



## AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

*Course:* Introduction to Database

*Section:* I

*Course Teacher:* Rifat Tasnim Anannya

*Project title:* Burger Shop Management System

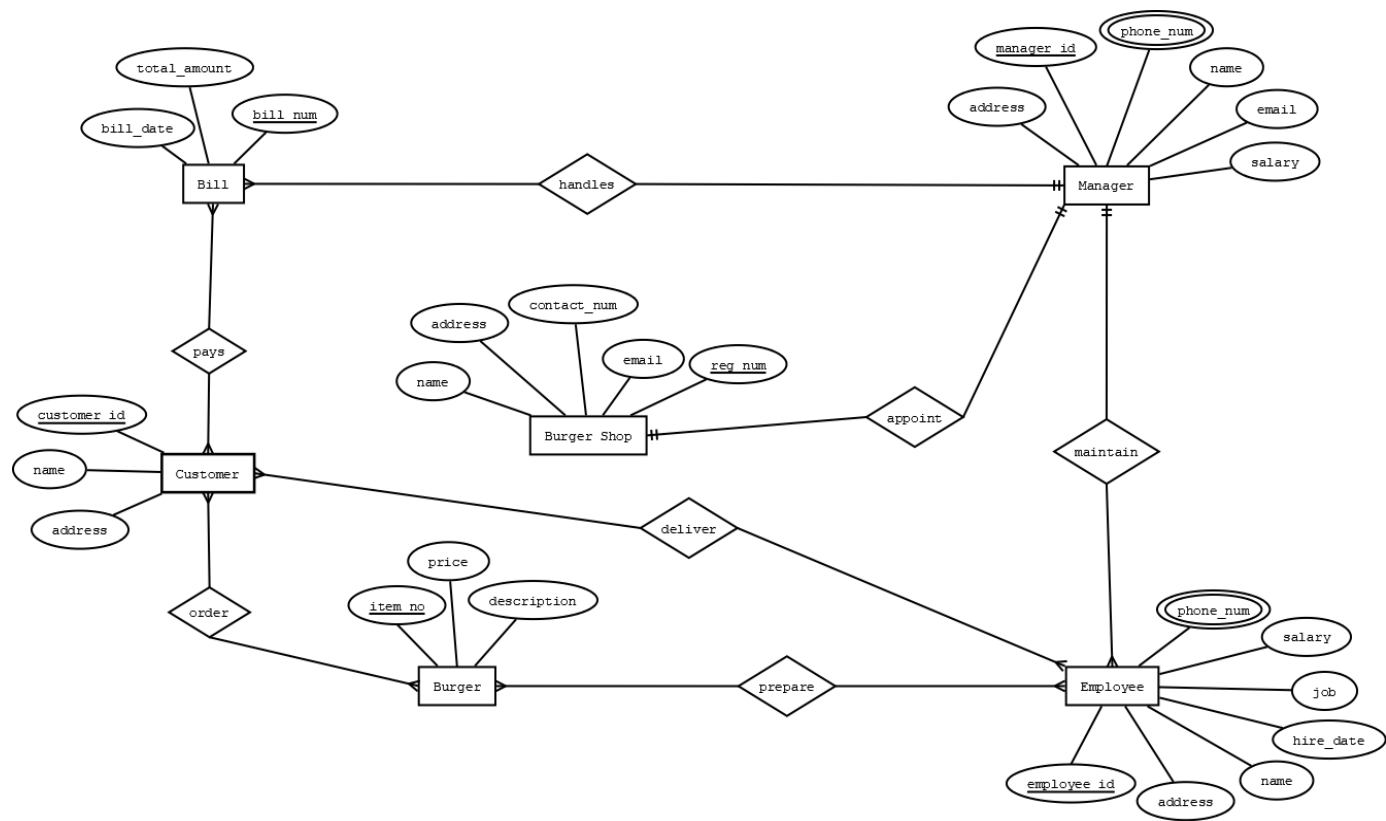
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**Scenario:**

A Burger Shop recognized by shop name, address, contact\_num, reg\_num and email. Shop appoints a Manager to manage the shop. He/she has also a manager\_id, name, phone\_num, salary, address, email. The Manager manages his burger shop and maintains his employees. Employees recognized by a unique employee\_id and job. Employee's name, phone\_num, address, salary and hire\_date has also to be recorded to the manager. Customer visit the burger shop. Therefore their name, customer\_id, address has to be recorded in the system. Customer order Burger from menu. Burger contains a unique item\_no, price, description. After buying or ordering, employee prepare their Burger. Then deliver it to the customer. Customers pay Bills. Manager handles bills. Bill has a unique bill\_num, total\_amount and bill\_date. Customer can receive his/her bill information slip.

