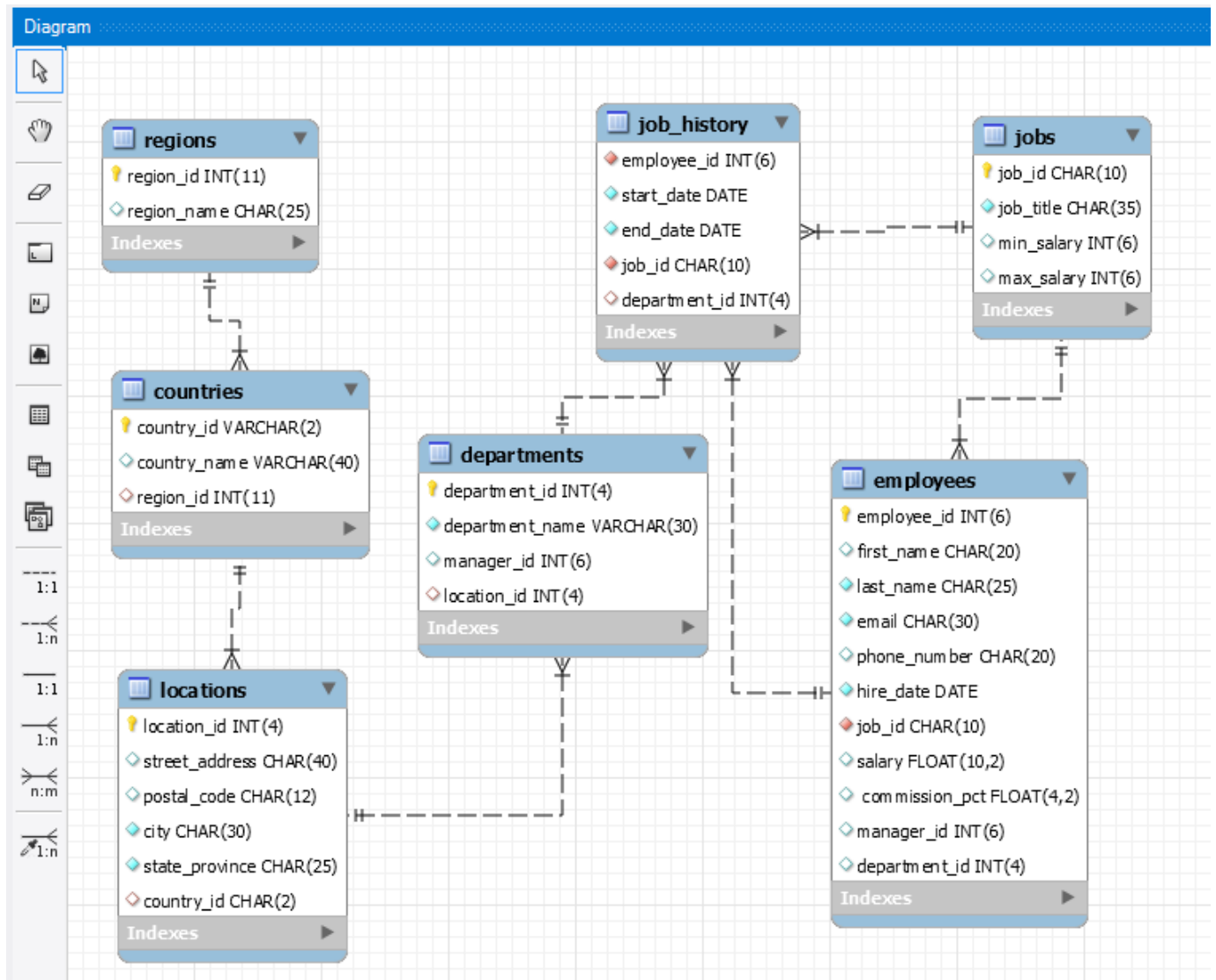
Database Development (M2I324174-16-C)

