SI 564
HW4
Jae Xu
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Hello Sarah:

It is also nice to see you at the party last week!! The screenshots below contain my query and answer to each question. Please do not hesitate to let me know if you have any question, confusion, or comment!

Part1

1. There are three recipe titles according to your question.

```
mysql> select R.RecipeTitle
    -> from Recipes R
    -> join Recipe_Classes RC on R.RecipeClassID = RC.RecipeClassID
    -> where RC.RecipeClassDescription in ('Vegetable', 'Salad');
+---------------------+
| RecipeTitle         |
+---------------------+
| Garlic Green Beans  |
| Asparagus           |
| Mike's Summer Salad |
+---------------------+
3 rows in set (0.04 sec)
```

2. It would be great to always remember others' allergy. Here are two dishes that contain seafood inside.

```
mysql> select R.RecipeTitle from Recipes R
    -> join Recipe_Ingredients RI on R.RecipeID = RI.RecipeID
    -> join Ingredients I on I.IngredientID = RI.IngredientID
    -> join Ingredient_Classes IC on IC.IngredientClassID = I.IngredientClassID
    -> where IC.IngredientClassDescription = 'seafood';
+-----------------------------------------------------+
| RecipeTitle                                         |
+-----------------------------------------------------+
| Salmon Filets in Parchment Paper                    |
| Huachinango Veracruzana (Red Snapper, Veracruz style) |
+-----------------------------------------------------+
2 rows in set (0.05 sec)
```

3. It is good to know that they also like beef and garlic, and they are my fav, too! I filtered out the dishes that have garlic and beef ingredients.

```
mysql> select R.RecipeTitle from Recipes R
    -> join Recipe_Ingredients RI on R.RecipeID = RI.RecipeID
    -> join Ingredients I on I.IngredientID = RI.IngredientID
    -> where I.IngredientName in ('Beef', 'Garlic');
+---------------------+
| RecipeTitle         |
+---------------------+
| Irish Stew          |
| Roast Beef          |
| Garlic Green Beans  |
| Pollo Picoso        |
| Roast Beef          |
| Asparagus           |
+---------------------+
6 rows in set (0.04 sec)
```

Part2

1. You can see the screenshot as reference of employees who work in the operations department.

```
mysql> select fname, lname from employee e
    -> join department d on d.dept_id = e.dept_id
    -> where d.name = 'Operations';
+----------+-----------+
| fname    | lname     |
+----------+-----------+
| Susan    | Hawthorne |
| Helen    | Fleming   |
| Chris    | Tucker    |
| Sarah    | Parker    |
| Jane     | Grossman  |
| Paula    | Roberts   |
| Thomas   | Ziegler   |
| Samantha | Jameson   |
| John     | Blake     |
| Cindy    | Mason     |
| Frank    | Portman   |
| Theresa  | Markham   |
| Beth     | Fowler    |
| Rick     | Tulman    |
+----------+-----------+
14 rows in set (0.04 sec)
```

2. The screenshot includes the information you need related to employee, account and customer.

```
mysql> select A.open_date, C.address
    -> from account A
    -> join customer C on A.cust_id = C.cust_id
    -> join employee E on E.emp_id = A.open_emp_id
    -> where E.fname = 'Paula' and E.lname = 'Roberts';
ERROR 2006 (HY000): MySQL server has gone away
No connection. Trying to reconnect...
Connection id:    1803
Current database: ro_company1

+------------+---------------------+
| open_date  | address             |
+------------+---------------------+
| 2000-01-15 | 47 Mockingbird Ln   |
| 2000-01-15 | 47 Mockingbird Ln   |
| 2004-06-30 | 47 Mockingbird Ln   |
| 2001-03-12 | 372 Clearwater Blvd |
| 2001-03-12 | 372 Clearwater Blvd |
| 2004-01-12 | 29 Admiral Ln       |
| 2004-03-22 | 287A Corporate Ave  |
+------------+---------------------+
7 rows in set (0.75 sec)
```

