

**Object Oriented Programming**

**Lab Assignment 6**

**SUBMITTED BY:**

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**SUBMITTED TO: Sir Muzaffar Iqbal**

**Activity 1:**

package LAB6;

class person {

    protected String name;

    protected String id;

    protected int phone;

    person() {

        name = " ";

        id = " ";

        phone = 0;

    }

    person(String name, String id, int phone) {

        this.name = name;

        this.id = id;

        this.phone = phone;

    }

    public String getName() {

        return name;

    }

    public void setName(String name) {

        this.name = name;

    }

    public String getId() {

        return id;

    }

    public void setId(String id) {

        this.id = id;

    }

    public int getPhone() {

        return phone;

    }

    public void setPhone(int phone) {

        this.phone = phone;

    }

    void display() {

        System.out.println("Name: " + name);

        System.out.println("ID: " + id);

        System.out.println("Phone: " + phone);

    }

}

class Student extends person {

    private String rollNo;

    private int marks;

    Student() {

        super();

        rollNo = " ";

        marks = 0;

    }

    Student(String name, String id, int phone, String rollNo, int marks) {

        super(name, id, phone);

        this.rollNo = rollNo;

        this.marks = marks;

    }

    @Override

    void display() {

        super.display();

        System.out.println("Roll No: " + rollNo);

        System.out.println("Marks: " + marks);

    }

    public String getRollNo() {

        return rollNo;

    }

    public void setRollNo(String rollNo) {

        this.rollNo = rollNo;

    }

    public int getMarks() {

        return marks;

    }

    public void setMarks(int marks) {

        this.marks = marks;

    }

}

class Runner {

    public static void main(String[] args) {

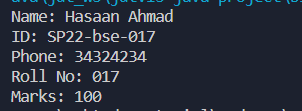
        Student s1 = new Student("Hasaan Ahmad", "Sp22-bse-017", 123456789, "17", 100);

        s1.display();

    }

}

**Output:**

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**Activity2:**

package LAB6;

class Employee {

    protected String name;

    protected String phone;

    protected String address;

    protected int allowance;

    public Employee(String name, String phone, String address, int allowance) {

        this.name = name;

        this.phone = phone;

        this.address = address;

        this.allowance = allowance;

    }

}

class Regular extends Employee {

    private int basicPay;

    public Regular(String name, String phone, String address, int allowance, int basicPay) {

        super(name, phone, address, allowance);

        this.basicPay = basicPay;

    }

    public void Display() {

        System.out.println("Name: " + name + " Phone Number: " + phone

                + " Address: " + address + " Allowance: " + allowance + " Basic Pay: "

                + basicPay);

    }

}

class Adhoc extends Employee {

    private int numberOfWorkingDays;

    private int wage;

    public Adhoc(String name, String phone, String address,

            int allowance, int numberOfWorkingDays, int wage) {

        super(name, phone, address, allowance);

        this.numberOfWorkingDays = numberOfWorkingDays;

        this.wage = wage;

    }

    public void Display() {

        System.out.println("Name: " + name + " Phone Number: " + phone + " Address: " + address + " Allowance: "

                + allowance + " Number Of Working Days: " + numberOfWorkingDays + " Wage: " +

                wage);

    }

}

public class Runner2 {

    public static void main(String[] args) {

        Regular r = new Regular("John", "123456789", "Kathmandu", 1000, 50000);

        Adhoc a = new Adhoc("John", "123456789", "Kathmandu", 1000, 20, 1000);

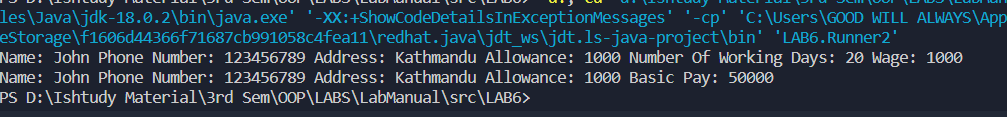
        a.Display();

        r.Display();

    }

}

**Output**

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**Graded Lab Task 1:**

package LAB6;

/\*

The Person, Student, Employee, Faculty, and Staff classes)

Design a class named Person and its two subclasses named Student and Employee. Design two more

classes; Faculty and Staff and extend them from Employee. The detail of classes is as under:

A person has a name, address, phone number, and email address.

A student has a status (String)

An employee has an office, salary, and date hired. Use the Date class to create an object for date hired.

A faculty member has office hours and a rank.

A staff member has a title.

