

EXERCISE 3: Class Concept

The following is a class declaration for **Book**, friend function, non-member function prototype and main program. The class consists of 4 data members and 3 function members. Answer all questions in this section.

```

1 // Program 2.35a
2 class Book
3 {
4     // Declaration of 4 data members for class Book
5     string bookName, bookAuthor, category;
6     float bookPrice;
7
8 public:
9     //constructor
10    Book() {bookName[]="xxx"; bookAuthor ="yyy";
11            bookPrice = 0.0; category = "CS";}
12
13    // member function prototype declaration
14    string checkAuthor()
15    {
16        return bookAuthor;
17    }
18
19    void giveDiscount(int);
20
21    void printDetail(); // print all info about the book
22    { cout << bookName << bookAuthor << bookPrice << category;
23      }
24
25    // friend function declaration
26    friend Book readValue();
27
28 }; // end of class declaration
29
30 // non-member function declarations
31 void CheckBookInfo(Book[]);
32
33 main()
34 {
35     Book myBook[8];
36     int discount;
37     for (int i = 0; i < 8; i++)
38         myBook[i] = readValue();
39
40     cout << "Enter percentage amount of discount : ";
41     cin >> discount;
42
43     // Code to call function giveDiscount () using the array
44     for (int i = 0; i < 8; i++)
45         myBook[i].giveDiscount(discount);
46
47     // Statement that call function CheckBookInfo(Book[])-question e
48
49 } // end main()

```

- a) The following function in Program 2.35b is an application function for `readValue()`. Describe what the function does and what value does the function returns.

```

38 // Program 2.35b
39 Book readValue()
40 {
41     Book aBook;
42     string bookName, bookAuthor, category;
43     float bookPrice;
44     cout << "Please enter the book title " << ": ";
45     getline(cin, aBook.bookName);
46
47     cout << "Please enter the name of the author " << ": ";
48     getline(cin, aBook.bookAuthor);
49
50     cout << "Please enter the book category " << ": ";
51     getline(cin, aBook.category);
52
53     cout << "Please enter the price of the book " << ": ";
54     cin >> aBook.bookPrice;
55     cin.ignore();
56
57     return aBook;
58 }

```

- b) Explain the purpose of statement 37 and 38 in `main()` function.
- ```

for (int i = 0; i < 8; i++)
 myBook[i] = readValue();

```
- c) Write code for member function `giveDiscount(int)` that will set the new price for the book based on the percentage amount specified in the parameter. If the book was written by "Norbahiah", reduce the price based on the discount. No discount will be given to any book written by other authors. Give appropriate message if no discount is applied.
- d) Function `CheckBookInfo(Book[])` receives array of `Book`. Write implementation for the function that will count how many book is categorized as CS (Computer Science) book and use function `printDetail()` to print the detail information of the books in that category.
- e) Write a statement in `main()` that can call function `CheckBookInfo(Book[])`