3. Of course, here is the list of all employees and their managers' id except Michael Smith which might be the CEO who does not have a manager.

```
mysql> select emp_id, fname, lname, superior_emp_id as managerID from employee;
+--------+----------+-----------+-----------+
| emp_id | fname    | lname     | managerID |
+--------+----------+-----------+-----------+
|      1 | Michael  | Smith     |      NULL |
|      2 | Susan    | Barker    |         1 |
|      3 | Robert   | Tyler     |         1 |
|      4 | Susan    | Hawthorne |         3 |
|      5 | John     | Gooding   |         4 |
|      6 | Helen    | Fleming   |         4 |
|      7 | Chris    | Tucker    |         6 |
|      8 | Sarah    | Parker    |         6 |
|      9 | Jane     | Grossman  |         6 |
|     10 | Paula    | Roberts   |         4 |
|     11 | Thomas   | Ziegler   |        10 |
|     12 | Samantha | Jameson   |        10 |
|     13 | John     | Blake     |         4 |
|     14 | Cindy    | Mason     |        13 |
|     15 | Frank    | Portman   |        13 |
|     16 | Theresa  | Markham   |         4 |
|     17 | Beth     | Fowler    |        16 |
|     18 | Rick     | Tulman    |        16 |
+--------+----------+-----------+-----------+
18 rows in set (0.04 sec)
```

4. Here is a list of all accounts that have not been closed and their other information.

```
mysql> select A.account_id, A.avail_balance, C.state, B.name as BusinessName from account A join customer C on A.cust_id = C.cust_id left join business B on C.cust_id = B.cust_id where A.status =
 'ACTIVE';
+------------+---------------+-------+--------------------------+
| account_id | avail_balance | state | BusinessName             |
+------------+---------------+-------+--------------------------+
|          1 |       1057.75 | MA    | NULL                     |
|          2 |        500.00 | MA    | NULL                     |
|          3 |       3000.00 | MA    | NULL                     |
|          4 |       2258.02 | MA    | NULL                     |
|          5 |        200.00 | MA    | NULL                     |
|          7 |       1057.75 | MA    | NULL                     |
|          8 |       2212.50 | MA    | NULL                     |
|         10 |        534.12 | MA    | NULL                     |
|         11 |        767.77 | MA    | NULL                     |
|         12 |       5487.09 | MA    | NULL                     |
|         13 |       2237.97 | NH    | NULL                     |
|         14 |        122.37 | MA    | NULL                     |
|         15 |      10000.00 | MA    | NULL                     |
|         17 |       5000.00 | MA    | NULL                     |
|         18 |       3487.19 | NH    | NULL                     |
|         19 |        387.99 | NH    | NULL                     |
|         21 |        125.67 | MA    | NULL                     |
|         22 |       9345.55 | MA    | NULL                     |
|         23 |       1500.00 | MA    | NULL                     |
|         24 |      23575.12 | NH    | Chilton Engineering      |
|         25 |          0.00 | NH    | Chilton Engineering      |
|         27 |       9345.55 | MA    | Northeast Cooling Inc.   |
|         28 |      38552.05 | NH    | Superior Auto Body       |
|         29 |      50000.00 | MA    | AAA Insurance Inc.       |
+------------+---------------+-------+--------------------------+
24 rows in set (0.04 sec)
```

5. Here is also a list of employees that work at the branch with specifc address.

```
mysql> select emp_id, fname, lname from employee E
    -> left join branch B on B.branch_id = E.assigned_branch_id
    -> where B.address = '422 Maple St.';
+--------+----------+----------+
| emp_id | fname    | lname    |
+--------+----------+----------+
|     10 | Paula    | Roberts  |
|     11 | Thomas   | Ziegler  |
|     12 | Samantha | Jameson  |
+--------+----------+----------+
3 rows in set (0.10 sec)
```

Part 3

1. I generated five random cities to visit according to your prompt.

```
mysql> select c.Name from city c
    -> join country co on c.CountryCode = co.Code
    -> where c.Population > 13000 and c.Population < 500000
    -> and co.Continent != 'North America'
    -> order by rand() limit 5;
+------------------------+
| Name                   |
+------------------------+
| Nizamabad              |
| Moulmein (Mawlamyine)  |
| Chechon                |
| Shibin al-Kawm         |
| Shahjahanpur           |
+------------------------+
5 rows in set (0.05 sec)
```

