

## ACTIVITY 1.1: - Creating our own database

The Database which I have chosen for this activity is the country-city database with the following tables and attributes.

- 1) country (country\_id Primary\_Key, country\_name, country\_code, country\_population)

country_id	country_name	country_code	country_population
Integer	Text	Text	Text
1	India	IN	1.37 Billion

- 2) city (city\_id Primary\_Key, city\_name, city\_code, city\_major\_language, city\_population, country\_id Foreign\_Key)

city_id	city_name	city_code	city_Major_Language	city_population	country_id
Integer	Text	Text	Text	Text	Integer
1	Panipat	PNP	Haryanvi	1.5 Million	1

The referential integrity is maintained using the country\_id for country and city tables.

```
OpenSSH SSH client
spr2022adb35=> \dt;
List of relations
Schema | Name | Type | Owner
-----+-----+-----+-----
sailors | boats | table | spr2022adb35
sailors | reserves | table | spr2022adb35
sailors | sailors | table | spr2022adb35
spr2022adb35 | authors | table | spr2022adb35
spr2022adb35 | books | table | spr2022adb35
spr2022adb35 | editions | table | spr2022adb35
spr2022adb35 | publishers | table | spr2022adb35
spy | affiliation | table | spr2022adb35
spy | affiliationrel | table | spr2022adb35
spy | agent | table | spr2022adb35
spy | language | table | spr2022adb35
spy | languagere1 | table | spr2022adb35
spy | mission | table | spr2022adb35
spy | securityclearance | table | spr2022adb35
spy | skill | table | spr2022adb35
spy | skillrel | table | spr2022adb35
spy | team | table | spr2022adb35
spy | teamrel | table | spr2022adb35
store | pricelist | table | spr2022adb35
(19 rows)

spr2022adb35=> create table country(country_id int, country_name text, country_code text, country_population text);
CREATE TABLE
spr2022adb35=> create table city(city_id int, city_name text, city_code text, city_major_language text, city_population text, country_id int);
CREATE TABLE
spr2022adb35=> \d country;
Table "spr2022adb35.country"
Column | Type | Collation | Nullable | Default
-----+-----+-----+-----+-----
country_id | integer | | | 
country_name | text | | | 
country_code | text | | | 
country_population | text | | | 
spr2022adb35=> \d city;
Table "spr2022adb35.city"
Column | Type | Collation | Nullable | Default
-----+-----+-----+-----+-----
city_id | integer | | | 
city_name | text | | | 
city_code | text | | | 
city_major_language | text | | | 
city_population | text | | | 
country_id | integer | | | 
spr2022adb35=>
```

## ACTIVITY 1.2: - Adding keys to the database

The keys for the tables are mentioned below: -

A) Primary Keys: -

- 1) country: - country.country\_id
- 2) city: - city.city\_id

B) Foreign Key: -

city.country\_id references to country.country\_id → foreign key

```
OpenSSH SSH client
spr2022adb35=> alter table country add primary key(country_id);
ALTER TABLE
spr2022adb35=> alter table city add primary key(city_id);
ALTER TABLE
spr2022adb35=> alter table city ADD CONSTRAINT country_id_city FOREIGN KEY (country_id) REFERENCES country(country_id);
ALTER TABLE
spr2022adb35=> \d country;
          Table "spr2022adb35.country"
   Column   | Type          | Collation | Nullable | Default
-----|-----|-----|-----|-----
country_id | integer       |           | not null |
country_name | text          |           |          |
country_code | text          |           |          |
country_population | text          |           |          |
Indexes:
    "country_pkey" PRIMARY KEY, btree (country_id)
Referenced by:
    TABLE "city" CONSTRAINT "country_id_city" FOREIGN KEY (country_id) REFERENCES country(country_id)

spr2022adb35=> \d city;
          Table "spr2022adb35.city"
   Column   | Type          | Collation | Nullable | Default
-----|-----|-----|-----|-----
city_id     | integer       |           | not null |
city_name   | text          |           |          |
city_code   | text          |           |          |
city_major_language | text          |           |          |
city_population | text          |           |          |
country_id  | integer       |           |          |
Indexes:
    "city_pkey" PRIMARY KEY, btree (city_id)
Foreign-key constraints:
    "country_id_city" FOREIGN KEY (country_id) REFERENCES country(country_id)

spr2022adb35=>
```

## ACTIVITY 1.3: - Identifying the domains for the attributes

- 1) country (country\_id Primary\_Key, country\_name, country\_code, country\_population)
- 2) city (city\_id Primary\_Key, city\_name, city\_code, city\_major\_language, city\_population, country\_id Foreign\_Key)

By describing the tables, we can see the attributes with their domains.

```

OpenSSH SSH client
spr2022adb35=> \d country;
               Table "spr2022adb35.country"
   Column      | Type   | Collation | Nullable | Default
-----+-----+-----+-----+-----
 country_id    | integer |           | not null |
 country_name  | text    |           |          |
 country_code  | text    |           |          |
 country_population | text    |           |          |
Indexes:
    "country_pkey" PRIMARY KEY, btree (country_id)
Referenced by:
    TABLE "city" CONSTRAINT "country_id_city" FOREIGN KEY (country_id) REFERENCES country(country_id)

spr2022adb35=> \d city;
               Table "spr2022adb35.city"
   Column      | Type   | Collation | Nullable | Default
-----+-----+-----+-----+-----
 city_id       | integer |           | not null |
 city_name     | text    |           |          |
 city_code     | text    |           |          |
 city_major_language | text    |           |          |
 city_population | text    |           |          |
 country_id    | integer |           |          |
Indexes:
    "city_pkey" PRIMARY KEY, btree (city_id)
Foreign-key constraints:
    "country_id_city" FOREIGN KEY (country_id) REFERENCES country(country_id)

spr2022adb35=>

```

## ACTIVITY 2.0: - Checking the database setup

Here, in the second query, it shows an error as there is no where clause and “And” is used wrongly.

