

# AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)



## ***Topic: Online Portfolio*** **Submitted To**

**Course Teacher:** MD. EZAZUL ISLAM

**Course Name:** Introduction to Database

**Section:** C

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## **Introduction**

### **Features:**

1. Online portfolio is an easy way for potential employers to view about skills & other information's of the owners of portfolio.
2. Employers can search for potential candidates of single or multiple skills.
3. Online portfolio showcases primary information's, skill information & potential of the owner of the online portfolio.
4. One can follow companies which posts jobs to recruit employee.
5. Various companies can post jobs for recruiting new employees.

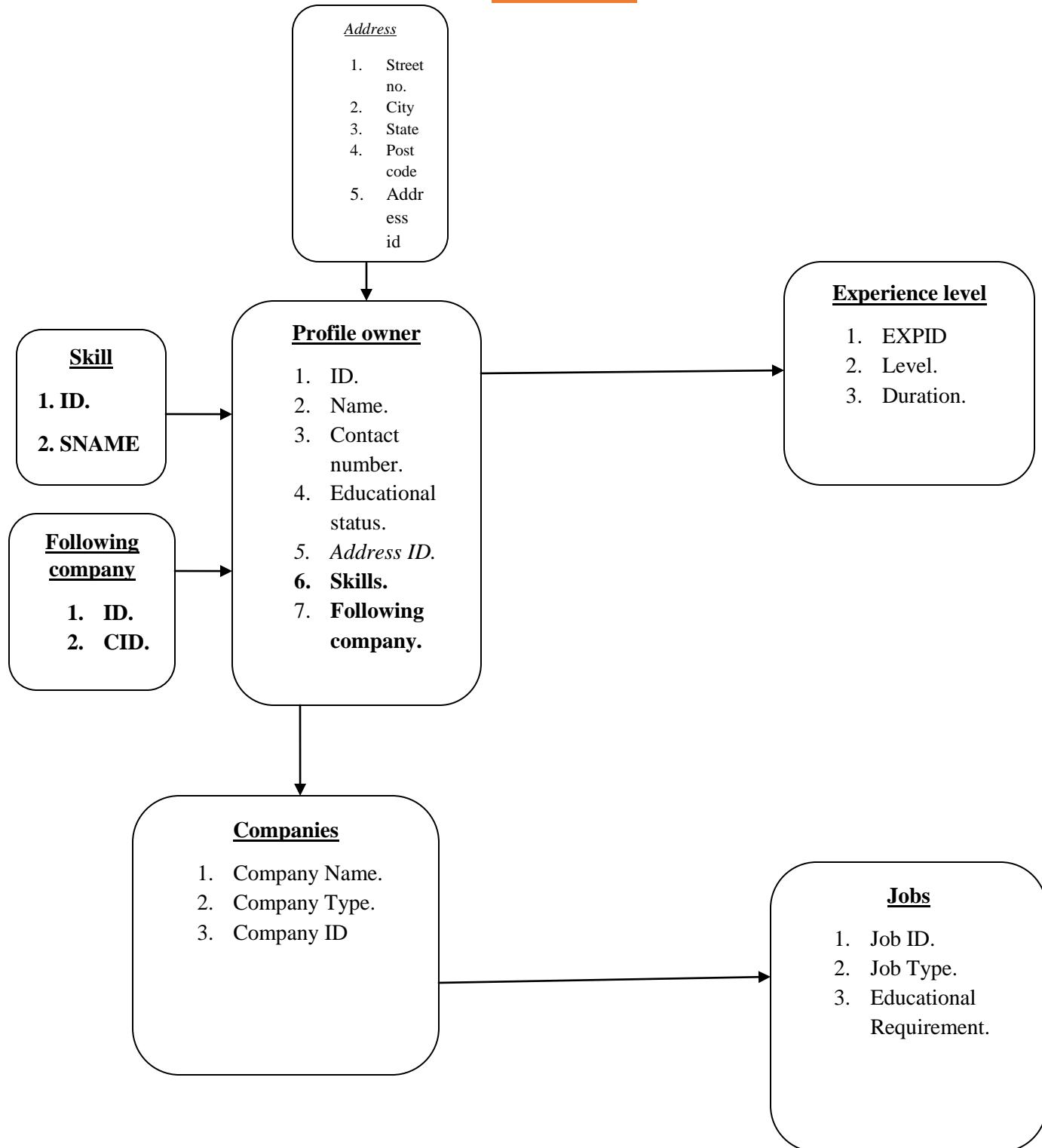
### **Targeted Users:**

For an Online portfolio targeted users are:

1. The employers.
2. The portfolio submitters or the owner of the portfolio.

Here portfolio submitters or the owner of the portfolio who submitted the portfolio in which the owner of the portfolio showcases their different information, skills & potentiality to their future employer who are searching for employee to hire.