## ER Diagram:



## Normalization

[ *Green* one is the primary key

*Red* one is the foreign key ]

**Appoint-** (*reg\_num*, name, address, contact\_num, email, *manager\_id*, name, address, phone\_num, email, salary)

1NF- phone\_num is a multivalued attribute

2NF- *reg\_num*, name, address, contact\_num, email  
*manager\_id*, name, address, phone\_num, email, salary

3NF- *reg\_num*, name, address, contact\_num, email  
*manager\_id*, name, address, phone\_num, email, salary

Table list for **Appoint-**

1. *reg\_num*, name, address, contact\_num, email, *manager\_id*
2. *manager\_id*, name, address, email, salary
3. *manager\_id*, phone\_num

**Maintain-** (*manager\_id*, name, address, phone\_num, email, salary,  
*employee\_id*, name, address, hire\_date, job, salary, phone\_num)

1NF- phone\_num are multivalued attribute in both entities.

2NF- *manager\_id*, name, address, phone\_num, email, salary  
*employee\_id*, name, address, hire\_date, job, salary, phone\_num

3NF- *manager\_id*, name, address, phone\_num, email, salary  
*employee\_id*, name, address, hire\_date, job, salary, phone\_num

Table list for **Maintain-**

1. *manager\_id*, name, address, email, salary
2. *employee\_id*, name, address, hire\_date, job, salary, *manager\_id*
3. *manager\_id*, phone\_num
4. *employee\_id*, phone\_num

**Prepare-** (*employee\_id*, name, address, hire\_date, job, salary, phone\_num,  
*item\_no*, description, price)

1NF- phone\_num is a multivalued attribute

2NF- *employee\_id*, name, address, hire\_date, job, salary, phone\_num  
*item\_no*, description, price

3NF- **employee\_id**, name, address, hire\_date, job, salary, phone\_num  
**item\_no**, description, price

Table list for **Prepare**-

1. **employee\_id**, name, address, hire\_date, job, salary
2. **item\_no**, description, price
3. **employee\_id**, **phone\_num**
4. **p\_id**, **item\_no**, **employee\_id**

**Order**- (**item\_no**, description, price, **customer\_id**, name, address)

1NF- No multivalued attribute

2NF- **item\_no**, description, price  
**customer\_id**, name, address

3NF- **item\_no**, description, price  
**customer\_id**, name, address

Table list for **Order**-

1. **item\_no**, description, price
2. **customer\_id**, name, address
3. **o\_id**, **item\_no**, **customer\_id**

**Pays**- (**customer\_id**, name, address, **bill\_num**, total\_amount, bill\_date)

1NF- No multivalued attribute

2NF- **customer\_id**, name, address  
**bill\_num**, total\_amount, bill\_date

3NF- **customer\_id**, name, address  
**bill\_num**, total\_amount, bill\_date

Table list for **Pays**-

1. **customer\_id**, name, address
2. **bill\_num**, total\_amount, bill\_date
3. **pay\_id**, **customer\_id**, **bill\_id**

**Deliver**- (**customer\_id**, name, address, **employee\_id**, name, address, hire\_date,  
job, salary, phone\_num)

1NF- phone\_num is a multivalued attribute

2NF- **customer\_id**, name, address  
**employee\_id**, name, address, hire\_date, job, salary, phone\_num

3NF- **customer\_id**, name, address  
**employee\_id**, name, address, hire\_date, job, salary, phone\_num

Table list for **Deliver**-

1. **customer\_id**, name, address
2. **employee\_id**, name, address, hire\_date, job, salary
3. **employee\_id**, **phone\_num**
4. **deliver\_id**, **customer\_id**, **employee\_id**

