1. Write a program which accepts starting character and ending character. Display one by one character from starting character till the ending character at the interval of one second using thread.

```
import java.util.Scanner;
public class prog_1 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the starting character: ");
        char startChar = scanner.nextLine().charAt(0);
        System.out.print("Enter the ending character: ");
        char endChar = scanner.nextLine().charAt(0);
        CharacterDisplayThread thread = new CharacterDisplayThread(startChar,
endChar);
        thread.start();
    }
}
class CharacterDisplayThread extends Thread {
    private char startChar;
    private char endChar;
    public CharacterDisplayThread(char startChar, char endChar) {
        this.startChar = startChar;
        this.endChar = endChar;
    }
    public void run() {
        for (char ch = startChar; ch <= endChar; ch++) {
            System.out.print(ch);
            try {
                Thread.sleep(1000);
            }
            catch (InterruptedException e) {
                e.printStackTrace();
            }
        }
    }
}
```

Output

```
C:\Ashish\21BCA103 journal-3>javac prog_1.java

C:\Ashish\21BCA103 journal-3>java prog_1
Enter the starting character: a
Enter the ending character: s
abcdefghijklmnopqrs
C:\Ashish\21BCA103 journal-3>
```

2. Write a program that stores details of 5 employees and display this information after every 10 second.

```
import java.util.Scanner;
public class prog_2 {
    public static void main(String[] args) {
        String[] name=new String[5];
        int[] age=new int[5];
        String[] department=new String[5];;
        double[] salary=new double[5];
        Scanner sc = new Scanner(System.in);
        for(int i=0;i<5;i++) {
            System.out.print("Enter Emp "+ (i+1) +" Name : ");
            name[i] = sc.nextLine();
            System.out.print("Enter Emp "+ (i+1) +" Age : ");
            age[i] = sc.nextInt();
            sc.nextLine();
            System.out.print("Enter Emp "+ (i+1) +" Department : ");
            department[i] = sc.nextLine();
            System.out.print("Enter Emp "+ (i+1) +" Salary : ");
            salary[i] = sc.nextDouble();
            sc.nextLine();
            System.out.println();
        }
        for(int i=0;i<5;i++) {
            try {
                System.out.print("\nName: " + name[i] + ", Age: " + age[i] +
", Department: " + department[i] + ", Salary: " + salary[i]);
                Thread.sleep(10000);
            }
            catch (InterruptedException e) {
                e.printStackTrace();
            }
        }
    }
}
```

Output

```
C:\Ashish\21BCA103 journal-3>javac prog_2.java

C:\Ashish\21BCA103 journal-3>java prog_2
Enter Emp 1 Name : Ashish
Enter Emp 1 Age : 21
Enter Emp 1 Department : Engineer
Enter Emp 1 Salary : 50000

Enter Emp 2 Name : Laxman
Enter Emp 2 Age : 20
Enter Emp 2 Department : Manager
Enter Emp 2 Salary : 45000

Enter Emp 3 Name : Abhisek
Enter Emp 3 Age : 22
Enter Emp 3 Department : Marketing
Enter Emp 3 Salary : 60000

Enter Emp 4 Name : Drashti
Enter Emp 4 Age : 21
Enter Emp 4 Department : Assistant
Enter Emp 4 Salary : 40000

Enter Emp 5 Name : Yash
Enter Emp 5 Age : 18
Enter Emp 5 Department : Worker
Enter Emp 5 Salary : 25000


Name: Ashish, Age: 21, Department: Engineer, Salary: 50000.0
Name: Laxman, Age: 20, Department: Manager, Salary: 45000.0
Name: Abhisek, Age: 22, Department: Marketing, Salary: 60000.0
Name: Drashti, Age: 21, Department: Assistant, Salary: 40000.0
Name: Yash, Age: 18, Department: Worker, Salary: 25000.0
C:\Ashish\21BCA103 journal-3>
```