2. There are 518 cities in total.

```
mysql> select count(*) from city c
    -> join country co on co.Code = c.CountryCode
    -> where co.GovernmentForm = 'Constitutional Monarchy';
+----------+
| count(*) |
+----------+
|      518 |
+----------+
1 row in set (0.05 sec)
```

3. These are five random cities that have specific range of population and specific location requirement.

```
mysql> select c.Name from city c
    -> join country co on c.CountryCode = co.Code
    -> join countrylanguage cl on cl.CountryCode = co.Code
    -> where c.Population > 13000 and c.Population < 500000
    -> and cl.Language != 'English' and cl.Isofficial = 'T'
    -> and co.GovernmentForm != 'Republic'
    -> order by rand()
    -> limit 5;
ERROR 2006 (HY000): MySQL server has gone away
No connection. Trying to reconnect...
Connection id:    2260
Current database: world

+------------------+
| Name             |
+------------------+
| Tampico          |
| Deyang           |
| Itu              |
| Novotroitsk      |
| Itaquaquecetuba  |
+------------------+
5 rows in set (0.49 sec)
```

Part 4

1. There are 39 people were on payroll with a title that contained Engineer.

```
mysql> select count(distinct s.emp_no) as EngineersNumber
    -> from titles t
    -> join salaries s on t.emp_no = s.emp_no
    -> where t.title like '%Engineer%'
    -> and s.from_date >= '1985-01-01'
    -> and s.to_date <= '1986-01-01';
+-----------------+
| EngineersNumber |
+-----------------+
|              39 |
+-----------------+
1 row in set (6.50 sec)
```

2. There are 31700 people in total work in the Production department between the time frame.

```
mysql> select count(distinct de.emp_no) as NumberOfEmployees
    -> from dept_emp de
    -> join departments d on de.dept_no = d.dept_no
    -> where d.dept_name = 'Production'
    -> AND de.from_date <= '1992-01-01'
    -> and de.to_date >= '1985-01-01';
+-------------------+
| NumberOfEmployees |
+-------------------+
|             31700 |
+-------------------+
1 row in set (1.93 sec)
```

3. Sure, here is a list of 20 random employees, and other information about them.

```
mysql> select e.first_name, e.last_name, s.salary, t.title
    -> from employees e
    -> join salaries s on e.emp_no = s.emp_no
    -> join titles t on e.emp_no = t.emp_no
    -> order by rand()
    -> limit 20;
+------------+-------------+--------+------------------+
| first_name | last_name   | salary | title            |
+------------+-------------+--------+------------------+
| Xiaoqiu    | Talmon      |  57965 | Engineer         |
| Kazuhira   | Condotta    |  47573 | Senior Staff     |
| Ibibia     | Polupanov   |  78365 | Senior Staff     |
| Elzbieta   | Roison      |  73919 | Engineer         |
| Horward    | Makinen     |  80326 | Engineer         |
| Nishit     | Zumaque     |  41819 | Staff            |
| Basil      | Petersohn   |  78424 | Engineer         |
| Moon       | Andreotta   |  50918 | Staff            |
| Rasiah     | Feinberg    |  40000 | Technique Leader |
| Shaowen    | Takkinen    |  66175 | Senior Staff     |
| Nevin      | Verspoor    |  45299 | Engineer         |
| Udaiprakash| Frezza      |  86527 | Staff            |
| Tomokazu   | Birsak      |  52858 | Senior Staff     |
| Alain      | Roccetti    |  59482 | Senior Engineer  |
| Maia       | Rodiger     |  76730 | Engineer         |
| Zijian     | Vural       |  57420 | Engineer         |
| Nathan     | Mitina      |  42181 | Engineer         |
| Qiwen      | Grospietsch |  54965 | Senior Engineer  |
| Junichi    | Kalorkoti   |  92564 | Senior Engineer  |
| Rildo      | Krupka      |  85560 | Senior Staff     |
+------------+-------------+--------+------------------+
20 rows in set (20.03 sec)
```

For reference, here are the documentation about tables and their relations. Since there are too many tables in ro_company1 database, the pixel might be low. Please let me know if you find hard seeing the details. Thank you!

