> Give four informal queries and update operations that you would expect to apply to the database shown Figure 1.2.

query:

What are the prerequisites for the Data Structures course?

List the names of all students majoring in Computer Science

update:

Insert a new student in the database whose Name=Jack, StudentNumber=21, Class=1 and Major=CS.

Change the grade that Smith received in Intro to Computer Science section 112 to A

> What is the difference between controlled and uncontrolled redundancy

Redundancy is when the same data is stored multiple times in multiple locations in the database. Redundancy is controlled when the DBMS ensures that multiple copies of the same data are consistent. Otherwise it is uncontrolled.

> Give four views that may be needed by user groups for the database shown in Figure 1.2.

1. Courses required for CS majors
2. List of outstanding students
3. A grade report for a course a student has taken
4. All courses in the fall semester

> Give four examples of integrity constraints that you think should hold on the database shown in Figure 1.2.

1. The StudentNumber should be unique for each STUDENT record (key constraint)
2. The CourseNumber should be unique for each COURSE record (key constraint).
3. A value of StudentNumber in a GRADE_REPORT record must also exist in some STUDENT record (referential integrity constraint)
4. Every record in COURSE must have a value for CourseNumber (entity integrity constraint).