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Subject	OOP
Assignment	Lab Assignment 02,03
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Submitted to:

Moderator	**Ms, Sajida Kalsoom**

Lab Task 01:

```
class Address {

    private String street;
    private String houseNumber;
    private String city;
    private String code;

    public Address(String street, String houseNumber, String city, String code) {
        this.street = street;
        this.houseNumber = houseNumber;
        this.city = city;
        this.code = code;
    }

    public String getStreet() {
        return street;
    }

    public void setStreet(String street) {
        this.street = street;
    }

    public String getHouseNumber() {
        return houseNumber;
    }
```

```
    public void setHouseNumber(String houseNumber) {
        this.houseNumber = houseNumber;
    }

    public String getCity() {
        return city;
    }

    public void setCity(String city) {
        this.city = city;
    }


    public String getCode() {
        return code;
    }

    public void setCode(String code) {
        this.code = code;
    }


    public String getAddressDetails() {
        return "Street: " + street + ", House#: " + houseNumber + ", City: " + city + ", Code: " +
code;
    }
}
```

```
class Person {

    private String name;
    private Address address;


    public Person(String name, Address address) {
        this.name = name;
        this.address = address;
    }


    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }


    public Address getAddress() {
        return address;
    }

    public void setAddress(Address address) {
        this.address = address;
    }
```

```
    public void displayPersonInfo() {
        System.out.println("Name: " + name);
        System.out.println("Address: " + address.getAddressDetails());
    }
}

public class Main {
    public static void main(String[] args) {

        Address address = new Address("Main St", "123", "New York", "10001");


        Person person = new Person("John Doe", address);


        person.displayPersonInfo();


        address.setStreet("Broadway");
        address.setHouseNumber("456");
        person.setAddress(address);


        System.out.println("\nUpdated Info:");
        person.displayPersonInfo();
    }}
```

Lab Task 02:

```
class Address {

    private String street;
    private String houseNumber;
    private String city;
    private String code;

    public Address(String street, String houseNumber, String city, String code) {
        this.street = street;
        this.houseNumber = houseNumber;
        this.city = city;
        this.code = code;
    }

    public String getStreet() {
        return street;
    }

    public void setStreet(String street) {
        this.street = street;
    }


    public String getHouseNumber() {
        return houseNumber;
```

```
    }

    public void setHouseNumber(String houseNumber) {
        this.houseNumber = houseNumber;
    }


    public String getCity() {
        return city;
    }

    public void setCity(String city) {
        this.city = city;
    }


    public String getCode() {
        return code;
    }

    public void setCode(String code) {
        this.code = code;
    }


    public String getAddressDetails() {
        return "Street: " + street + ", House#: " + houseNumber + ", City: " + city + ", Code: " +
code;
    }
```

```
}

class Person {

    private String name;
    private Address address;


    public Person(String name, Address address) {
        this.name = name;
        this.address = address;
    }


    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }


    public Address getAddress() {
        return address;
    }

    public void setAddress(Address address) {
```

```
        this.address = address;
    }


    public void displayPersonInfo() {
        System.out.println("Name: " + name);
        System.out.println("Address: " + address.getAddressDetails());
    }
}
class Book {

    private String bookName;
    private String publisher;
    private Person author;

    public Book(String bookName, String publisher, Person author) {
        this.bookName = bookName;
        this.publisher = publisher;
        this.author = author;
    }


    public String getBookName() {
        return bookName;
    }

    public void setBookName(String bookName) {
        this.bookName = bookName;
```

```
    }

    public String getPublisher() {
        return publisher;
    }

    public void setPublisher(String publisher) {
        this.publisher = publisher;
    }


    public Person getAuthor() {
        return author;
    }

    public void setAuthor(Person author) {
        this.author = author;
    }

    public void displayBookInfo() {
        System.out.println("Book Name: " + bookName);
        System.out.println("Publisher: " + publisher);
        System.out.println("Author: " + author.getName());
        System.out.println("Author's Address: " + author.getAddress().getAddressDetails());
    }
}

public class Main {
```

```
    public static void main(String[] args) {

        Address authorAddress = new Address("Maple St", "789", "Los Angeles", "90001");


        Person author = new Person("Jane Austen", authorAddress);


        Book book = new Book("Pride and Prejudice", "Penguin Books", author);


        System.out.println("Original Book Info:");
        book.displayBookInfo();


        Address newAuthorAddress = new Address("Elm St", "101", "San Francisco", "94101");
        author.setAddress(newAuthorAddress);


        System.out.println("\nUpdated Book Info:");
        book.displayBookInfo();
    }
}
```