Create display method in each class

 \*/

class Person {

    protected String name;

    protected String address;

    protected String phone;

    protected String email;

    public Person(String name, String address, String phone, String email) {

        this.name = name;

        this.address = address;

        this.phone = phone;

        this.email = email;

    }

    void display() {

        System.out.println("Name: " + name);

        System.out.println("Address: " + address);

        System.out.println("Phone: " + phone);

        System.out.println("Email: " + email);

    }

}

class Date {

    private int day;

    private int month;

    private int year;

    public Date(int day, int month, int year) {

        this.day = day;

        this.month = month;

        this.year = year;

    }

    public Date(String string) {

    }

    void display() {

        System.out.println("Date: " + day + "/" + month + "/" + year);

    }

}

class Student extends Person {

    private String status;

    public Student(String name, String address, String phone, String email, String status) {

        super(name, address, phone, email);

        this.status = status;

    }

    void display() {

        super.display();

        System.out.println("Status: " + status);

    }

}

class Employee extends Person {

    private String office;

    private int salary;

    private Date dateHired;

    public Employee(String name, String address, String phone, String email, String office, int salary,

            Date dateHired) {

        super(name, address, phone, email);

        this.office = office;

        this.salary = salary;

        this.dateHired = dateHired;

    }

    void display() {

        super.display();

        System.out.println("Office: " + office);

        System.out.println("Salary: " + salary);

        dateHired.display();

    }

}

class Faculty extends Employee {

    private String officeHours;

    private String rank;

    public Faculty(String name, String address, String phone, String email, String office, int salary, Date dateHired,

            String officeHours, String rank) {

        super(name, address, phone, email, office, salary, dateHired);

        this.officeHours = officeHours;

        this.rank = rank;

    }

    void display() {

        super.display();

        System.out.println("Office Hours: " + officeHours);

        System.out.println("Rank: " + rank);

    }

}

class Staff extends Employee {

    private String title;

    public Staff(String name, String address, String phone, String email, String office, int salary, Date dateHired,

            String title) {

        super(name, address, phone, email, office, salary, dateHired);

        this.title = title;

    }

}

public class GLT1 {

    public static void main(String[] args) {

        Person p = new Person("John", "123 Main St", "123-456-7890", "johdoe@tempmail.com");

        Student s = new Student("John", "123 Main St", "123-456-7890", "johstudent@tempmail.com", "Freshman");

        Employee e = new Employee("John", "123 Main St", "123-456-7890", "johnemp@tempmail.com", "Office 1", 1000,

                new Date(3, 1, 2020));

        Faculty f = new Faculty("John", "123 Main St", "123-456-7890", "johnfaculty@tempmail.com", "Office 1", 1000,

                new Date(4, 3, 2023), "9-5", "Professor");

        Staff st = new Staff("John", "123 Main St", "123-456-7890", "johnthejanit@tempmail.com", "Office 1", 1000,

                new Date(28, 2, 2023), "Janitor");

        p.display();

        System.out.println();

        s.display();

        System.out.println();

        e.display();

        System.out.println();

        f.display();

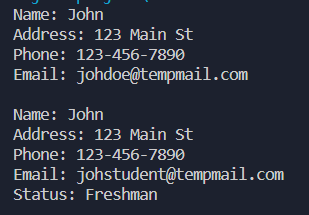
        System.out.println();

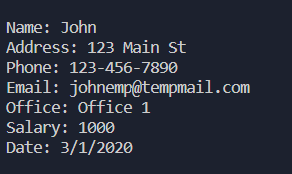
        st.display();

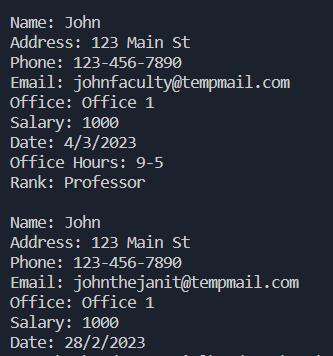
    }

}

**Output:**

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**Graded Lab Task 2:**

package LAB6;

/\*

 Imagine a publishing company that markets both book and audio-cassette versions of its works. Create a

class publication that stores the title and price of a publication. From this class derive two classes:

i. book, which adds a page count and

ii. tape, which adds a playing time in minutes.

Each of these three classes should have set() and get() functions and a display() function to display its

data. Write a main() program to test the book and tape class by creating instances of them, asking the

user to fill in their data and then displaying the data with display().

 \*/

class Publication {

    private String title;

    private double price;

    public Publication(String title, double price) {

        this.title = title;

        this.price = price;

    }

    public String getTitle() {

        return title;

    }

    public void setTitle(String title) {

        this.title = title;

    }

    public double getPrice() {

        return price;

    }

    public void setPrice(double price) {

        this.price = price;

    }

    void display() {

        System.out.println("Title: " + title);

        System.out.println("Price: " + price + " Rs.");

    }

}

class Book extends Publication {

    private int pageCount;

    public Book(String title, double price, int pageCount) {

        super(title, price);

        this.pageCount = pageCount;

    }

    public int getPageCount() {

        return pageCount;

    }

    public void setPageCount(int pageCount) {

        this.pageCount = pageCount;

    }

    @Override

    void display() {

        super.display();

        System.out.println("Page Count: " + pageCount + " pages");

    }

}

class Tape extends Publication {

    private int playTime;

    // Default constructor

    public Tape() {

        super("", 0);

        this.playTime = 0;

