Use Cases:

1. How many total courses are available for Information Systems Program in Northeastern University?

SELECT a.program_name,
COUNT(a.course_name), b.program_url
FROM neu_course_catalog a
LEFT OUTER JOIN
NEU_Program b
ON a.program_name = b.program_name
WHERE b.program_name = 'Information Systems'
GROUP BY a.program_name;

2. Which courses do we need to take to do specialization in User Experience Concentration?

SELECT a.specialization_name,b.course_id,c.course_name
FROM
neu_specialization a
LEFT JOIN neu_course_specialization b
ON a.specialization_id = b.specialization_id
RIGHT JOIN neu_course_catalog c
ON b.course_id = c.course_id
WHERE a.specialization_name = 'User Experience Concentration';

3.List top rated professors at NEU whose rating is above 4. Also mention the courses and its description taught by the professor.

SELECT a.faculty_name,a.faculty_rating,b.course_id,c.course_description
FROM neu_facultys a
JOIN neu_course_faculty b
ON a.faculty_name = b.faculty_name
JOIN neu_course_catalog c
ON b.course_id = c.course_id
WHERE a.faculty_rating >= 4;

4. What are the core course requirements for Information Systems, Software Engineering Systems and Data Analytics?

```
SELECT a.program_name, GROUP_CONCAT(a.course_id SEPARATOR  '|'),
COUNT(a.course_id), b.program_url
FROM Course_Core_requirement a
LEFT JOIN NEU_Program b
ON a.program_name = b.program_name
GROUP BY a.program_name;
```

5. List courses available for Data Analytics Engineering along with its course_outcome.

```
SELECT
program_name, course_id,course_name, course_description
FROM
NEU_Course_Catalog
WHERE program_name = 'Data Analytics Engineering';
```

6. What is the average overall rating given by students to a professor for a given course?

```
SELECT faculty_name, round (AVG(faculty_rating),1) as Average_rating
FROM neu_Facultys
GROUP BY faculty_name;
```

7. Which courses students need to take to do specialization in Big Data Systems concentration and which resources are available for them?

```
SELECT a.specialization_name, b.course_id,c.course_name,d.software_name,e.online_platform
FROM neu_specialization a
LEFT JOIN neu_course_specialization b
ON a.specialization_id = b.specialization_id
LEFT JOIN neu_course_catalog c
ON b.course_id = c.course_id
LEFT JOIN neu_course_resource d
ON c.course_id = d.course_id
LEFT JOIN neu_resource_materials e
ON d.software_name = e.software_name
WHERE a.specialization_name like '%Big Data%';
```

8. List details about all the Masters programs available in Northeastern University

SELECT * FROM NEU_program;

9. Which job positions for students in Data Analytics Engineering and list the details related to those positions?

SELECT b.program_name, a.job_id,a.title,a.company_name,a.description,a.location
FROM program_jobs b
LEFT JOIN job_info a
ON a.job_id = b.job_id
WHERE b.program_name LIKE '%Data%';

10. List the events hosted by Northeastern University for students by Data Analytics Engineering Department.

SELECT program_name, event_name
FROM Neu_Event
WHERE program_name = 'Data Analytics Engineering';

11. Which professors teach courses related to User Experience and list the ratings given by students for the course?

SELECT a.specialization_name, b.course_id,c.program_name, d.faculty_name,e.faculty_rating
FROM neu_specialization a
LEFT JOIN neu_course_specialization b
ON a.specialization_id = b.specialization_id
LEFT JOIN neu_course_catalog c
ON b.course_id = c.course_id
LEFT JOIN neu_course_faculty d
ON d.course_id = c.course_id
LEFT JOIN neu_facultys e
ON e.faculty_name = d.faculty_name
WHERE a.specialization_name like '%User%';

12. Find the average course rating for Information Systems Program

SELECT a.program_name, AVG(b.course_rating)
FROM neu_course_catalog a
RIGHT JOIN neu_course_resource b
ON a.course_id = b.course_id
WHERE a.program_name ='Information Systems';

13. List courses with lowest rating.

SELECT a.course_id, a.course_name,a.course_description,b.course_rating
FROM neu_course_catalog a
LEFT JOIN neu_course_resource b
ON a.course_id = b.course_id
WHERE b.course_rating = (select min(course_rating) from neu_course_resource);

14. Find the professors who taught DAMG 7350, INFO 5100, DAMG 6105, DAMG 7275 courses.

select a.faculty_name, b.course_id
from neu_facultys a
JOIN NEU_Course_faculty b
ON a.faculty_name = b.faculty_name
where b.course_id IN ('DAMG 7350', 'INFO 5100','DAMG 6105' ,'DAMG 7275');

15. Which resources are available for students who have chosen Information Systems program?

SELECT a.program_name,
a.course_id,b.software_name,c.software_download_url,c.online_platform
FROM neu_course_catalog a
JOIN neu_course_resource b
ON a.course_id = b.course_id
JOIN neu_resource_materials c
ON b.software_name = c.software_name
WHERE a.program_name = 'Information Systems';