3. Write a java application which accepts 10 names of student and their age. Sort names and age in descending order at an interval of 1 second using thread.

```java
import java.util.Arrays;
import java.util.Scanner;
public class prog_3 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        String[] names = new String[10];
        int[] ages = new int[10];
        for (int i = 0; i < 10; i++) {
```

```
        System.out.print("Enter name of student " + (i + 1) + ": ");
        names[i] = scanner.nextLine();
        System.out.print("Enter age of student " + (i + 1) + ": ");
        ages[i] = scanner.nextInt();
        scanner.nextLine();
    }
    while (true) {
        System.out.println("\nSelect an option:");
        System.out.println("1. Sort via Name.");
        System.out.println("2. Sort via Age.");
        System.out.println("3. Exit");
        System.out.print("\nSelect Your Choice : ");
        int choice = scanner.nextInt();
        scanner.nextLine();
        switch (choice) {
            case 1:
            for (int i = 0; i < 10; i++) {
                for (int j = i + 1; j < 10; j++) {
                    if (names[i].compareToIgnoreCase(names[j]) < 0) {
                        String tempName = names[i];
                        names[i] = names[j];
                        names[j] = tempName;
                        int tempAge = ages[i];
                        ages[i] = ages[j];
                        ages[j] = tempAge;
                    }
                }
            }
            System.out.println("\nSorted Names in Descending Order:");
            for (int i = 0; i < 10; i++) {
                try {
                    System.out.println(names[i] + " - " + ages[i]);
                    Thread.sleep(1000);
                }
                catch (InterruptedException e) {
                    e.printStackTrace();
                }
            }
            break;
            case 2:
            for (int i = 0; i < 10; i++) {
                for (int j = i + 1; j < 10; j++) {
                    if (ages[i] < (ages[j])) {
                        int tempage = ages[i];
                        ages[i] = ages[j];
                        ages[j] = tempage;
                        String tempname = names[i];
                        names[i] = names[j];
```

```
                        names[j] = tempname;
                    }
                }
            }
            System.out.println("\nSorted Ages in Descending Order:");
            for (int i = 0; i < 10; i++) {
                try {
                    System.out.println(ages[i] + " - " + names[i]);
                    Thread.sleep(1000);
                }
                catch (InterruptedException e) {
                    e.printStackTrace();
                }
            }
            break;
            case 3:
            System.out.println("Exiting program...");
            System.exit(0);
            break;
            default:
            System.out.println("Invalid choice. Try again.");
        }
    }
}
```

Output

```
C:\Ashish\21BCA103 journal-3>javac prog_3.java

C:\Ashish\21BCA103 journal-3>java prog_3
Enter name of student 1: Ashish
Enter age of student 1: 21
Enter name of student 2: Drashti
Enter age of student 2: 20
Enter name of student 3: Laxman
Enter age of student 3: 19
Enter name of student 4: Yash
Enter age of student 4: 20
Enter name of student 5: Dev
Enter age of student 5: 19
Enter name of student 6: Sachin
Enter age of student 6: 21
Enter name of student 7: Abhisek
Enter age of student 7: 18
Enter name of student 8: Manoj
Enter age of student 8: 21
Enter name of student 9: Sunil
Enter age of student 9: 21
Enter name of student 10: Nail
Enter age of student 10: 18

Select an option:
1. Sort via Name.
2. Sort via Age.
3. Exit

Select Your Choice : 1
```

```
Sorted Names in Descending Order:
Yash - 20
Sunil - 21
Sachin - 21
Nail - 18
Manoj - 21
Laxman - 19
Drashti - 20
Dev - 19
Ashish - 21
Abhisek - 18

Select an option:
1. Sort via Name.
2. Sort via Age.
3. Exit

Select Your Choice : 2

Sorted Ages in Descending Order:
21 - Sunil
21 - Sachin
21 - Manoj
21 - Ashish
20 - Drashti
20 - Yash
19 - Dev
19 - Laxman
18 - Nail
18 - Abhisek

Select an option:
1. Sort via Name.
2. Sort via Age.
3. Exit

Select Your Choice : 3
Exiting program...

C:\Ashish\21BCA103 journal-3>
```