**Handles**- (**bill\_num**, total\_amount, date, **manager\_id**, name, address, phone\_num, email, salary)

1NF- phone\_num is a multivalued attribute

2NF- **bill\_num**, total\_amount, date  
**manager\_id**, name, address, phone\_num, email, salary

3NF- **bill\_num**, total\_amount, date  
**manager\_id**, name, address, phone\_num, email, salary

Table list for **Handles**-

1. **bill\_num**, total\_amount, date, **manager\_id**
2. **manager\_id**, name, address, email, salary
3. **manager\_id**, **phone\_num**

**Final table list-**

*[Blue one is the table name]*

1. **reg\_num**, name, address, contact\_num, email, **manager\_id** >(Burger\_Shop)
2. **manager\_id**, name, address, email, salary >(Manager)
3. **manager\_id**, **phone\_num** >(Manager\_phone)
4. **employee\_id**, name, address, hire\_date, job, salary, **manager\_id** >(Employee)
5. **employee\_id**, **phone\_num** >(Employee\_phone)
6. **item\_no**, description, price >(Burger)
7. **customer\_id**, name, address >(Customer)
8. **bill\_num**, total\_amount, bill\_date, **manager\_id** >(Bill)
9. **o\_id**, **item\_no**, **customer\_id** >(Ordering)
10. **p\_id**, **item\_no**, **employee\_id** >(Prepare)
11. **pay\_id**, **customer\_id**, **bill\_num** >(Payment)
12. **deliver\_id**, **customer\_id**, **employee\_id** >(Delivery)

## Description

Object Type **TABLE** Object **BURGER\_SHOP**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
BURGER_SHOP	REG_NUM	Number	-	10	0	1	-	-	-
	NAME	Varchar2	20	-	-	-	✓	-	-
	ADDRESS	Varchar2	25	-	-	-	✓	-	-
	CONTACT_NUM	Number	-	11	0	-	✓	-	-
	EMAIL	Varchar2	30	-	-	-	✓	-	-
	MANAGER_ID	Number	-	10	0	-	✓	-	-
1 - 6									

Object Type **TABLE** Object **MANAGER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
MANAGER	MANAGER_ID	Number	-	10	0	1	-	-	-
	NAME	Varchar2	18	-	-	-	✓	-	-
	ADDRESS	Varchar2	25	-	-	-	✓	-	-
	EMAIL	Varchar2	16	-	-	-	✓	-	-
	SALARY	Number	-	10	0	-	✓	5000	-
1 - 5									

Object Type **TABLE** Object **MANAGER\_PHONE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>MANAGER_PHONE</u>	<u>MANAGER_ID</u>	Number	-	10	0	1	-	-	-
	<u>PHONE_NUM</u>	Number	-	13	0	2	-	-	-
1 - 2									

Object Type **TABLE** Object **EMPLOYEE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMPLOYEE	EMPLOYEE_ID	Number	-	10	0	1	-	-	-
	NAME	Varchar2	18	-	-	-	✓	-	-
	ADDRESS	Varchar2	25	-	-	-	✓	-	-
	HIRE_DATE	Date	7	-	-	-	✓	-	-
	JOB	Varchar2	20	-	-	-	✓	-	-
	SALARY	Number	-	10	0	-	✓	3100	-
	MANAGER_ID	Number	-	10	0	-	✓	-	-
	1 - 7								

Object Type **TABLE** Object **EMPLOYEE\_PHONE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMPLOYEE_PHONE	EMPLOYEE_ID	Number	-	10	0	1	-	-	-
	PHONE_NUM	Number	-	13	0	2	-	-	-
1 - 2									





Object Type **TABLE** Object **DELIVERY**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>DELIVERY</u>	<u>DELIVER_ID</u>	Number	-	14	0	1	-	-	-
	<u>CUSTOMER_ID</u>	Number	-	14	0	-	✓	-	-
	<u>EMPLOYEE_ID</u>	Number	-	10	0	-	✓	-	-
									1 - 3

sequences:

