```
//task01
public class BankAccount {

    public int Account;
    public String type;

    public BankAccount() {
        this.Account = 0;
        this.type = "Not sets";
    }

    public void setInfo(int Account, String type) {
        this.Account = Account;
        this.type = type;
        System.out.println("Account information updated! ");
    }

    public String printDetails() {
        return "Account number: " + Account + "\ntype: " + type;
    }
}
//task02

public class Shape {

    public String Shape;
    public double Area;

    public void setParameters(String shape, int num1) {
        this.Shape = shape;
        this.Area = 3.1416 * num1 * num1;
    }

    public void setParameters(String shape, int num1, int num2) {
        this.Shape = shape;
        this.Area = 0.5 * num1 * num2;
    }

    public void setParameters(String shape, double num1, double
num2) {
        this.Shape = shape;
        this.Area = num1 * num2;
    }
    public String details() {
        return "Shape Name: " + Shape + "\nArea: " + Area;
    }

}
//task03

public class Shelf {
    public int capacity;
    public int books;
    public void showDetails(){
```

```
        System.out.println("Shelf capacity :"+capacity);
        System.out.println("Number of books:"+books);
    }
    public Shelf(){
        this.capacity=capacity;
        this.books=books;
    }
    public void addBooks(int n){
        if(capacity==0){
            System.out.println("Zero capacity. Cannot add books.");
        }
        else if(books+n>capacity){
            System.out.println("Exceeds capacity");
        }
            else{
                books+=n;
                System.out.println("Books added successfully");
            }
        }
    }

//task04

public class Student {
    public String name;
    public String department;
    public double cgpa;
    public int credits;
    public String status;
    public Student(){
        this.name = "Not Set";
        this.department = "CSE";
        this.cgpa = 0.0;
        this.credits = 9;
        this.status = "Not Set";
    }
    public void showDetails() {
        System.out.println("Name: " + name);
        System.out.println("Department: " + department);
        System.out.println("CGPA: " + cgpa);
        System.out.println("Credits: " + credits);
    }
    public void updateDetails(String name,double cgpa,int credits){
        this.name = name;
        this.cgpa = cgpa;
        this.credits = credits;
    }
    public void checkScholarshipEligibility(){
        if(cgpa>3.7 && credits>=10){
            System.out.println(name+"is eligible for Merit based
scholarship");
            this.status = "Merit based scholarship";
           }
           else if(cgpa>=3.5 && cgpa<=3.7 && credits>=10){
```

```
            System.out.println(name+"is eligible for Need based
scholarship");
            this.status = "Need based scholarship";
           }
           else{
            System.out.println(name+"is not eligible for
scholarship");
            this.status = "No scholarship";
           }
    }
    public void updateDetails(String name,double cgpa){
        this.name = name;
        this.cgpa = cgpa;
    }
    public void updateDetails(String name,double cgpa,int
credits,String department){
        this.name = name;
        this.cgpa = cgpa;
        this.credits = credits;
        this.department = department;
    }
}
//task05

public class Library {
    public int Capacity;
    public int total;
    public String[] list;
    public void setBookCapacity(int n){
        Capacity = n;
        list = new String[Capacity];
    }
    public void addBook(String name){
        if(total<Capacity){
            list[total]=name;
            System.out.println(name+" is added to the library");
            total++;
        }
        else{
            System.out.println("Exceeds maximum capacity. You can't
add more than "+Capacity+" books");
        }
    }
    public void printDetail(){
        System.out.println("Mazimum capacity: "+Capacity+"\nTotal
books: "+total+"\nBooks list :");
        for(int i=0;i<total;i++){
            System.out.println(list[i]);
        }
    }

}

//task06
```

```
public class TaxiLagbe {

    public String number;
    public String area;
    public int passenger;
    public int fare;
    public String[] lists;
    public int count = 4;

    public TaxiLagbe() {
        this.passenger = 0;
        this.fare = 0;
        this.lists = new String[count];
    }

    public void storeInfo(String n, String a) {
        this.number = n;
        this.area = a;
    }

    public void addPassenger(String name, int fare) {
        if (passenger < count) {
            this.fare += fare;
            lists[passenger] = name;
            passenger++;
            System.out.println("Dear " + name + " Welcome to
TaxiLagbe");
        } else {
            System.out.println("Dear" + name +
            "! Welcome to TaxiLagbeTaxi Full! No more passengers can
be added");
    }
    }
    public void addPassenger(String name, int fare1, String name1,
int fare2) {
        if (passenger < count) {
            addPassenger(name, fare1);
        }
        else if (passenger < count){
        addPassenger(name1, fare2);
        }
    }

    public void printDetails() {
        System.out.println("Taxi Number: " + number);
        System.out.println("This taxi can cover" + area + "area");
        System.out.println("Total Passenger: " + passenger);
        System.out.println("Total Fare: " + fare);
        System.out.println("Passenger List: ");
        for (int i = 0; i < passenger; i++) {
            System.out.println(lists[i]);
        }
        System.out.println();
```

```
        System.out.println("Total collected fare:" + fare + "taka");
    }
}

//taask07

public class Cart {
    public int cart;
    public int item;
    public String[] itemName;
    public double[] itemPrice;
    public double price;
    public double discount;
    public Cart(){
        this.itemName = new String[3];
        this.itemPrice = new double[3];
        this.discount = 0;
    }
    public void create_cart(int cart){
        this.cart = cart;
    }
    public void addItem(String itemName, double itemPrice){
       if(item<3){
              this.itemName[item] = itemName;
              this.itemPrice[item] = itemPrice;
              this.item++;
              this.price += itemPrice;
              System.out.println(itemName + " added to cart"+cart);
              System.out.println("You have"+item+" items in your
cart");
       }
       else{
         System.out.println("You already have 3 items on your
cart");
       }
    }
    public void addItem(double itemPrice, String itemName){
        if(item<3){
            this.itemName[item] = itemName;
            this.itemPrice[item] = itemPrice;
            this.item++;
            this.price += itemPrice;
            System.out.println(itemName + " added to cart"+cart);
            System.out.println("You have"+item+" items in your
cart");
        }
        else{
            System.out.println("You already have 3 items on your
cart");
        }
    }
    public void giveDiscount(double discount){
        this.discount = discount;
        this.price = this.price - (this.price * (discount/100));
```

```
    }
    public void cartDetails(){
        System.out.println("Cart: "+cart);
        for(int i=0; i<item; i++){
            System.out.println(itemName[i] + " - " + itemPrice[i]);
        }
        System.out.println("Discount: "+discount);
        System.out.println("Total price: "+price);
    }
}

//task08

public class Reader {

    public String name = "NEW USER";
    public int Capacity = 0;
    public String[] books;
    public int bookCount = 0;
    public String createReader(String name, int Capacity) {
        this.name = name;
        this.Capacity = Capacity;
        this.books = new String[Capacity];
        return"A new reader is created!";
    }

    public void addBook(String book) {
        if (bookCount < Capacity) {
            books[bookCount] = book;
            bookCount++;
        } else {
            System.out.println("No more capacity");
        }
    }

    public void readerInfo() {
        System.out.println("Name: " + name);
        System.out.println("Capacity: " + Capacity);
        System.out.println("Books: ");
        if (bookCount == 0) {
            System.out.println("No books addad yet");
        } else {
            for (int i = 0; i < bookCount; i++) {
                System.out.println(books[i]);
            }
        }
    }
}
```