## Schema:



## Normalization & De-normalization

### DE-NORMALIZED SCHEMA:

<u>ID</u>	Name	Contact no.	Educational Status	<u>Address ID</u>	Street No.	City	State	Post Code	Level	Exp Duration	Skills
-----------	------	-------------	--------------------	-------------------	------------	------	-------	-----------	-------	--------------	--------

### Insertion Anomalies:

If user wants to insert any new data in the skill table then the user has to insert the values of the profile owner & address table again.

### Deletion Anomalies:

If any of the Address information we need to delete, then we can delete the Address information, but along with the Address information the information's in the profile\_owner & skill table will be deleted like the ID , Name , Contact number , Educational Status & skills.

### Modification Anomalies:

If user wants to update any data in the in the profile owner table then the skill & Address table will also be needed to be updated.

### NORMALIZATION:

<u>ID</u>	Name	Contact no.	Educational Status	<u>Address ID</u>	Street No.	City	State	Post Code	Level	Exp Duration	Skills
-----------	------	-------------	--------------------	-------------------	------------	------	-------	-----------	-------	--------------	--------

### 1<sup>st</sup> NF:

<u>ID</u>	Name	Contact no.	Educational Status	<u>Address ID</u>	Street No.	City	State	Post Code	Level	Exp Duration	Skills
-----------	------	-------------	--------------------	-------------------	------------	------	-------	-----------	-------	--------------	--------

<u>ID</u>	Skills									
-----------	--------	--	--	--	--	--	--	--	--	--

Here Skills was a multi valued attribute. So at first if any information is needed to be updated then there will be a need for updating information for all the skill & address information. The same goes for deleting from the table. So here we see for having skill a multivalve we have problems with the insert, update

and delete anomalies. It makes it to a 0 normalized form. So to make it into a 1<sup>st</sup> normalized form the skills table was made separated from the original table.

### 2<sup>nd</sup> NF:

<u>ID</u>	<u>Address ID</u>	Name	Contact no.	Educational Status	Level	Exp Duration
-----------	-------------------	------	-------------	--------------------	-------	--------------

<u>Address ID</u>	Street No.	City	State	Post Code
-------------------	------------	------	-------	-----------

Here there was a partial dependency on Address id. So if any updating if needed in the address table the full row will be needed to be updated. For deleting if any address information is needed to be deleted the the whole row will be deleted. Here for the partial dependency we face update and delete anomalies problem. It is now in 1<sup>st</sup> normalized form but not in 2<sup>nd</sup> normalized form. So by removing that partial dependency on Address id it was made into a 2<sup>nd</sup> normalized form.

