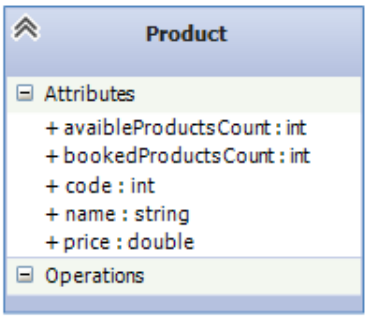
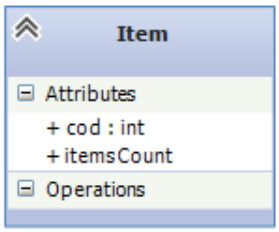
Exercise 3

Apply the basis path technique to design the minimum test case required to testing the following method:

a) draw the correctly labelled flow graph
b) calculate the cyclomatic complexity:
   I. provide the number of regions
   II. provide the number of nodes
   III. provide the number of predicate nodes
   IV. provide the number of edges
c) specify the independent paths
d) provide the test cases associated with the independent paths






```
static public int bookItems(ArrayList products, Item item, out double cost, out string message)
{
    int j;
    Product product;
    j = 0;
    message = "Product not found";
    cost = 0;

    while ((j < products.Count ) && (message.Equals("Product not found")))
    { product = products[j] as Product;
        if (item.code == product.code)
        { if (item.itemsCount <= product.availableProductsCount)
            {
                cost = cost + item.itemsCount * product.price;
                product.availableProductsCount -= item.itemsCount;
                product.bookedProductsCount += item.itemsCount;
                message = "Product booked";
            }
            else
            {
                message = "Not enough products";
            }
        }
        else
        {
            j++;
        }
    }
    return j;
}
```

Exercise 4

Apply the basis path technique to design the minimum test case required to testing the following method:

a) draw the correctly labelled flow graph
b) calculate the cyclomatic complexity:
   I. provide the number of regions
   II. provide the number of nodes
   III. provide the number of predicate nodes
   IV. provide the number of edges
c) specify the independent paths
d) provide the test cases associated with the independent paths

```
static public int valid_date(int dd, int mm, int yy)
{
    if (mm < 1 || mm > 12)
    {
        return 0;
    }
    if (dd < 1)
    {
        return 0;
    }

    int days;
    if (mm == 2)
    {
        // leap year
        if (yy % 400 == 0 || (yy % 4 == 0 && yy % 100 != 0))
        {
            days = 29;
        }
        else days = 28;
    }
    else if (mm == 4 || mm == 6 || mm == 9 || mm == 11)
    {
        days = 30;
    }
    else days = 31;

    if (dd > days)
    {
        return 0;
    }
    return 1;
}
```