

Assignment No. 13

- **TITLE :** Identify commonalities and differences between Publication, Book and Magazine classes. Title, Price, Copies are common instance variables and saleCopy is a common method. The differences are, Book class has author and orderCopies(). Magazine Class has methods orderQty, Current issue, receiveIssue(). Write a Java program to find how many copies of the given books are ordered and display total sale of publication.

➤ **CODE:**

```

package prac13;
import java.util.*;

class Publication {
    String title;
    double price;
    int copies;

    Publication(String title, double price, int copies) {
        this.title = title;
        this.price = price;
        this.copies = copies;
    }

    void saleCopy(int qty) {
        if (qty <= copies) {
            copies -= qty;
            System.out.println("Sold " + qty + " copies of " + title);
        } else {
            System.out.println("Insufficient copies available");
        }
    }

    double getTotalSale() {
        return (this.copies * this.price);
    }
}

class Book extends Publication {
    String author;

    Book(String title, double price, int copies, String author) {
        super(title, price, copies);
        this.author = author;
    }

    void orderCopies(int qty) {
        copies += qty;
        System.out.println("Ordered " + qty + " more copies of " + title);
    }
}

class Magazine extends Publication {
    String currentIssue;

    Magazine(String title, double price, int copies, String currentIssue) {
        super(title, price, copies);
        this.currentIssue = currentIssue;
    }
}

```

```

void orderQty(int qty) {
    copies += qty;
    System.out.println("Ordered " + qty + " copies of magazine " + title);
}

void receiveIssue(String newIssue) {
    currentIssue = newIssue;
    System.out.println("Received new issue: " + newIssue);
}
}

public class Main {
    public static void main(String[] args) {
        Book book1 = new Book("Java Programming", 45.99, 100, "John Doe");
        Book book2 = new Book("Python Basics", 39.99, 75, "Jane Smith");
        Magazine magazine1 = new Magazine("Tech Today", 8.99, 50, "January 2024");

        book1.orderCopies(25);
        book2.orderCopies(15);
        magazine1.orderQty(20);

        book1.saleCopy(10);
        book2.saleCopy(5);
        magazine1.saleCopy(15);

        double totalSale = book1.getTotalSale() + book2.getTotalSale() +
        magazine1.getTotalSale();
        System.out.println("Total sale of all publications: $" + totalSale);
    }
}

```

Output –

```

Ordered 25 more copies of Java Programming
Ordered 15 more copies of Python Basics
Ordered 20 copies of magazine Tech Today
Sold 10 copies of Java Programming
Sold 5 copies of Python Basics
Sold 15 copies of Tech Today
Total sale of all publications: $9182.45

```

- **Conclusion –** In this assignment, this Java program demonstrates inheritance by modeling publications with shared attributes in a base class while maintaining specialized features in derived classes. It effectively handles user input to manage book and magazine inventory operations including ordering and selling copies. The implementation successfully calculates total sales revenue while showcasing polymorphic behavior through common publication methods.