### 3<sup>rd</sup> NF:

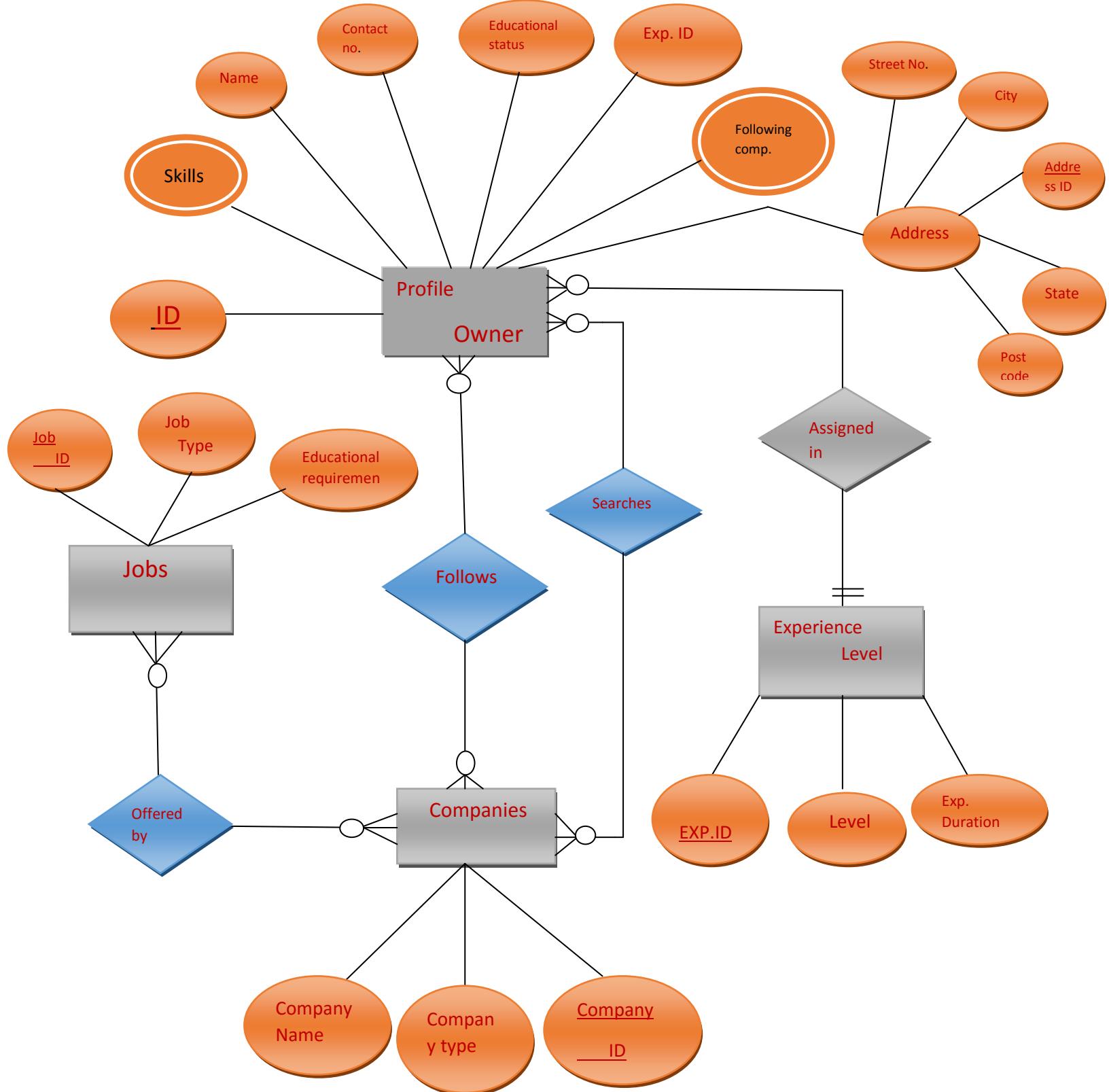
<u>ID</u>	<u>Address ID</u>	Name	Contact no.	Educational Status	Level	Exp Duration
↑						

<u>ID</u>	<u>Address ID</u>	Name	Contact no.	Educational Status	Exp.ID
-----------	-------------------	------	-------------	--------------------	--------

<u>EXP ID</u>	Exp Duration	Level
---------------	--------------	-------

Here in the table the Exp duration a non key was depended on level another non key. Where it is needed to remove the transitive dependency to turn a 2<sup>nd</sup> normalized form to a 3<sup>rd</sup> normalized form. Here also if any level information is needed to be inserted or updated then the whole table will be needed to be updated. Again if anything is needed to be deleted from the exp duration then there will be a need of deleting id & exp level. So for the non key dependency we face insert, update and delete anomalies problem. So to avoid this problem we need to turn this into 3<sup>rd</sup> normalized form. And to do so the non key dependency was separated from the table and turned into 3<sup>rd</sup> normalized form.

