Chapter II

Object-Oriented Features in Oracle™

In this chapter, we will describe Oracle™ features that can be used to support the implementation of an object-oriented model. As an overview, Section 2.1 will outline some of the original features within a standard relational model. The next sections will illustrate the additional object-oriented features. We will use these new features for our implementation in the subsequent chapters.

Relational-Model Features

In a relational model, the attributes are stored as columns of a table and the records are stored as rows of a table. As in most standard RDBMSs, Oracle™ provides a create-table statement following the SQL standard. After the declaration of the table name, we define the attributes’ names and their data types. We can also perform the checking of attribute value. In the table, Oracle™ enables users to determine the uniqueness of the records by defining the primary key.

Oracle™ also enables the usage of a foreign key. The foreign-key attribute in a table refers to another record in another table. In addition to the foreign key,
we can specify the referential integrity constraint every time we want to manipulate the target of a foreign-key reference. There are three types of constraint.

- **Restrict**: The manipulation operation is restricted to the case where there are no such matching attributes; it will be rejected, otherwise.
- **Cascade**: The manipulation operation, such as delete and update, cascades to the matching attributes.
- **Nullify or set null**: The manipulation operation is done after the foreign key is set to null.

Oracle™ performs the restrict integrity constraint as default. It prevents the update or deletion of a superclass key if there is a row in the subclass table that is referencing the key. However, Oracle™ provides only an on-delete integrity constraint. Therefore, to perform integrity constraint on other manipulations such as insert and update, we might need to use triggers.

Once we have created the table, we can perform the data manipulation. The manipulation can take form in the insertion, deletion, or update of data. The syntax of each of these is shown.