Database Systems

Laboratory Worksheet 3
Year 3 – SE Batch

1. The tables of information shown below are the same as in Practical 1. Create suitable object types and tables for recording this information.

   Define address as an object type consisting of street number, street name, suburb, state and pin. Use a VARRAY type for exchanges in the Stocks table. Create INVESTMENTS as a nested table type in the object type of the Clients table.

   You may include client number and make it the primary key in the clients table, or treat (firstname, lastname) as the primary key. Though names are in general not unique, it is ok for this exercise. Make the names of these tables different from the ones you used in Practical 1.

2. Create the required types and object tables in your database, and insert the given sample data.

CLIENTS

NAME	ADDRESS	INVESTMENTS			
		COMPANY	PURCHASE PRICE	DATE	QTY
John Smith	3 East Av Bentley WA 6102	BHP BHP IBM IBM INFOSYS	12.00 10.50 58.00 65.00 64.00	02/10/01 08/06/02 12/02/00 10/04/01 11/08/01	1000 2000 500 1200 1000
Jill Brody	42 Bent St Perth WA 6001	INTEL INTEL INTEL FORD GM	35.00 54.00 60.00 40.00 55.50	30/01/00 30/01/01 02/10/01 05/10/99 12/12/00	300 400 200 300 500

STOCKS

COMPANY	CURRENT PRICE	EXCHANGES TRADED	LAST DIVIDEND	EARNING PER SHARE
BHP	10.50	Sydney New York	1.50	3.20
IBM	70.00	New York London Tokyo	4.25	10.00
INTEL	76.50	New York London	5.00	12.40
FORD	40.00	New York	2.00	8.50
GM	60.00	New York	2.50	9.20
INFOSYS	45.00	New York	3.00	7.80

3. The queries given below are the same as in Practical 1. Answer the queries using the object relational tables you have created in the previous step. Use dot expressions instead of joins wherever possible.

(a) For each client, get the client's name, and the list of the client's investments with stock name, current price, last dividend and earnings per share.

(b) Get the list of all clients and their share investments, showing the client name, and for each stock held by the client, the name of the stock, total number of shares held, and the average purchase price paid by the client for the stock. Average price is the total purchase value paid by a client for a given stock (value=qty*price) divided by the total quantity held by the client.

(c) For each stock traded in New York, find the quantity held by each client, and its current value (value=qty*price). Display stock (company) name, client name, number of shares held, and the current value of the shares.

(d) Find the total purchase value of investments for all clients. Display client name and total purchase value of the client's portfolio.

(e) For each client, list the book profit (or loss) on the total share investment. Book profit is the total value of all stocks based on the current prices less the total amount paid for purchasing them.

4. Suppose John sold all his INFOSYS stocks to Jill, and Jill sold all her GM stocks to John today at the current prices. Update the database for these two transactions. Use the query 3(a) to check if the update worked correctly. (Here, the term update does not necessarily mean using the update statement of SQL.)