Lab Task 03:

```
class Point {
    private double xCord;
    private double yCord;

    public Point(double xCord, double yCord) {
        this.xCord = xCord;
        this.yCord = yCord;
    }

    public double getXCord() {
        return xCord;
    }

    public void setXCord(double xCord) {
        this.xCord = xCord;
    }

    public double getYCord() {
        return yCord;
    }

    public void setYCord(double yCord) {
        this.yCord = yCord;
    }

    public void display() {
```

```
        System.out.println("Point (" + xCord + ", " + yCord + ")");
    }
}

class Line {
    private Point startPoint;
    private Point endPoint;

    public Line(Point startPoint, Point endPoint) {
        this.startPoint = startPoint;
        this.endPoint = endPoint;
    }

    public double getLength() {
        double xDiff = endPoint.getXCord() - startPoint.getXCord();
        double yDiff = endPoint.getYCord() - startPoint.getYCord();
        return Math.sqrt((xDiff * xDiff) + (yDiff * yDiff));
    }

    public void displayLineLength() {
        System.out.println("Length of the line: " + getLength());
    }
}

public class Main {
    public static void main(String[] args) {
        Point p1 = new Point(2, 3);
        Point p2 = new Point(5, 7);
```

```
        Line line1 = new Line(p1, p2);
        line1.displayLineLength();

        Point p3 = new Point(1, 1);
        Point p4 = new Point(4, 5);
        Line line2 = new Line(p3, p4);
        line2.displayLineLength();
    }
}
```

Lab Task 04:

```
class Pizza {
    private String size;
    private int cheeseToppings;
    private int pepperoniToppings;
    private int hamToppings;

    public Pizza(String size, int cheeseToppings, int pepperoniToppings, int hamToppings) {
        this.size = size.toLowerCase();
        this.cheeseToppings = cheeseToppings;
        this.pepperoniToppings = pepperoniToppings;
        this.hamToppings = hamToppings;
    }

    public String getSize() {
        return size;
    }

    public void setSize(String size) {
        this.size = size.toLowerCase();
    }

    public int getCheeseToppings() {
        return cheeseToppings;
    }

    public void setCheeseToppings(int cheeseToppings) {
```

```
    this.cheeseToppings = cheeseToppings;
}

public int getPepperoniToppings() {
    return pepperoniToppings;
}

public void setPepperoniToppings(int pepperoniToppings) {
    this.pepperoniToppings = pepperoniToppings;
}

public int getHamToppings() {
    return hamToppings;
}

public void setHamToppings(int hamToppings) {
    this.hamToppings = hamToppings;
}

public double calcCost() {
    int baseCost = 0;
    if (size.equals("small")) {
        baseCost = 10;
    } else if (size.equals("medium")) {
        baseCost = 12;
    } else if (size.equals("large")) {
        baseCost = 14;
    }
```

```
        return baseCost + 2 * (cheeseToppings + pepperoniToppings + hamToppings);
    }

    public String getDescription() {
        return "Size: " + size + ", Cheese Toppings: " + cheeseToppings +
               ", Pepperoni Toppings: " + pepperoniToppings + ", Ham Toppings: " + hamToppings +
               ", Cost: $" + calcCost();
    }
}

class PizzaOrder {
    private Pizza pizza1;
    private Pizza pizza2;
    private Pizza pizza3;

    public void setPizza1(Pizza pizza) {
        this.pizza1 = pizza;
    }

    public void setPizza2(Pizza pizza) {
        this.pizza2 = pizza;
    }

    public void setPizza3(Pizza pizza) {
        this.pizza3 = pizza;
    }

    public double calcTotal() {
```

```
        double totalCost = 0;
        if (pizza1 != null) totalCost += pizza1.calcCost();
        if (pizza2 != null) totalCost += pizza2.calcCost();
        if (pizza3 != null) totalCost += pizza3.calcCost();
        return totalCost;
    }
}

public class Main {
    public static void main(String[] args) {
        Pizza pizza1 = new Pizza("large", 1, 1, 2);
        Pizza pizza2 = new Pizza("medium", 2, 2, 0);

        System.out.println(pizza1.getDescription());
        System.out.println(pizza2.getDescription());

        PizzaOrder order = new PizzaOrder();
        order.setPizza1(pizza1);
        order.setPizza2(pizza2);

        System.out.println("Total cost of the order: $" + order.calcTotal());
    }
}
```