4. Create package stores. Under it create a class called stock with member variable (item_no, item_name, stock_availible, and cost). Under the default package create a class called sales with field name (qty_sold) and it is the child class of stores class. Write a program to print the current stock of each item and perform addition.

```
import stores.stock;
import java.util.ArrayList;
import java.util.Scanner;
public class prog_4 {
```

```
    public static void main(String[] args) {
        ArrayList<stock> items = new ArrayList<stock>();
        items.add(new stock(1, "Apple", 10, 20.0));
        items.add(new stock(2, "Banana", 20, 30.0));
        items.add(new stock(3, "Ball", 30, 40.0));
        Scanner scanner = new Scanner(System.in);
        while (true) {
            System.out.println("\nCurrent Stock:");
            for (stock item : items) {
                System.out.println(item);
            }
            System.out.print("\nEnter the item no. to add stock, or 0 to
exit:");
            int item_no = scanner.nextInt();
            if (item_no == 0) {
                break;
            }
            stock item = items.stream().filter(i -> i.getItem_no() ==
item_no).findFirst().orElse(null);
            if (item == null) {
                System.out.println("Invalid item no.");
            }
            else {
                System.out.print("\nEnter the quantity to add:");
                int qty = scanner.nextInt();
                item.setStock_available(item.getStock_available() + qty);
                System.out.println("Stock added successfully.");
            }
        }
    }
}
```

Output

```
C:\Ashish\21BCA103 journal-3>javac prog_4.java

C:\Ashish\21BCA103 journal-3>java prog_4

Current Stock:
Item No.: 1, Item Name: Apple, Stock Available: 10, Cost: 20.0
Item No.: 2, Item Name: Banana, Stock Available: 20, Cost: 30.0
Item No.: 3, Item Name: Ball, Stock Available: 30, Cost: 40.0

Enter the item no. to add stock, or 0 to exit:1

Enter the quantity to add:20
Stock added successfully.

Current Stock:
Item No.: 1, Item Name: Apple, Stock Available: 30, Cost: 20.0
Item No.: 2, Item Name: Banana, Stock Available: 20, Cost: 30.0
Item No.: 3, Item Name: Ball, Stock Available: 30, Cost: 40.0

Enter the item no. to add stock, or 0 to exit:2

Enter the quantity to add:3
Stock added successfully.

Current Stock:
Item No.: 1, Item Name: Apple, Stock Available: 30, Cost: 20.0
Item No.: 2, Item Name: Banana, Stock Available: 23, Cost: 30.0
Item No.: 3, Item Name: Ball, Stock Available: 30, Cost: 40.0

Enter the item no. to add stock, or 0 to exit:3

Enter the quantity to add:6
Stock added successfully.

Current Stock:
Item No.: 1, Item Name: Apple, Stock Available: 30, Cost: 20.0
Item No.: 2, Item Name: Banana, Stock Available: 23, Cost: 30.0
Item No.: 3, Item Name: Ball, Stock Available: 36, Cost: 40.0

Enter the item no. to add stock, or 0 to exit:0

C:\Ashish\21BCA103 journal-3>
```

5. Create a class namely Vehicle to maintain vehicle data like chassisNo, nameOfVehicle, colour, owner using singly circular linked list. Perform following operations on student list:

a. Add vehicle details at the end of the list .

b. Remove last vehicle detail in the list .