Best,
Jae

ro_company1

database	ro_company1	Field Name	Data Type	Value	Notes
table	account	account_id	int	account ID	Primary Key
		product_cd	varchar	product code - the type of financial account (?)	
		cust_id	int	customer ID	foreign key
		open_date	date	The date opened	
		close_date	date	The date closed	
		last_activity_date	date	last activity date	
		status	enum('ACTIVE','CLOSED','FROZEN')	status: active, closed, or frozen	
		open_branch_id		the id of the company branch the account belongs to (?)	
		open_emp_id	small int	the id of the employee opened the account	
		avail_balance	float	balance available in the account	
		pending_balance	float	balance pending in the account	

database	ro_company1	Field Name	Data Type	Value	notes
table	branch	branch_id	small int	the ID of the company branch(1-4)	primary key
		name	varchar	branch name	
		address	varchar	branch specific address	
		city	varchar	city name	
		state	varchar	state the branch belongs to	
		zip	varchar	zip code	

database	ro_company1	Field Name	Data Type	Value	notes
table	business	cust_id	int	customer ID	primary key
		name	varchar	company name: AAA insurnace Inc.	
		state_id	varchar	(?) 12-345-678	
		incorp_date	date	incorporate date: 1995-05-01	

database	ro_company1	Field Name	Data Type	Value	notes
table	customer	cust_id	int	customer id	primary key
		fed_id	varchar	federal id(?) 111-11-1111 or 04-1111111	
		cust_type_cd	enum('I', 'B')	I/B (do not know meaning)	
		address	varchar	specific address	
		city	varchar	city	
		state	varchar	state	
		postal_code	varchar	zip code	

database	ro_company1	Field Name	Data Type	Value	notes
table	department	dept_id	int	1,2,3	primary key
		name	varchar	name of department	

database	ro_company1	Field Name	Data Type	Value	Notes
table	employee	emp_id	small int	employee ID	primary key
		fname	varchar	first name	
		lname	varchar	last name	
		start_date	date	the date start work	
		end_date	date	the date end work (null)	
		superior_emp_id	small int	the id of the superior of the employee	
		dept_id	small int	department ID	
		title	varchar	the title of the employee	
		assigned_branch_id	small int	the id of the branch the employee belongs to	

database	ro_company1	Field Name	Data Type	Value	notes
table	individual (customer)	cust_id	int	1 to 9 numbers, identical	primary key
		fname	varchar	first name	
		lname	varchar	last name	
		birth_date	date	birthday: 1972-04-22	

database	ro_company1	Field Name	Data Type	Value	notes
table	officer	officer_id	int	1 to 4 int	primary key
		cust_id	int	10, 11, 12, 13	multiple
		fname	varchar	first name	
		lname	varchar	last name	
		title	varchar	President	
		start_date	date	1995005-01	
		end_date	date	NULL	

database	ro_company1	Field Name	Data Type	Value	notes
table	product	product_cd	varchar	product category: AUT, BUS, CD (abbreviation)	primary key
		name	varchar	full name of product: auto loan, business line of credit	
		product_type_cd	varchar	more larger type: loan, account	multiple
		date_offered	date	date: 2000-01-01	
		date_retired	date	NULL	

database	ro_company1	Field Name	Data Type	Value	notes
table	product_type	product_type_cd	varchar	account type names	primary key
		name	varchar	specific names	

database	ro_company1	Field Name	Data Type	Value	Notes
table	transaction	txn_id	int	transaction ID	primary key
		txn_date	datetime	transaction date	
		account_id	int	account ID	
		txn_type_cd	enum('DBT', 'CDT')	transaction type: debit or credit	
		amount	10 digit max, 2 digit decimal max	transaction amount	
		teller_emp_id	small int	teller? employee id (?)	
		execution_branch_id	small int	id of the branch belongs to	
		funds_avail_date	datetime	seems same as transaction date (?)	