SEQUENCE_NAME	MIN_VALUE	MAX_VALUE	INCREMENT_BY	CYCLE_FLAG	ORDER_FLAG	CACHE_SIZE	LAST_NUMBER
PREPARE_SEQ	1	9999	1	N	N	0	2004
ORDER_SEQ	1	9999	1	N	N	0	1005
DELIVERY_SEQ	1	9999	1	N	N	0	3004
PAYMENT_SEQ	1	9999	1	N	N	0	4004

## Table with values

Buger\_Shop:

REG_NUM	NAME	ADDRESS	CONTACT_NUM	EMAIL	MANAGER_ID
327485	Burgerology	Dhanmondi	88024125735	burgerology@gmail.com	147
712334	Chillox	Bashundhara	88023258741	chillox@gmail.com	258
410003	Burger Lab	Gulshan	88027840014	bgrlab@gmail.com	159
887006	Burger King	Banani	88025147329	bking@gmail.com	369

Manager:

MANAGER_ID	NAME	ADDRESS	EMAIL	SALARY
147	Fahim	Dhanmondi	fahim@gmail.com	9000
258	Sajjad	Badda	sajjad@gmail.com	9500
369	Abrar	Gulshan	abrar@yahoo.com	11000
159	Nafis	Uttara	nafis@gmail.com	9800

Manager\_phone:

MANAGER_ID	PHONE_NUM
147	8801743658412
147	8801954712369
258	8801641266987
369	8801532177489
369	8801854120033
159	8801712004657

Employee:

EMPLOYEE_ID	NAME	ADDRESS	HIRE_DATE	JOB	SALARY	MANAGER_ID
14876	Sakib	Mohammadpur	12-JUN-19	Cooker	6000	147
13557	Nibir	Mirpur	05-DEC-18	Waiter	5500	147
21364	Hasan	Jigatola	17-FEB-19	Delivery Man	5300	147
33451	Sumaiya	Motijhil	20-JUL-19	Cooker	5500	147

Employee\_phone:

EMPLOYEE_ID	PHONE_NUM
13557	8801514765412
14876	8801757784305
14876	8801934258710
21364	8801662687376
33451	8801753754111

Burger:

ITEM_NO	DESCRIPTION	PRICE
101	Chicken Burger	220
102	Mutton Burger	240
103	Vegetable Burger	200
104	Chicken Burger extra size	300

Customer:

CUSTOMER_ID	NAME	ADDRESS
441	Shahlan	Shaymoli
442	Tumpa	Malibagh
443	Himu	Kuril
445	Sabbir	Baridhara

Bill:

BILL_NUM	TOTAL_AMOUNT	BILL_DATE	MANAGER_ID
20109	630	18-MAY-20	147
20125	820	26-MAY-20	147
20537	240	02-JUN-20	147
20542	1200	10-JUN-20	147

Ordering:

O_ID	ITEM_NO	CUSTOMER_ID
1000	102	445
1001	101	442
1002	103	441
1003	103	442
1004	104	443

Prepare:

P_ID	ITEM_NO	EMPLOYEE_ID
2000	102	14876
2001	103	33451
2002	104	14876
2003	102	14876

Payment:

PAY_ID	CUSTOMER_ID	BILL_NUM
4000	443	20109
4001	442	20537
4002	441	20542
4003	445	20125

Delivery:

DELIVER_ID	CUSTOMER_ID	EMPLOYEE_ID
3000	442	21364
3001	441	13557
3002	443	13557
3003	445	21364

Questions:

- 1) Write a query to display the name and salary for all manager whose salary is not in range from 9000 to 9500.
- 2) Write a query to display the name and mobile number for all managers.
- 3) Write a query to display the name, address, hire date, salary for all employee who work as cooker.
- 4) Write a query to display the price, description alias details and item number for all burger which price is equal to the minimum price.
- 5) Write a query to display the information of all employees whose name starts with 'S'.
- 6) Write a query to display the employee name along with their salary who is getting the second lowest salary.
- 7) Create a view called S\_test based on the shop name, address, and manger id number from the Burger\_Shop table. Change the heading for the address to location.
- 8) Write a query to display the name of customers who got delivery from employee whose id number 21364.

9) Write a query to create a view called EmpD based on the employee name, hire date, job, salary from employee table.

10) Write a query to display details of all manager like “Fahim gets 9000tk per month.” from manager table.