LAB 4: INFORMATION SYSTEM FOR CAR SELLING COMPANY (Page 282-283)

myCar Company is a company that sell new cars. The company's manager decide to develop a system that is able to store information about all cars available for sale in the company, search information for certain car, update information, delete information and print information about the cars sold in the company.

As a programmer, you are required to develop a system that is able to do the operations. Information about cars must be stored in binary search tree data structure.

Given below is the node declaration for binary search tree that store char data type. Modify the node declaration, so that the node can store information about car, such as the car model, type of color, the price, deposit required to be paid, pointer to left subtree and pointer to right subtree.

```
typedef char ItemType;

struct TreeNode {
    ItemType info;
    TreeNode* left;
    TreeNode* right;
};
```

The table below is the example of the data to be used in the program.

Car model	**type of color**	**price**	**deposit paid**
Iswara 1.3	solid	33,235.04	3300.00
Iswara 1.5	metalik	34,299.67	3400.00
Wira 1.5	metalik	51,966.00	5100.00
Wira 1.5 (A/B)	metalik	50,302.00	5030.00
Waja 1.6 (M)	metalik	59,036.00	5900.00
Waja 1.6 (A)	metalik	62,888.00	6200.00
Gen 2 (M)	metalik	54,475.00	5475.00
Gen 2 (A)	metalik	57,551.00	5700.00
Satria 1.3 M	solid	41,094.00	4109.00
Arena 1.5	metalik	37,250.00	3725.00
Perdana V6	metalik	98,961.00	9896.00

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Write a complete binary search tree program that will read data in the table above from the data file and store the information in a tree. The car information in the tree must be sorted based on the car model. Write source codes for the following functions so that the function able to manipulate the car information according to the operation purposes.

Functions required:

- **InsertItem(ItemType)**
  - Insert car information in a tree based on the car model
- **DeleteItem(ItemType)**
  - Delete car information in a tree based on the car model
- **PrintTree()**
  - Print the car information
- **RetrieveItem()**
  - Search and print information based on the criteria set by user

Provide menu to enable the user to choose the following operations:

i. Insert a car into the tree
ii. Delete car from the tree
iii. Search a car based on certain criteria
iv. Print the information for all cars in the tree