## The ER-Diagram



## Table Creation

### **1. Profile owner Table:-**

```
create table profile_owner
(
    id number(6) primary key,
    name varchar2(50) NOT NULL,
    contact_no number(11),
    educational_status varchar2(50),
    address_id number(5) NOT NULL,
    Expid number(2) NOT NULL,
    FOREIGN KEY (address_id) REFERENCES address(address_id)
);
```

Column Name	Data Type	Nullable	Default	Primary Key
ID	NUMBER(6,0)	No	-	1
NAME	VARCHAR2(50)	No	-	-
CONTACT_NO	NUMBER(11,0)	Yes	-	-
EDUCATIONAL_STATUS	VARCHAR2(50)	Yes	-	-
ADDRESS_ID	NUMBER(5,0)	No	-	-
EXPID	NUMBER(2,0)	No	-	-
				1 - 6

### **2. Address Table:-**

```
create table address
(
    address_id number(5) primary key,
    street_number number(4),
    area varchar2(50) NOT NULL,
    state varchar2(50) NOT NULL,
    post_code number(11) NOT NULL
);
```

Column Name	Data Type	Nullable	Default	Primary Key
ADDRESS_ID	NUMBER(5,0)	No	-	1
STREET_NUMBER	NUMBER(4,0)	Yes	-	-
AREA	VARCHAR2(50)	No	-	-
STATE	VARCHAR2(50)	No	-	-
POST_CODE	NUMBER(11,0)	No	-	-
				1 - 5

### 3. Experience Level Table:-

```
CREATE TABLE EXPLEVEL
(
    EXPID NUMBER(4) primary key,
    LNAME VARCHAR2(50) NOT NULL,
    DURATION VARCHAR2 (50) NOT NULL
)
```

Column Name	Data Type	Nullable	Default	Primary Key
EXPID	NUMBER(4,0)	No	-	1
LNAME	VARCHAR2(50)	No	-	-
DURATION	VARCHAR2(50)	No	-	-
		1 - 3		

### 4. Company Table :-

```
create table companies
(
    cid number(5) primary key,
    cname varchar2(50) NOT NULL,
    ctype varchar2(30) NOT NULL,
);
```

Column Name	Data Type	Nullable	Default	Primary Key
CID	NUMBER(5,0)	No	-	1
CNAME	VARCHAR2(50)	No	-	-
CTYPE	VARCHAR2(30)	No	-	-
			1 - 3	

### 5. Jobs Table :-

```
create table jobs
(
    jid number(5) primary key,
    jtype varchar2(50) NOT NULL,
    ereq varchar2(30) NOT NULL,
    cid number(5) NOT NULL,
    FOREIGN KEY (cid) REFERENCES companies(cid)
);
```

Column Name	Data Type	Nullable	Default	Primary Key
JID	NUMBER(5,0)	No	-	1
JTYPE	VARCHAR2(50)	No	-	-
EREQ	VARCHAR2(30)	No	-	-
CID	NUMBER(5,0)	No	-	-
			1 - 4	

### 6. Skill Table (Multi valued) :-

```
create table skill
(
id number(5) NOT NULL,
sname varchar2(15) NOT NULL
);
```

Column Name	Data Type	Nullable	Default	Primary Key
SNAME	VARCHAR2(15)	No	-	1
ID	NUMBER(5,0)	No	-	-
			1 - 2	

### 7. Following company Table :-

```
create table following_comp
(
id number(6) NOT NULL,
cid number(6) NOT NULL
);
```

Column Name	Data Type	Nullable	Default	Primary Key
CID	NUMBER(6,0)	No	-	-
ID	NUMBER(6,0)	No	-	-
			1 - 2	

## Data Insertion

### **1. Profile owner table :**

- INSERT INTO profile\_owner(id,name,contact\_no,educational\_status,address\_id,expid) VALUES(1001,'Tamim',017123450000,'GRADUATE',153,1);
- INSERT INTO profile\_owner(id,name,contact\_no,educational\_status,address\_id,expid) VALUES(1002,' AKASH ',017123450001,' UNDERGRADUATE CSE ',154,3);
- INSERT INTO profile\_owner(id,name,contact\_no,educational\_status,address\_id,expid) VALUES(1003,' JACKSON',017123450011,' GRADUATE CSE ',156,2);
- INSERT INTO profile\_owner(id,name,contact\_no,educational\_status,address\_id,expid) VALUES(1004,'MICHLE',017123450012,'GRADUATE CSE',157,2);
- INSERT INTO profile\_owner(id,name,contact\_no,educational\_status,address\_id,expid) VALUES(1009,'LIAM',01712345022,'UNDERGRADUATE',159,1);
- INSERT INTO profile\_owner(id,name,contact\_no,educational\_status,address\_id,expid) VALUES(1010,'SHAKIB',01712345030,'GRADUATE',160,3);