Outputs are: -

Query-1: - 1 row returned with title as “The Nickel Boys”

Query-2: - Improper syntax used and returns an error

Query-3: - Query-2 rectified.

```

OpenSSH SSH client
spr2022adb35=> select B.title From Books B, Publishers P where B.pubid = P.id and P.name = 'Doubleday';
               title
-----
The Nickel Boys
(1 row)

spr2022adb35=> select B.title from Books B, Publishers P and P.name = 'Doubleday';
ERROR:  syntax error at or near "and"
LINE 1: select B.title from Books B, Publishers P and P.name = 'Doub...
                                         ^

spr2022adb35=> select B.title from Books B, Publishers P where P.name = 'Doubleday';
               title
-----
It
Hamlet
I Know Why the Caged Bird Sings
A Suitable Boy
The Joy Luck Club
Like Water for Chocolate
Tita's Diary
From Heaven Lake
Kite Runner
The Vanishing Half
September Love
The Nickel Boys
The Alchemist
Love and Misadventure
(14 rows)

spr2022adb35=>

```

## ACTIVITY 2.1: - Insert some tuples

insert into authors values (23, 'clare pooley', 49);

insert into authors values (100, 'parth parashar', 50);

insert into books values (15, 'The Authenticity Project', 384, 'Romance', 23, 102);

```
OpenSSH SSH client
spr2022adb35=>
spr2022adb35=> insert into authors values (23, 'clare pooley', 49);
INSERT 0 1
spr2022adb35=> insert into authors values (100, 'parth parashar', 50);
INSERT 0 1
spr2022adb35=> insert into books values (15, 'The Authenticity Project', 384, 'Romance', 23, 102);
INSERT 0 1
spr2022adb35=>
spr2022adb35=> select * from authors;
id |      name      | age
---+-----+---
10 | Stephen King   | 71
12 | J.K. Rowling   | 53
13 | Shakespeare    |
14 | Maya Angelou   |
15 | Vikram Seth    | 68
16 | Amy Tan        | 69
17 | Laura Esquivel | 70
18 | Khaled Hosseini | 55
19 | Brit Bennett   | 31
20 | Lang Leav      | 40
21 | Colson Whitehead | 51
22 | Paulo Coelho   | 73
23 | clare pooley   | 49
100 | parth parashar | 50
(14 rows)

spr2022adb35=> select * from books;
id | title | pagecount | genre | authorid | pubid
---+-----+-----+-----+-----+---
1 | It | 1138 | Horror | 10 | 100
2 | Hamlet | 500 | Tragedy | 13 | 103
3 | I Know Why the Caged Bird Sings | 304 | Autobiographical | 14 | 102
4 | A Suitable Boy | 1349 | Drama/Romance | 15 | 103
5 | The Joy Luck Club | 288 | Drama | 16 | 104
6 | Like Water for Chocolate | 256 | Romance/Tragedy | 17 | 105
7 | Tita's Diary | 294 | Romance/Diary | 17 |
8 | From Heaven Lake | 464 | Travel | 15 | 102
9 | Kite Runner | 371 | Historical/Drama | 18 | 106
10 | The Vanishing Half | 352 | Historical/Drama | 19 | 106
11 | September Love | 224 | Romance | 20 | 107
12 | The Nickel Boys | 224 | Historical | 21 | 108
13 | The Alchemist | 163 | Fantasy/Adventure | 22 | 103
14 | Love and Misadventure | 176 | Romance | 20 | 107
15 | The Authenticity Project | 384 | Romance | 23 | 102
(15 rows)
```

## ACTIVITY 2.2: - Single Table queries

Query-1: - select \* from books where pagecount > 400;

```
OpenSSH SSH client
spr2022adb35=> select * from books where pagecount>400;
id | title | pagecount | genre | authorid | pubid
---+-----+-----+-----+-----+---
1 | It | 1138 | Horror | 10 | 100
2 | Hamlet | 500 | Tragedy | 13 | 103
4 | A Suitable Boy | 1349 | Drama/Romance | 15 | 103
8 | From Heaven Lake | 464 | Travel | 15 | 102
(4 rows)
```

Query-2: - select name from authors where id = 20;

```
OpenSSH SSH client
spr2022adb35=> select name from authors where id = 20;
      name
-----
Lang Leav
(1 row)

spr2022adb35=>
```

## ACTIVITY 2.3: - Two Table Queries

Query-1: - select title from books B, publishers P where B.pubid = P.id and P.name = 'Viking';

```
OpenSSH SSH client
spr2022adb35=> select title from books B, publishers P where B.pubid = P.id and P.name = 'Viking';
      title
-----
It
(1 row)

spr2022adb35=>
```

Query-2: - select name from authors A, Books B where A.id = B.authorid and B.pagecount>300;

```
OpenSSH SSH client
spr2022adb35=> select name from authors A, Books B where A.id = B.authorid and B.pagecount>300;
      name
-----
Stephen King
Shakespeare
Maya Angelou
Vikram Seth
Vikram Seth
Khaled Hosseini
Brit Bennett
clare pooley
(8 rows)

spr2022adb35=>
```