1. ER Diagram of the database schema

a. ER_Diagrams Detailed Version



b. MySQL Workbench Version



2. Statements for creating the tables in the schema

a. COUNTRIES

```
CREATE TABLE `countries` (  
  `country_id` varchar(2) NOT NULL,  
  `country_name` varchar(40) DEFAULT NULL,  
  `region_id` int(11) DEFAULT NULL,  
  PRIMARY KEY (`country_id`),  
  KEY `region_id` (`region_id`),  
  CONSTRAINT `countries_ibfk_1` FOREIGN KEY (`region_id`) REFERENCES `regions`
```

```
(`region_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=latin1
```

b. DEPARTMENTS

```
CREATE TABLE `departments` (  
  `department_id` int(4) NOT NULL,  
  `department_name` varchar(30) NOT NULL,  
  `manager_id` int(6) DEFAULT NULL,  
  `location_id` int(4) DEFAULT NULL,  
  PRIMARY KEY (`department_id`),  
  KEY `location_id` (`location_id`),  
  CONSTRAINT `departments_ibfk_1` FOREIGN KEY (`location_id`)  
  REFERENCES `locations` (`location_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=latin1
```

c. EMPLOYEES

```
CREATE TABLE `employees` (  
  `employee_id` int(6) NOT NULL AUTO_INCREMENT,  
  `first_name` char(20) DEFAULT NULL,  
  `last_name` char(25) NOT NULL,  
  `email` char(30) NOT NULL,  
  `phone_number` char(20) DEFAULT NULL,  
  `hire_date` date NOT NULL,  
  `job_id` char(10) NOT NULL,  
  `salary` float(10,2) DEFAULT NULL,  
  `commission_pct` float(4,2) DEFAULT NULL,  
  `manager_id` int(6) DEFAULT NULL,  
  `department_id` int(4) DEFAULT NULL,  
  PRIMARY KEY (`employee_id`),  
  KEY `job_id` (`job_id`),  
  KEY `department_id` (`department_id`),  
  CONSTRAINT `employees_ibfk_1` FOREIGN KEY (`job_id`) REFERENCES  
  `jobs` (`job_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=207 DEFAULT CHARSET=latin1
```

```
ALTER TABLE employees AUTO_INCREMENT = 100;
```

d. JOBS

```
CREATE TABLE `jobs` (  
  `job_id` char(10) NOT NULL,
```

```

`job_title` char(35) NOT NULL,
`min_salary` int(6) DEFAULT NULL,
`max_salary` int(6) DEFAULT NULL,
PRIMARY KEY (`job_id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1

```

e. **JOB_HISTORY**

```

CREATE TABLE `job_history` (
  `employee_id` int(6) NOT NULL,
  `start_date` date NOT NULL,
  `end_date` date NOT NULL,
  `job_id` char(10) NOT NULL,
  `department_id` int(4) DEFAULT NULL,
  KEY `job_id` (`job_id`),
  KEY `employee_id` (`employee_id`),
  KEY `department_id` (`department_id`),
  CONSTRAINT `job_history_ibfk_1` FOREIGN KEY (`job_id`) REFERENCES
`jobs` (`job_id`),
  CONSTRAINT `job_history_ibfk_2` FOREIGN KEY (`employee_id`)
REFERENCES `employees` (`employee_id`),
  CONSTRAINT `job_history_ibfk_3` FOREIGN KEY (`department_id`)
REFERENCES `departments` (`department_id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1

```

f. **LOCATIONS**

```

CREATE TABLE `locations` (
  `location_id` int(4) NOT NULL,
  `street_address` char(40) DEFAULT NULL,
  `postal_code` char(12) DEFAULT NULL,
  `city` char(30) NOT NULL,
  `state_province` char(25) NOT NULL,
  `country_id` char(2) DEFAULT NULL,
  PRIMARY KEY (`location_id`),
  KEY `country_id` (`country_id`),
  CONSTRAINT `locations_ibfk_1` FOREIGN KEY (`country_id`)
REFERENCES `countries` (`country_id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1