EDIT	ID	NAME	CONTACT_NO	EDUCATIONAL_STATUS	ADDRESS_ID	EXPID
	1001	Tamim	17123450000	GRADUATE	153	1
	1002	AKASH	17123450001	UNDERGRADUATE CSE	154	3
	1003	JACKSON	17123450011	GRADUATE CSE	156	2
	1004	MICHLE	17123450012	GRADUATE CSE	157	2
	1009	LIAM	1712345022	UNDERGRADUATE	159	1
	1010	SHAKIB	1712345030	GRADUATE	160	3
row(s) 1 - 6 of 6						

## 2. **Address Table :**

- INSERT INTO ADDRESS(address\_id,street\_number,area,state,post\_code) VALUES(153,9986,'MIRPUR','DHAKA',00005589632);
- INSERT INTO ADDRESS(address\_id,street\_number,area,state,post\_code) VALUES(154,9987,'UPOSHOHOR','RAJSHAHI',00005589642);
- INSERT INTO ADDRESS(address\_id,street\_number,area,state,post\_code) VALUES(156,9987,'MEDICAL COLLEGE ROAD','RAJSHAHI',00006589641);
- INSERT INTO ADDRESS(address\_id,street\_number,area,state,post\_code) VALUES(157,9887,'NEW YORK CITY','NEW YORK',00004589142);
- INSERT INTO ADDRESS(address\_id,street\_number,area,state,post\_code) VALUES(159,9886,'MANHATAN','NEW YORK',00005589112);
- INSERT INTO ADDRESS(address\_id,street\_number,area,state,post\_code) VALUES(160,9886,'BANANI','DHAKA',00006589112);

EDIT	ADDRESS_ID	STREET_NUMBER	AREA	STATE	POST_CODE
	153	9986	MIRPUR	DHAKA	5589632
	154	9987	UPOSHOHOR	RAJSHAHI	5589642
	156	9987	MEDICAL COLLEGE ROAD	RAJSHAHI	5589642
	157	9887	NEW YORK CITY	NEW YORK	4589142
	159	9886	MANHATAN	NEW YORK	4589142
	160	9886	BANANI	DHAKA	5589632
				 	row(s) 1 - 6 of 6

### 3. Experience level Table :

- INSERT INTO EXPLEVEL(EXPID,LNAME,DURATION)  
VALUES(1,'EXPERIENCED','5 or more years');
- INSERT INTO EXPLEVEL(EXPID,LNAME,DURATION)  
VALUES(2,'MEDIUM EXPER','2 to 4 years');
- INSERT INTO EXPLEVEL(EXPID,LNAME,DURATION)  
VALUES(3,'BEGINER','0 to 2 years');

EXPID	LNAME	DURATION
1	EXPERIENCED	5 or more years
2	MEDIUM EXPER	2 to 4 years
3	BEGINER	0 to 2 years

#### 4. Company table :

- INSERT INTO companies(cname,ctype,cid)  
VALUES('BATA','LEATHER',00123)
- INSERT INTO companies(cname,ctype,cid)  
VALUES('GRAMMEN SOLUTION','WEB-DEVELOP',00124)
- INSERT INTO companies(cname,ctype,cid)  
VALUES('BANGAL SOLUTION','WEB-DEVELOP',00125)
- INSERT INTO companies(cname,ctype,cid)  
VALUES('YAHOO','SEARCH ENGINE',00525)
- INSERT INTO COMPANIS(cname,ctype,cid)  
VALUES('GOOGLE','SEARCH ENGINE',00625)
- INSERT INTO companies(cname,ctype,cid)  
VALUES('MICROSOFT','SOFTWARE',00725)

EDIT	CNAME	CTYPE	CID
	BATA	LEATHER	123
	GRAMMEN SOLUTION	WEB-DEVELOP	124
	BANGAL SOLUTION	WEB-DEVELOP	125
	YAHOO	SEARCH ENGINE	525
	GOOGLE	SEARCH ENGINE	625
	MICROSOFT	SOFTWARE	725
		row(s) 1 - 6 of 6	