ro_employees

database	ro_employees		Field Name	Data Type	Value	notes
table	departments		dept_no	char	string stars with d and three digits numbers	primary key
			dept_name	varchar	department name: Customer Services, Finance...	UNI (unique?)
database	ro_employees		Field Name	Data Type	Value	notes
table	dept_emp		emp_no	int	employee number	primary key
			dept_no	varchar	string stars with d and three digits numbers	primary key
			from_date	date	start date	
			to_date	date	end date	
database	ro_employees		Field Name	Data Type	Value	notes
table	dept_manager		emp_no	int	employee number	primary key
			dept_no	car	string stars with d and three digits numbers	primary key
			from_date	date	start date	
			to_date	date	end date	
database	ro_employees		Field Name	Data Type	Value	notes
table	employees		emp_no	int	employee id number	primary key
			birth_date	date	date of birth of employee	
			first_name	varchar	first name	
			last_name	varchar	last name	
			gender	enum('M','F')	gender, binary	
			hire_date	date	the date hiring the employee: yyyy-mm-dd	
database	ro_employees		Field Name	Data Type	Value	notes
table	salaries		emp_no	int	employee id number	primary key
			salary	int	salary	
			from_date	date	start date	primary key
			to_date	date	end date	
databases	ro_employees		Field Name	Data Type	Value	notes
table	titles		emp_no	int	employee number	primary key
			title	varchar	specific title like senior engineer	
			from_date	date	start date	
			to_date	date	end date, if not end, yyyy = 9999	

ro_receipe

databases	ro_receipe	Field Name	Data Type	Value	notes
table	Ingredient_Classes	IngredientClassID	int	1-24, 24 types	primary key
		IngredientClassDescription	varchar	ingredient type: spice, seafood, chips, herb...	
databases	ro_receipe	Field Name	Data Type	Value	notes
table	Ingredients	IngredientID	int	ID numbers	primary key
		IngredientName	varchar	more specific ingredient name: beef, chicken leg, olive oil, Vinegar	
		IngredientClassID	int	the type of ingredient it belongs to	foreign key
		MeasureAmountID	int	measure amount ID	foreign key
databases	ro_receipe	Field Name	Data Type	Value	notes
table	Measurements	MeasureAmountID	int	ID numbers	primary key
		MeasurementDescription	varchar	specific measurement type: ounce, teaspoon, can, bag, jar, filets	
databases	ro_receipe	Field Name	Data Type	Value	notes
table	Recipe_Classes	RecipeClassID	int	integer	primary key
		RecipeClassDescription	varchar	food category: main course, veg, salad, dessert...	
databases	ro_receipe	Field Name	Data Type	Value	notes
table	Recipes	RecipeID	int	ID numbers (identical)	primary key
		RecipeTitle	varchar	Specific names of dishes: Roast beef, Trifle, Salad Buena	
		RecipeClassID	int	ID numbers, different than the RecipeID	MUL (?)
		Preparation	text	Specific steps of cooking	
		Notes	text	Notes about cooking	
databases	ro_receipe	Field Name	Data Type	Value	notes
table	Recipe_Ingredients	RecipeID	int	ID number of Recipe (not identical)	primary key
		RecipeSeqNo	int	sequence number of recipe (sepuence in each RecipeID)	primary key
		IngredientID	int	Ingredient ID number	multiple
		MeasureAmountID	int	Measure amount ID number	multiple
		Amount	double	Specific amount	

world

databases	world	Field Name	Data Type	Value	notes
table	city	ID	int	ID numbers	primary key
		Name	char	city names	
		CountryCode	char	abbreviation of country name	multiple
		District	char	district name	
		Population	int	the number of population	
databases	world	Field Name	Data Type	Value	notes
table	country	Code	char	abbreviation of country	primary key
		Name	char	full name of country	
		Continent	enum(asia, europe, ...)	continent	default Asian
		Region	char	more specific than continent(Caribbean, Central Africa, south america)	
		SurfaceArea	decimal	total area	
		IndepYear	int	independent year, some are null	
		Population	int	population amount	
		LifeExpectancy	decimal	# of years people can live	
		GNP	decimal	gross national product (eco)	
		GNPOld	decimal	GNP old(?)	
		LocalName	char	local (土著人)	
		GovernmentForm	char	eg: republic, federal, constitutional	
		HeadOfState	char	prime minister （首相）	
		Capital	int	capital city	
		Code2	char	another abbreviation of country	
databases	world	Field Name	Data Type	Value	notes
table	countrylanguage	CountryCode	char	abbreviation of country	primary
		Language	char	language name	primary
		IsOfficial	(T/F)	whether official or not	
		Percentage	decimal	percentage - 90.1	