    }

    Tape(String title, double price, int playTime) {

        super(title, price);

        this.playTime = playTime;

    }

    public int getPlayTime() {

        return playTime;

    }

    public void setPlayTime(int playTime) {

        this.playTime = playTime;

    }

    @Override

    void display() {

        super.display();

        System.out.println("Play Time: " + playTime + " minutes");

    }

}

public class GLT2 {

    public static void main(String[] args) {

        // Taking inputs from user to fill in data

        System.out.println("Enter the title of the book:");

        String title = System.console().readLine();

        System.out.println("Enter the price of the book:");

        double price = Double.parseDouble(System.console().readLine());

        System.out.println("Enter the page count of the book:");

        int pageCount = Integer.parseInt(System.console().readLine());

        Book book = new Book(title, price, pageCount);

        System.out.println("Enter the details of the tape:");

        title = System.console().readLine();

        System.out.println("Enter the price of the tape:");

        price = Double.parseDouble(System.console().readLine());

        System.out.println("Enter the play time of the tape:");

        int playTime = Integer.parseInt(System.console().readLine());

        Tape tape = new Tape(title, price, playTime);

        // Displaying the data

        System.out.println("The details of the book are:");

        book.display();

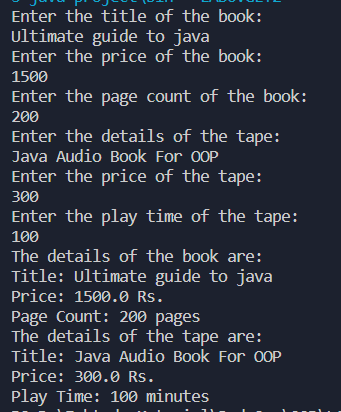
        System.out.println("The details of the tape are:");

        tape.display();

    }

}

**Output:**

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**Graded Lab Task 3:**

package LAB6;

/\*

 Write a base class Computer that contains data members of wordsize(in bits), memorysize (in megabytes),

storagesize (in megabytes) and speed (in megahertz). Derive a Laptop class that is a kind of computer but

also specifies the object’s length, width, height, and weight. Member functions for both classes should

include a default constructor, a constructor to inialize all components and a function to display data

members.r.

\*/

class Computer {

    private int wordSize;

    private int memorySize;

    private int storageSize;

    private int speed;

    public Computer() {

        this.wordSize = 0;

        this.memorySize = 0;

        this.storageSize = 0;

        this.speed = 0;

    }

    public Computer(int wordSize, int memorySize, int storageSize, int speed) {

        this.wordSize = wordSize;

        this.memorySize = memorySize;

        this.storageSize = storageSize;

        this.speed = speed;

    }

    public int getWordSize() {

        return wordSize;

    }

    public void setWordSize(int wordSize) {

        this.wordSize = wordSize;

    }

    public int getMemorySize() {

        return memorySize;

    }

    public void setMemorySize(int memorySize) {

        this.memorySize = memorySize;

    }

    public int getStorageSize() {

        return storageSize;

    }

    public void setStorageSize(int storageSize) {

        this.storageSize = storageSize;

    }

    public int getSpeed() {

        return speed;

    }

    public void setSpeed(int speed) {

        this.speed = speed;

    }

    void display() {

        System.out.println("Word Size: " + wordSize + " bits");

        System.out.println("Memory Size: " + memorySize + " MB");

        System.out.println("Storage Size: " + storageSize + " MB");

        System.out.println("Speed: " + speed + " MHz");

    }

}

class Laptop extends Computer {

    private int length;

    private int width;

    private int height;

    private int weight;

    public Laptop() {

        super();

        this.length = 0;

        this.width = 0;

        this.height = 0;

        this.weight = 0;

    }

    public Laptop(int wordSize, int memorySize, int storageSize, int speed, int length, int width, int height,

            int weight) {

        super(wordSize, memorySize, storageSize, speed);

        this.length = length;

        this.width = width;

        this.height = height;

        this.weight = weight;

    }

    public int getLength() {

        return length;

    }

    public void setLength(int length) {

        this.length = length;

    }

    public int getWidth() {

        return width;

    }

    public void setWidth(int width) {

        this.width = width;

    }

    public int getHeight() {

        return height;

    }

    public void setHeight(int height) {

        this.height = height;

    }

    public int getWeight() {

        return weight;

    }

    public void setWeight(int weight) {

        this.weight = weight;

    }

    @Override

    void display() {

        super.display();

        System.out.println("Length: " + length + " cm");

        System.out.println("Width: " + width + " cm");

        System.out.println("Height: " + height + " cm");

        System.out.println("Weight: " + weight + " kg");

    }

}

public class GLT3 {

    public static void main(String[] args) {

        Computer c = new Computer(64, 8, 256, 2);

        Laptop l = new Laptop(64, 8, 256, 2, 30, 20, 2, 2);

        c.display();

        l.display();

    }

}

**Output:**