### 5. Job table :

- INSERT INTO jobs(jid,jtype,ereq,cid)  
VALUES(00152,'DATA OPERATOR','BSC',00123)
- INSERT INTO jobs(jid,jtype,ereq,cid)  
VALUES(00153,'WEB DEVELOPING','BSC',00124)
- INSERT INTO jobs(jid,jtype,ereq,cid)  
VALUES(00154,'WEB DEVELOPING','BSC',00125)
- INSERT INTO jobs(jid,jtype,ereq,cid)  
VALUES(00155,'PROGRAMMING','BSC',00525)
- INSERT INTO jobs(jid,jtype,ereq,cid)  
VALUES(00156,'APPS DEVELOPER','BSC',00625)
- INSERT INTO jobs(jid,jtype,ereq,cid)  
VALUES(00157,'SOFTWARE ENGINEER','BSC',00725)

EDIT	JID	JTYPE	EREQ	CID
	152	DATA OPERATOR	BSC	123
	153	WEB DEVELOPING	BSC	124
	154	WEB DEVELOPING	BSC	125
	155	PROGRAMMING	BSC	525
	156	APPS DEVELOPER	BSC	625
	157	SOFTWARE ENGINEER	BSC	725

row(s) 1 - 6 of 6

## 6. Skill Table :

- INSERT INTO SKILL(ID,SNAME)  
VALUES(1001,'C');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1001,'C++');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1003,'C++');
- INSERT INTO SKILL(SKILLID,SNAME)  
VALUES(1003,'C#');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1003,'JAVA');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1009,'JAVA');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1009,'PHP');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1002,'C');
- INSERT INTO SKILL(SKILLID,SNAME)  
VALUES(1002,'C++');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1002,'C#');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1002,'JAVA');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1004,'JAVA S.');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1004,'HTML');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1004,'CSS');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1010,'SQL Language');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1010,'C');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1010,'C++');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1010,'PHP');
- INSERT INTO SKILL(ID,SNAME)  
VALUES(1010,'Web Tech.');

EDIT	ID	SNAME
	1001	C

	1001	C++
	1003	C++
	1003	C#
	1003	JAVA
	1009	JAVA
	1009	PHP
	1002	C
	1002	C++
	1002	C#
	1002	JAVA
	1004	JAVA S.
	1004	HTML
	1004	CSS
	1010	SQL Language
	1010	C
	1010	PHP
	1010	Web Teq.
<input type="button" value=""/>	<input type="button" value=""/>	row(s) 16 - 18 of 18

## 7. Following Company :

- INSERT INTO following\_comp(id,cid)  
VALUES(1001,123);
- INSERT INTO following\_comp(id,cid)  
VALUES(1001,125);
- INSERT INTO following\_comp(id,cid)  
VALUES(1001,725);
- INSERT INTO following\_comp(id,cid)  
VALUES(1002,725);
- INSERT INTO following\_comp(id,cid)  
VALUES(1002,625);
- INSERT INTO following\_comp(id,cid)  
VALUES(1002,525);
- INSERT INTO following\_comp(id,cid)  
VALUES(1003,525);
- INSERT INTO following\_comp(id,cid)  
VALUES(1003,125);
- INSERT INTO following\_comp(id,cid)  
VALUES(1003,124);
- INSERT INTO following\_comp(id,cid)  
VALUES(1004,124);
- INSERT INTO following\_comp(id,cid)  
VALUES(1009,124);
- INSERT INTO following\_comp(id,cid)  
VALUES(1009,123);
- INSERT INTO following\_comp(id,cid)  
VALUES(1009,625);
- INSERT INTO following\_comp(id,cid)  
VALUES(1009,725);
- INSERT INTO following\_comp(id,cid)  
VALUES(1010,123);
- INSERT INTO following\_comp(id,cid)  
VALUES(1010,625);

EDIT	ID	CID
	1001	123
	1001	125
	1001	725
	1002	725
	1002	625
	1002	525
	1003	525
	1003	125
	1003	124
	1004	124
	1009	124
	1009	123
	1009	625
	1009	725
	1010	123
	1010	625



row(s) 16 - 16 of 16



## Questionnaire

1. There was a request to show all the profile owner information with their full address.
2. There was a request from a company to show owner's ID , Name and their Experience level & duration.
3. There was a request to show the state where the profile owner is from.
4. There was a request to show owner's ID & their skills.
5. There was a request to show the name of the companies the owner is following.
6. There was a request from 2 companies to show the profile owner name & ID who has the skill JAVA.
7. There was a request from 4 companies the information of the profile owner who's experience level is 'Experienced'.
8. Show the information of the profile owner who are Graduated.
9. 3 companies requested the information of how many profile owners are there who submitted their profile.
10. There was a request to show the skills of the profile owner of id 1001 & 1002.
11. Show the skill information the owner has order by the owners ID.
12. Show how many companies each profile owners are following.