```

g. **REGIONS**

```

CREATE TABLE `regions` (

```

```
`region_id` int(11) NOT NULL,  
`region_name` char(25) DEFAULT NULL,  
PRIMARY KEY (`region_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=latin1
```

3. Statements used to push the test data into the database

a. Countries

```
LOAD DATA LOCAL INFILE  
'C:/Users/Maurice/Desktop/Desktop/ACADEMICS/Year2/Term2/Database  
Development/Database Project/countries.csv'  
INTO TABLE countries  
FIELDS TERMINATED BY ','  
ENCLOSED BY '\"' LINES TERMINATED BY '\r\n'
```

b. Departments

```
LOAD DATA LOCAL INFILE  
'C:/Users/Maurice/Desktop/Desktop/ACADEMICS/Year2/Term2/Database  
Development/Database Project/departments.csv'  
INTO TABLE departments  
FIELDS TERMINATED BY ','  
ENCLOSED BY '\"' LINES TERMINATED BY '\r\n'
```

c. Employees

```
LOAD DATA LOCAL INFILE  
'C:/Users/Maurice/Desktop/Desktop/ACADEMICS/Year2/Term2/Database  
Development/Database Project/employees.csv'  
INTO TABLE employees  
FIELDS TERMINATED BY ','  
ENCLOSED BY '\"' LINES TERMINATED BY '\r\n'
```

d. Jobs

```
LOAD DATA LOCAL INFILE  
'C:/Users/Maurice/Desktop/Desktop/ACADEMICS/Year2/Term2/Database  
Development/Database Project/jobs.csv'  
INTO TABLE jobs  
FIELDS TERMINATED BY ','  
ENCLOSED BY '\"' LINES TERMINATED BY '\r\n'
```

e. Job_history

```
LOAD DATA LOCAL INFILE
'C:/Users/Maurice/Desktop/Desktop/ACADEMICS/Year2/Term2/Database
Development/Database Project/job_history.csv'
INTO TABLE job_history
FIELDS TERMINATED BY ','
ENCLOSED BY '"' LINES TERMINATED BY '\r\n'
```

f. Locations

```
LOAD DATA LOCAL INFILE
'C:/Users/Maurice/Desktop/Desktop/ACADEMICS/Year2/Term2/Database
Development/Database Project/locations.csv'
INTO TABLE locations
FIELDS TERMINATED BY ','
ENCLOSED BY '"' LINES TERMINATED BY '\r\n'
```

g. Regions

```
LOAD DATA LOCAL INFILE
'C:/Users/Maurice/Desktop/Desktop/ACADEMICS/Year2/Term2/Database
Development/Database Project/regions.csv'
INTO TABLE regions
FIELDS TERMINATED BY ','
ENCLOSED BY '"' LINES TERMINATED BY '\r\n'
```

4. SQL statements for each of the queries requested above together with a screenshot for each of the outputs for the queries

a. Querie_1

```
SELECT departments.department_id, COUNT(employees.department_id) as
number_of_employees, MAX(salary) as maximum_salary, MIN(salary) as
minimun_salary
FROM departments
JOIN employees ON departments.department_id = employees.department_id
GROUP BY departments.department_id
ORDER BY department_id;
```

department_id	number_of_employees	maximum_salary	minimun_salary
10	1	4400.00	4400.00
20	2	13000.00	6000.00
30	6	11000.00	2500.00
40	1	6500.00	6500.00
50	45	8200.00	2100.00
60	5	9000.00	4200.00
70	1	10000.00	10000.00
80	34	14000.00	6100.00
90	3	24000.00	17000.00
100	6	12000.00	6900.00
110	2	12000.00	8300.00