c. Display all vehicle details in the list.

```
import java.util.Scanner;
```

```
class Vehicle {
    private int chassisNo;
    private String nameOfVehicle;
    private String colour;
    private String owner;
    private Vehicle next;
    public Vehicle(int chassisNo, String nameOfVehicle, String colour, String
owner) {
        this.chassisNo = chassisNo;
        this.nameOfVehicle = nameOfVehicle;
        this.colour = colour;
        this.owner = owner;
        this.next = null;
        System.out.println("\nData Inserted Successfully.");
    }
    public int getChassisNo() {
        return chassisNo;
    }
    public void setChassisNo(int chassisNo) {
        this.chassisNo = chassisNo;
    }
    public String getNameOfVehicle() {
        return nameOfVehicle;
    }
    public void setNameOfVehicle(String nameOfVehicle) {
        this.nameOfVehicle = nameOfVehicle;
    }
    public String getColour() {
        return colour;
    }
    public void setColour(String colour) {
        this.colour = colour;
    }
    public String getOwner() {
        return owner;
    }
    public void setOwner(String owner) {
        this.owner = owner;
    }
    public Vehicle getNext() {
        return next;
    }
    public void setNext(Vehicle next) {
        this.next = next;
    }
}
class VehicleList {
    private Vehicle tail;
```

```
    public VehicleList() {
        tail = null;
    }
    public void addVehicle(int chassisNo, String nameOfVehicle, String colour,
String owner) {
        Vehicle newVehicle = new Vehicle(chassisNo, nameOfVehicle, colour,
owner);
        if (tail == null) {
            tail = newVehicle;
            tail.setNext(tail);
        }
        else {
            newVehicle.setNext(tail.getNext());
            tail.setNext(newVehicle);
            tail = newVehicle;
        }
    }
    public void removeLastVehicle() {
        if (tail == null) {
            System.out.println("List is empty");
            return;
        }
        if (tail.getNext() == tail) {
            tail = null;
            return;
        }
        Vehicle current = tail.getNext();
        while (current.getNext() != tail) {
            current = current.getNext();
        }
        current.setNext(tail.getNext());
        tail = current;
    }
    public void displayVehicles() {
        if (tail == null) {
            System.out.println("List is empty");
            return;
        }
        Vehicle current = tail.getNext();
        do {
            System.out.println("----------------------------------------------
-");
            System.out.println("Chassis No: " + current.getChassisNo() + "
\nName of Vehicle: " + current.getNameOfVehicle() + " \nColour: " +
current.getColour() + " \nOwner: " + current.getOwner());
            System.out.println("----------------------------------------------
-");
            current = current.getNext();
```

```
        }
        while (current != tail.getNext());
        }
}
public class prog_5 {
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        VehicleList vehicleList = new VehicleList();
        while (true) {
            System.out.println("\n-----------------------------------------
---");
            System.out.println("\nCircular Singly Linked List Operations\n");
            System.out.println("-----------------------------------------
-");
            System.out.println("1. Insert at End.");
            System.out.println("2. Delete from End.");
            System.out.println("3. Get Item detail's.");
            System.out.println("4. Exit.");
            System.out.println("-----------------------------------------
-");
            System.out.print("Enter your Choice : ");
            int choice = scan.nextInt();
            switch (choice) {
                case 1 :
                int ch_no;
                String nameOfVeh, colour, owner;
                System.out.print("Enter Chassis_No : ");
                ch_no=scan.nextInt();
                scan.nextLine();
                System.out.print("Enter Name of vehicle : ");
                nameOfVeh=scan.nextLine();
                System.out.print("Enter Color of vehicle : ");
                colour=scan.nextLine();
                System.out.print("Enter Owner Name : ");
                owner=scan.nextLine();
                vehicleList.addVehicle(ch_no,nameOfVeh,colour,owner);
                break;
                case 2 :
                vehicleList.removeLastVehicle();
                System.out.println("\nData Deleted Successfully.");
                break;
                case 3 :
                System.out.println("Vehicle details:");
                vehicleList.displayVehicles();
                break;
                case 4 :
                System.out.println("Program Exited...");
                System.exit(0);
```

```
                    break;
                    default:
                    System.out.println("Invalid choice. Try again.");
                }
            }
        }
    }
```