## SQL Query based on the Questionnaire

1. There was a request to show all the profile owner information with their full address.

```
select p.ID,p.NAME,p.CONTACT_NO,p.EDUCATIONAL_STATUS,a.STREET_NUMBER,a.AREA,a.STATE,a.POST_CODE
from PROFILE_OWNER p,ADDRESS a
where a.ADDRESS_ID=p.ADDRESS_ID
```

ID	NAME	CONTACT_NO	EDUCATIONAL_STATUS	STREET_NUMBER	AREA	STATE	POST_CODE
1001	Tamim	17123450000	GRADUATE	9986	MIRPUR	DHAKA	5589632
1002	AKASH	17123450001	UNDERGRADUATE CSE	9987	UPOSHOHOR	RAJSHAHI	5589642
1003	JACKSON	17123450011	GRADUATE CSE	9987	MEDICAL COLLEGE ROAD	RAJSHAHI	6589641
1004	MICHAEL	17123450012	GRADUATE CSE	9887	NEW YORK CITY	NEW YORK	4589142
1009	LIAM	1712345022	UNDERGRADUATE	9886	MANHATTAN	NEW YORK	5589112
1010	SHAKIB	1712345030	GRADUATE	9886	BANANI	DHAKA	6589112

**2. There was a request from a company to show owner's ID , Name and their Experience level & duration.**

```
select p.ID,p.NAME,e.LNAME,e.DURATION
from PROFILE_OWNER p,EXPLEVEL e
where p.EXPID=e.EXPID
```

ID	NAME	LNAME	DURATION
1001	Tamim	EXPERIENCED	5 or more years
1002	AKASH	BEGINER	0 to 2 years
1003	JACKSON	MEDIUM EXPER	2 to 4 years
1004	MICHLE	MEDIUM EXPER	2 to 4 years
1009	LIAM	EXPERIENCED	5 or more years
1010	SHAKIB	BEGINER	0 to 2 years

**3. There was a request to show the profile owner who is from state 'DHAKA'.**

```
select p.ID,p.NAME,a.STATE
from PROFILE_OWNER p,ADDRESS a
where a.ADDRESS_ID=p.ADDRESS_ID and a.state='DHAKA'
```

ID	NAME	STATE
1001	Tamim	DHAKA
1010	SHAKIB	DHAKA

**4. There was a request from "MICROSOFT" to show owner's ID & their skills.**

```
select p.ID,s.sname
from PROFILE_OWNER p,SKILL s
where p.ID=s.ID
```

ID	SNAME
1001	C
1001	C++
1003	C++
1003	C#
1003	JAVA
1009	JAVA
1009	PHP
1002	C
1002	C++
1002	C#
1002	JAVA
1004	JAVA S.
1004	HTML
1004	CSS
1010	SQL Language
1010	C
1010	PHP
1010	Web Teq.

5. **There was a request from “BANGLASOLLUTION” to show the name & id of the owner who are following them.**

```
select fc.ID,p.name,c cname
from following_comp fc,companies c,profile_owner p
where fc.cid=c.cid and fc.id=p.id and c.cid=124
```

ID	NAME	CNAME
1003	JACKSON	GRAMMEN SOLUTION
1004	MICHLE	GRAMMEN SOLUTION
1009	LIAM	GRAMMEN SOLUTION

6. There was a request from 2 companies to show the profile owner name & ID who has the skill JAVA.

```
select p.id,p.name,s.sname
from PROFILE_OWNER p,SKILL s
where p.id=s.id and s.sname='JAVA'
```