11 rows in set (0.00 sec)

b. Querie_2

SELECT department_id, department_name, location_id FROM departments
WHERE location_id = 1700 AND department_name NOT LIKE 'Finance';

department_id	department_name	location_id
10	Administration	1700
30	Purchasing	1700
90	Executive	1700
110	Accounting	1700
120	Treasury	1700
130	Corporate Tax	1700
140	Control And Credit	1700
150	Shareholder Services	1700
160	Benefits	1700
170	Manufacturing	1700
180	Construction	1700
190	Contracting	1700
200	Operations	1700
210	IT Support	1700
220	NOC	1700
230	IT Helpdesk	1700
240	Government Sales	1700
250	Retail Sales	1700
260	Recruiting	1700
270	Payroll	1700

20 rows in set (0.00 sec)

c. Querie_3

```

SELECT employees.employee_id, employees.last_name,
       departments.department_id, departments.department_name
FROM departments
JOIN employees ON departments.department_id = employees.department_id
WHERE employees.department_id = 80 OR employees.department_id = 90;

```

employee_id	last_name	department_id	department_name
145	Russell	80	Sales
146	Partners	80	Sales
147	Errazuriz	80	Sales
148	Cambrault	80	Sales
149	Zlotkey	80	Sales
150	Tucker	80	Sales
151	Bernstein	80	Sales
152	Hall	80	Sales
153	Olsen	80	Sales
154	Cambrault	80	Sales
155	Tuvault	80	Sales
156	King	80	Sales
157	Sully	80	Sales
158	McEwen	80	Sales
159	Smith	80	Sales
160	Doran	80	Sales
161	Sewall	80	Sales
162	Vishney	80	Sales
163	Greene	80	Sales
164	Marvins	80	Sales
165	Lee	80	Sales
166	Ande	80	Sales
167	Banda	80	Sales
168	Ozer	80	Sales
169	Bloom	80	Sales
170	Fox	80	Sales
171	Smith	80	Sales
172	Bates	80	Sales
173	Kumar	80	Sales
174	Abel	80	Sales
175	Hutton	80	Sales
176	Taylor	80	Sales
177	Livingston	80	Sales
179	Johnson	80	Sales
100	King	90	Executive
101	Kochhar	90	Executive
102	De Haan	90	Executive

37 rows in set (0.00 sec)

d. Querie_4

```

SELECT departments.department_name, locations.city, locations.street_address,
       locations.postal_code
FROM locations
JOIN departments ON locations.location_id = departments.location_id

```


WHERE locations.country_id = 'US' AND departments.department_name NOT
IN ('IT', 'IT Helpdesk', 'IT Support');

department_name	city	street_address	postal_code
Shipping	South San Francisco	2011 Interiors Blvd	99236
Administration	Seattle	2004 Charade Rd	98199
Purchasing	Seattle	2004 Charade Rd	98199
Executive	Seattle	2004 Charade Rd	98199
Finance	Seattle	2004 Charade Rd	98199
Accounting	Seattle	2004 Charade Rd	98199
Treasury	Seattle	2004 Charade Rd	98199
Corporate Tax	Seattle	2004 Charade Rd	98199
Control And Credit	Seattle	2004 Charade Rd	98199
Shareholder Services	Seattle	2004 Charade Rd	98199
Benefits	Seattle	2004 Charade Rd	98199
Manufacturing	Seattle	2004 Charade Rd	98199
Construction	Seattle	2004 Charade Rd	98199
Contracting	Seattle	2004 Charade Rd	98199
Operations	Seattle	2004 Charade Rd	98199
NOC	Seattle	2004 Charade Rd	98199
Government Sales	Seattle	2004 Charade Rd	98199
Retail Sales	Seattle	2004 Charade Rd	98199
Recruiting	Seattle	2004 Charade Rd	98199
Payroll	Seattle	2004 Charade Rd	98199

20 rows in set (0.00 sec)