Exercise: Filtering and Aggregations using SQL

Let us take care of exercises related to filtering and aggregation using SQL

Create the courses table:

```
CREATE TABLE courses (
        course_id SERIAL PRIMaRY KEY,
        course_name varchar(60),
        course_author varchar(40),
        course_status varchar(9),
        course_published_dt DATE
        );
```

Insert data into the courses table:

```
INSERT INTO courses
        (course_name, course_author, course_status, course_published_dt)
VALUES
        ('Programing using Python', 'Bob Dillon', 'published', '2020-09-30'),
        ('Data Engineering using Python', 'Bob Dillon', 'published', '2020-07-15'),
        ('Data Engineering using Scala', 'Elvis Presley', 'draft', null),
        ('Programing using Scala', 'Elvis Presley', 'published', '2020-05-12'),
        ('Programing using Java', 'Mike Jack', 'inactive', '2020-08-10'),
        ('Web Applications - Python Flask', 'Bob Dillon', 'inactive', '2020-07-20'),
        ('Web Applications - Java Spring', 'Bob Dillon', 'draft', null),
        ('Pipeline Orchestration - Python', 'Bob Dillon', 'draft', null),
        ('Streaming Pipelines - Python', 'Bob Dillon', 'published', '2020-10-05'),
        ('Web Application - Scala Play', 'Elvis Presley', 'inactive', '2020-09-30'),
        ('Web Application - Python Django', 'Bob Dillon', 'published', '2020-06-23'),
        ('Server Automation - Ansible', 'Uncle Sam', 'published', '2020-07-05')
```

```
SELECT *
FROM courses
ORDER BY course_id;
```

course_id [PK] integer	course_name character varying (60)	course_author character varying (40)	course_status character varying (9)	course_published_dt date
1	Programing using Python	Bob Dillon	published	2020-09-30
2	Data Engineering using Python	Bob Dillon	published	2020-07-15
3	Data Engineering using Scala	Elvis Presley	draft	[null]
4	Programing using Scala	Elvis Presley	published	2020-05-12
5	Programing using Java	Mike Jack	inactive	2020-08-10
6	Web Applications - Python Flask	Bob Dillon	inactive	2020-07-20
7	Web Applications - Java Spring	Bob Dillon	draft	[null]
8	Pipeline Orchestration - Python	Bob Dillon	draft	[null]
9	Streaming Pipelines - Python	Bob Dillon	published	2020-10-05
10	Web Application - Scala Play	Elvis Presley	inactive	2020-09-30
11	Web Application - Python Django	Bob Dillon	published	2020-06-23
12	Server Automation - Ansible	Uncle Sam	published	2020-07-05

1. **Get all the courses that are in inactive and draft state.**

```
SELECT *
FROM courses
WHERE course_status IN ('inactive','draft')
```

course_id [PK] integer	course_name character varying (60)	course_author character varying (40)	course_status character varying (9)	course_published_dt date
3	Data Engineering using Scala	Elvis Presley	draft	[null]
5	Programing using Java	Mike Jack	inactive	2020-08-10
6	Web Applications - Python Fla...	Bob Dillon	inactive	2020-07-20
7	Web Applications - Java Spring	Bob Dillon	draft	[null]
8	Pipeline Orchestration - Python	Bob Dillon	draft	[null]
10	Web Application - Scala Play	Elvis Presley	inactive	2020-09-30

2. **Get all the courses that are related to Python or Scala**

```
SELECT *
FROM courses
WHERE course_name LIKE ('%Python%') OR course_name LIKE
('%Scala%')
```

course_id [PK] integer	course_name character varying (60)	course_author character varying (40)	course_status character varying (9)	course_published_dt date
1	Programing using Python	Bob Dillon	published	2020-09-30
2	Data Engineering using Python	Bob Dillon	published	2020-07-15
3	Data Engineering using Scala	Elvis Presley	draft	[null]
4	Programing using Scala	Elvis Presley	published	2020-05-12
6	Web Applications - Python Flask	Bob Dillon	inactive	2020-07-20
8	Pipeline Orchestration - Python	Bob Dillon	draft	[null]
9	Streaming Pipelines - Python	Bob Dillon	published	2020-10-05
10	Web Application - Scala Play	Elvis Presley	inactive	2020-09-30
11	Web Application - Python Django	Bob Dillon	published	2020-06-23

3. **Get count of courses by course_status**

```
SELECT course_status, COUNT(*) AS count_course_status
FROM courses
GROUP BY course_status;
```

course_status character varying (9)	count_course_status bigint
published	6
inactive	3
draft	3

4. **Get count of published courses by course_author.**

```
SELECT course_author, COUNT(course_author) AS count_author
FROM courses
WHERE course_status IN ('published')
GROUP BY course_author;
```

course_author character varying (40)	count bigint
Bob Dillon	4
Elvis Presley	1
Uncle Sam	1

5. **Get all the Python or Scala-related courses in draft status.**

```
SELECT *
FROM courses
WHERE (course_name LIKE ('%Python%') OR course_name LIKE
('%Scala%'))
        AND (course_status IN ('draft'))
```

course_id [PK] integer	course_name character varying (60)	course_author character varying (40)	course_status character varying (9)	course_published_dt date
3	Data Engineering using Scala	Elvis Presley	draft	[null]
8	Pipeline Orchestration - Python	Bob Dillon	draft	[null]

6. **Get the author and count where the author has more than one published course.**

```
SELECT course_author
	,count(*) AS course_count
FROM courses
WHERE course_status IN ('published')
GROUP BY course_author
	HAVING count(*) > 1;
```

course_author character varying (40)	course_count bigint
Bob Dillon	4