ID	NAME	SNAME
1003	JACKSON	JAVA
1009	LIAM	JAVA
1002	AKASH	JAVA

7. There was a request from 4 companies the information of the profile owner who's experience level is 'Experienced'.

```
select p.ID,p.NAME,p.CONTACT_NO,p.EDUCATIONAL_STATUS,p.address_id,e.lname
from profile_owner p,explevel e
where p.expid=e.expid and e.lname='EXPERIENCED'
```

ID	NAME	CONTACT_NO	EDUCATIONAL_STATUS	ADDRESS_ID	LNAME
1001	Tamim	17123450000	GRADUATE	153	EXPERIENCED
1009	LIAM	1712345022	UNDERGRADUATE	159	EXPERIENCED

8. Show the information of the profile owner who are Graduated.

```
select ID,NAME,CONTACT_NO,EDUCATIONAL_STATUS,address_id
from profile_owner
where EDUCATIONAL_STATUS='GRADUATE' or EDUCATIONAL_STATUS='GRADUATE CSE'
```

ID	NAME	CONTACT_NO	EDUCATIONAL_STATUS	ADDRESS_ID
1001	Tamim	17123450000	GRADUATE	153
1003	JACKSON	17123450011	GRADUATE CSE	156
1004	MICHLE	17123450012	GRADUATE CSE	157
1010	SHAKIB	1712345030	GRADUATE	160

9. 3 companies requested the information of how many profile owners are there who submitted their profile.

Select count(id) as submitted\_profiles  
from profile\_owner

SUBMITTED_PROFILES
6

10. There was a request to show the skills of the profile owner of id 1001 & 1002 .

select \* from skill  
where id=1001 or id=1002

SKILLID	SNAME
1001	C
1001	C++
1002	C
1002	C++
1002	C#
1002	JAVA

**11. Show the skill information the owner has order by the owners ID.**

```
select * from skill
order by id
```

ID	SNAME
1001	C
1001	C++
1002	C++
1002	JAVA
1002	C#
1002	C

**12. Show how many companies each profile owners are following.**

```
Select id,count(cid) as following_comp
from following_comp
group by id
```

ID	FOLLOWING_COMP
1003	3
1009	4
1001	3
1002	3
1004	1
1010	2

## *Relational Algebra*

1.  $\prod_{p.id, p.name, p.contact\_number, p.educational\_status, a.street\_number, a.area, a.state, a.postcode} (\sigma_{a.address\_id=p.address\_id}(\text{profile\_owner} \times \text{address}))$
2.  $\prod_{p.id, p.name, p.name, e.lname, e.duration} (\sigma_{p.exp\_id=e.exp\_id}(\text{profile\_owner} \times \text{exp\_level}))$
3.  $\prod_{p.id, p.name, a.state} (\sigma_{a.state='DHAKA'} (\sigma_{p.id=a.id}(\text{profile\_owner} \times \text{address})))$
4.  $\prod_{p.id, p.name, s.sname} (\sigma_{p.id=s.id}(\text{profile\_owner} \times \text{skill}))$
5.  $\prod_{fc.id, c.name} (\sigma_{fc.cid=c.cid}(\text{following\_comp} \times \text{companies}))$
6.  $\prod_{p.id, p.name, s.sname} (\sigma_{p.id=s.id} (\sigma_{s.sname='JAVA'} (\text{following\_comp} \times \text{companies})))$
7.  $\prod_{p.id, p.name, p.contact\_no, educational\_status, p.address\_id, e.lname} (\sigma_{p.expid=e.expid} (\sigma_{e.lname='EXPERIENCED'} (\text{profile\_owner} \times \text{exp\_level})))$
8.  $\sigma_{educational\_status='GRADUATED'} (\sigma_{educational\_status='GRADUATED CSE'} (\text{profile\_owner}))$
9.  $\mathbf{g}_{\text{count}(id)} \text{ as submitted\_profiles} (\text{profile\_owner})$
10.  $\sigma_{id=1001} (\sigma_{id=1002} (\text{skill}))$

### **Benefits:**

The system designed was online portfolio. It is a profile sharing system where one can share their various professional information's they want to share with others . There are some benefits of the system that we have designed. They are :

1. It makes it easier than ever for anyone to share their information about their working skills & others to employer searching for skilled person by using internet.
2. It is easy to search for employees with skills in a sort time which means it is time friendly.
3. Anyone searching for jobs can get the information of new jobs offerings easily & quickly.