Output

```
C:\Ashish\21BCA103 journal-3>javac prog_5.java

C:\Ashish\21BCA103 journal-3>java prog_5

-----------------------------------------------

Circular Singly Linked List Operations

-----------------------------------------------
1. Insert at End.
2. Delete from End.
3. Get Item detail's.
4. Exit.
-----------------------------------------------
Enter your Choice : 1
Enter Chassis_No : 7168
Enter Name of vehicle : Thar
Enter Color of vehicle : Black
Enter Owner Name : Ashish

Data Inserted Successfully.

-----------------------------------------------

Circular Singly Linked List Operations

-----------------------------------------------
1. Insert at End.
2. Delete from End.
3. Get Item detail's.
4. Exit.
```

```
-----------------------------------------------
Enter your Choice : 1
Enter Chassis_No : 1234
Enter Name of vehicle : Scorpio
Enter Color of vehicle : White
Enter Owner Name : Ashish

Data Inserted Successfully.

-----------------------------------------------

Circular Singly Linked List Operations

-----------------------------------------------
1. Insert at End.
2. Delete from End.
3. Get Item detail's.
4. Exit.
-----------------------------------------------
Enter your Choice : 2

Data Deleted Successfully.

-----------------------------------------------

Circular Singly Linked List Operations

-----------------------------------------------
1. Insert at End.
2. Delete from End.
3. Get Item detail's.
4. Exit.
```

```
------------------------------------------------
Enter your Choice : 3
Vehicle details:
------------------------------------------------
Chassis No: 7168
Name of Vehicle: Thar
Colour: Black
Owner: Ashish
------------------------------------------------


------------------------------------------------

Circular Singly Linked List Operations

------------------------------------------------
1. Insert at End.
2. Delete from End.
3. Get Item detail's.
4. Exit.
------------------------------------------------
Enter your Choice : 4
Program Exited...

C:\Ashish\21BCA103 journal-3>
```

