Database Management Systems: Introduction

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Explain what each query does and provide the output.

Basic Queries

1.   `SELECT Name, Major FROM Students;`

   Explaination: Retrieve all students and their majors from *Students* table.

   Output:

Name	Major
Alice	Computer Science
Bob	Mathematics
Charlie	Physics
Diana	Computer Science
Eve	Mathematics

2.   `SELECT Name FROM Students WHERE Age >= 21;`

   Explaination:

   Output:

3.   `SELECT CourseName FROM Courses WHERE Credits = 3;`

   Explaination:

   Output:

4.   `SELECT Name FROM Students WHERE Major = 'Mathematics';`

   Explaination:

   Output:

Intermediate Queries

1.
```
SELECT Students.Name, Enrollments.Grade
FROM Students
JOIN Enrollments ON Students.StudentID = Enrollments.StudentID
JOIN Courses ON Enrollments.CourseID = Courses.CourseID
WHERE Courses.CourseName = 'Data Structures';
```

Explaination:

Output:

Name	Grades
Alice	A
Charlie	C
Eve	A

2.
```
SELECT Students.Name, Courses.CourseName
FROM Students
JOIN Enrollments ON Students.StudentID = Enrollments.StudentID
JOIN Courses ON Enrollments.CourseID = Courses.CourseID;
```

Explaination:

Output:

3.
```sql
SELECT Courses.CourseName, COUNT(Enrollments.StudentID) AS StudentCount
FROM Courses
JOIN Enrollments ON Courses.CourseID = Enrollments.CourseID
GROUP BY Courses.CourseID;
```

Explaination:

Output:

4.
```sql
SELECT DISTINCT Students.Name
FROM Students
JOIN Enrollments ON Students.StudentID = Enrollments.StudentID
WHERE Grade = 'A';
```

Explaination:

Output:

5.
```sql
SELECT Courses.CourseName, SUM(Courses.Credits) AS TotalCredits
FROM Courses
JOIN Enrollments ON Courses.CourseID = Enrollments.CourseID
GROUP BY Courses.CourseID;
```

Explaination:

Output: