Object Oriented Programming (IGS2130)

Lab 8

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Exercise #1

- Write an Apple class and a Banana class that are derived from a common Fruit class. Fruit should have two members: name and color

  - The following program should run:

```
int main() {
    Apple a{ "red" };
    Banana b;

    cout << "My " << a.getName() << " is " << a.getColor() << ".\n";
    cout << "My " << b.getName() << " is " << b.getColor() << ".\n";

    return 0;    return 0;
}
```

  - The program produces the result:

```
My apple is red.
My banana is yellow.
```

Exercise #2

- Add a new class to the previous program called RedBanana that inherits from Banana.

  - The following program should run:

```
int main() {
    Apple a{ "red" };
    Banana b;
    RedBanana c;

    cout << "My " << a.getName() << " is " << a.getColor() << ".\n";
    cout << "My " << b.getName() << " is " << b.getColor() << ".\n";
    cout << "My " << c.getName() << " is " << c.getColor() << ".\n";

    return 0;
}
```

  - The program produces the result:

```
My apple is red.
My banana is yellow.
My red banana is red.
```

Exercise #3

- Write an EBook class that is derived from Book class. The Book should have three members: title, ISBN, and price. The Ebook has two additional members, DRMKey and format.
  - The following program should run:

```
int main() {
    Book book("Modern C++ Programming Cookbook", "1800208987", 49.99);
    book.ShowBookInfo();
    cout << endl;

    EBook ebook("Modern C++ Programming Cookbook(ebook)", "1800208987", 34.99, "dkb34x!@*~");
    ebook.ShowEBookInfo();

    return 0;
}
```

  - The program produces the result:

```
Title: Modern C++ Programming Cookbook
ISBN: 1800208987
Price(USD): 49.99

Title: Modern C++ Programming Cookbook(ebook)
ISBN: 1800208987
Price(USD): 34.99
DRMKey: dkb34x!@*~
Format: Kindle
```

Exercise #4

- Add a new class to the previous program called EBookLibrary. The new class should contain multiple eBooks and show all information of the stored eBooks.

  - The following program should run:

```
int main() {
    EBookLibrary elib;
    elib.AddBook(new EBook{ "Book1", "1234567890", 10.99, "AAAAAA", "ePub" });
    elib.AddBook(new EBook{ "Book2", "2345678901", 20.99, "BBBBBB" });
    elib.AddBook(new EBook{ "Book3", "3456789012", 30.99, "CCCCCC", "ePub"});
    elib.AddBook(new EBook{ "Book4", "4567890123", 40.99, "DDDDDD" });
    elib.ShowAllBooks();

    return 0;
}
```

  - The program produces the result:

```
Title: Book1
ISBN: 1234567890
Price(USD): 10.99
DRMKey: AAAAAA
Format: ePub

Title: Book2
ISBN: 2345678901
Price(USD): 20.99
DRMKey: BBBBBB
Format: Kindle

Title: Book3
ISBN: 3456789012
Price(USD): 30.99
DRMKey: CCCCCC
Format: ePub

Title: Book4
ISBN: 4567890123
Price(USD): 40.99
DRMKey: DDDDDD
Format: Kindle
```