Task # 6

As a database administrator for a university, you are tasked with extracting valuable insights and information from the university's course catalogue database. This database contains a **Courses** table, which records various details about the courses offered to students. The **Courses** table includes columns for **courseId**, **courseName**, **department**, **instructor**, **semester**, and **yearOffered**.

Your objectives are to design SQL queries to:

1. Retrieve the course name and instructor for all courses offered by the "Computer Science" department.
2. Identify and list the course ID, course name, and department for all courses conducted during the Fall semester, regardless of the year.
3. Organize and display all courses by the year offered in descending order, followed by the course name in ascending order, including both the course name and the year offered.
4. Find and show details of courses that currently do not have an assigned instructor.
5. List the course name, department, and instructor for all courses within the "Mathematics" department, sorting the results by the instructor's name in ascending order.
6. Calculate and display the number of courses taught by each instructor within the "Engineering" department, including the department, instructor's name, and the course count.
7. Display the course name and the year offered for all courses that were available between 2019 and 2023.
8. Identify instructors who have taught more than three courses within any single year, showing the instructor's name and the corresponding year.
9. Compute the average number of courses offered by each department per semester.
10. Determine which department offers the most courses and present the department's name along with the total number of courses it offers.
11. Identify all courses that have not had any enrollments, assuming there exists an **Enrollments** table that links students to the courses they've enrolled in. This table contains, at the least, a **courseId** to link back to the **Courses** table.

Accomplishing these tasks will require you to leverage SQL queries that include selection, aggregation, sorting, and subqueries, among other techniques, to manipulate and analyze the data effectively. Your

results will provide critical insights into the course offerings and trends within the university, aiding in administrative decisions and academic planning.