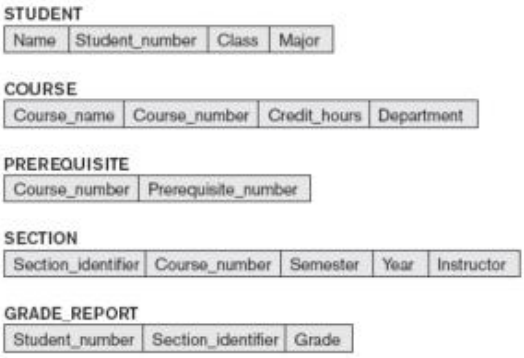
1. In addition to constraints relating the values of columns in one table to columns in another table, there are also constraints that impose restrictions on values in a column or a combination of columns within a table. One such constraint forces that a column or a group of columns must be unique across all rows in the table. For example, in the STUDENT table, the StudentNumber column must be unique (to prevent two different students from having the same StudentNumber). Identify the column or the group of columns in the other tables that must be unique across all rows in the table?

Figure 2.1
Schema diagram for the database in Figure 1.2.



[6]Schema changes are usually needed as the requirements of the database applications change. Newer database systems include operations for allowing schema changes, although the schema change process is more involved than simple database updates.

[7]It is customary in database parlance to use *schemas* as the plural for *schema*, even though *schemata* is the proper plural form. The word *scheme* is also sometimes used to refer to a schema.

Unique:
student_number
Course_number
Section_identifier

2.(a)Give an update operation to a database state that violates a key constraint, stating any assumptions on the database state you make.

Update the Cust whose Cname is jack in the customer table to be the same as Cname is Smith.

2.(b)Give an update operation to a database state that violates an entity integrity constraint, stating any assumptions on the database state you make.

Due to business expansion, multiple warehouses need to be set up in Chicago, but the warehouse number has not been determined, so the warehouse number is set to NULL

2.(c)Give an update operation to a database state that vi- olates a referential integrity constraints, stating any assumptions on the database state you make.

Update the order warehouse number Warehourse with the order number Order 01 in the SHIPMENT table to w01, but w01 does not exist in the WAREHOUSE table.

2.(d)Give an update operation to a database state that violates an integrity constraint that is neither of the previous kinds of constraints, stating any assumptions you make.

Update the order total for the order with order number o01 in the ORDER table to A, but Ord_Amt is a number.

2.(e)Specify foreign keys for this schema, stating any as- sumptions you make.

1. The attribute Cust# of relation ORDER that references relation CUSTOMER,
2. The attribute Order# of relation ORDER_ITEM that references relation ORDER,
3. The attribute Item# of relation ORDER_ITEM that references relation ITEM,
4. The attribute Order# of relation SHIPMENT that references relation ORDER, and
5. The attribute Warehouse# of relation SHIPMENT that references relation WAREHOUSE