6. Create a class namely Book to maintain Book details like id, name, quantity and author using singly linked list. Perform following operations on book list: a. Add book details in the begging of the list . b. Add book details at the end of the list . c. Add book detail at particular position . d. Remove first book detail from the list . e. Remove last book detail from the list . f. Display all book details in the list .

```java
import java.util.Scanner;
class Book {
    private int id;
    private String name;
    private int quantity;
    private String author;
    private Book next;
    public Book(int id, String name, int quantity, String author) {
        this.id = id;
        this.name = name;
        this.quantity = quantity;
        this.author = author;
        this.next = null;
        System.out.println("\nData Inserted Successfully.");
    }
    public int getId() {
        return id;
```

```
    }
    public void setId(int id) {
        this.id = id;
    }
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public int getQuantity() {
        return quantity;
    }
    public void setQuantity(int quantity) {
        this.quantity = quantity;
    }
    public String getAuthor() {
        return author;
    }
    public void setAuthor(String author) {
        this.author = author;
    }
    public Book getNext() {
        return next;
    }
    public void setNext(Book next) {
        this.next = next;
    }
}
class BookList {
    private Book head;
    public BookList() {
        head = null;
    }
    public void addBookAtBeginning(int id, String name, int quantity, String
author) {
        Book newBook = new Book(id, name, quantity, author);
        newBook.setNext(head);
        head = newBook;
    }
    public void addBookAtEnd(int id, String name, int quantity, String author)
{
        Book newBook = new Book(id, name, quantity, author);
        if (head == null) {
            head = newBook;
        }
        else {
            Book current = head;
```

```
            while (current.getNext() != null) {
                current = current.getNext();
            }
            current.setNext(newBook);
        }
    }
    public void addBookAtPosition(int id, String name, int quantity, String
author, int position) {
        if (position == 1) {
            addBookAtBeginning(id, name, quantity, author);
        }
        else {
            Book newBook = new Book(id, name, quantity, author);
            Book current = head;
            int currentPosition = 1;
            while (currentPosition < position - 1 && current != null) {
                current = current.getNext();
                currentPosition++;
                }
                if (current != null) {
                    newBook.setNext(current.getNext());
                    current.setNext(newBook);
                }
                else {
                    System.out.println("Invalid position");
                }
            }
        }
        public void removeFirstBook() {
            if (head == null) {
                System.out.println("List is empty");
            }
            else {
                head = head.getNext();
            }
        }
        public void removeLastBook() {
            if (head == null) {
                System.out.println("List is empty");
            }
            else if (head.getNext() == null) {
                head = null;
            }
            else {
                Book current =head;
                while (current.getNext().getNext() != null) {
                    current = current.getNext();
                }
```

```
                current.setNext(null);
            }
        }
        public void displayBooks() {
            if (head == null) {
                System.out.println("List is empty");
            }
            else {
                Book current = head;
                System.out.println("----------------------------------------
-----");
                while (current != null) {
                    System.out.println("ID: " + current.getId() + ", Name: " +
                    current.getName() + ", Quantity: " + current.getQuantity()
+ ", Author: " + current.getAuthor());
                    current = current.getNext();
                }
                System.out.println("----------------------------------------
-----");
            }
        }
    }
public class prog_6 {
    public static void main(String[] args) {
        int id;
        String name;
        int quantity;
        String author;
        Scanner scan = new Scanner(System.in);
        BookList bookList = new BookList();
        while (true) {
            System.out.println("\n----------------------------------------
---");
            System.out.println("\nSingly Linked List Operations\n");
            System.out.println("----------------------------------------
-");
            System.out.println("1. Insert at Begining.");
            System.out.println("2. Insert at End.");
            System.out.println("3. Insert at Position.");
            System.out.println("4. Delete from Head.");
            System.out.println("5. Delete from Tail.");
            System.out.println("6. Display Data.");
            System.out.println("7. Exit.");
            System.out.println("----------------------------------------
-");
            System.out.print("Enter your Choice : ");
            int choice = scan.nextInt();
            switch (choice) {
```

```
                case 1 :
                System.out.print("Enter Your ID : ");
                id=scan.nextInt();
                scan.nextLine();
                System.out.print("Enter Your Name : ");
                name=scan.nextLine();
                System.out.print("Enter Quantity of Books : ");
                quantity=scan.nextInt();
                scan.nextLine();
                System.out.print("Enter Author Name : ");
                author=scan.nextLine();
                bookList.addBookAtBeginning(id,name,quantity,author);
                break;
                case 2 :
                System.out.print("Enter Your ID : ");
                id=scan.nextInt();
                scan.nextLine();
                System.out.print("Enter Your Name : ");
                name=scan.nextLine();
                System.out.print("Enter Quantity of Books : ");
                quantity=scan.nextInt();
                scan.nextLine();
                System.out.print("Enter Author Name : ");
                author=scan.nextLine();
                bookList.addBookAtEnd(id,name,quantity,author);
                break;
                case 3 :
                int position;
                System.out.print("Enter Position you want to Insert Record :
");
                position=scan.nextInt();
                System.out.print("Enter Your ID : ");
                id=scan.nextInt();
                scan.nextLine();
                System.out.print("Enter Your Name : ");
                name=scan.nextLine();
                System.out.print("Enter Quantity of Books : ");
                quantity=scan.nextInt();
                scan.nextLine();
                System.out.print("Enter Author Name : ");
                author=scan.nextLine();
                bookList.addBookAtPosition(id,name,quantity,author,position);
                break;
                case 4 :
                bookList.removeFirstBook();
                System.out.println("\nData Deleted Successfully.");
                break;
                case 5 :
```

```
                bookList.removeLastBook();
                System.out.println("\nData Deleted Successfully.");
                break;
                case 6 :
                bookList.displayBooks();
                break;
                case 7 :
                System.out.println("Program Exited...");
                System.exit(0);
                break;
                default :
                System.out.println("Invalid choice. Try again.");
                break;
            }
        }
    }
}
```

Output

```
C:\Ashish\21BCA103 journal-3>javac prog_6.java

C:\Ashish\21BCA103 journal-3>java prog_6

------------------------------------------------

Singly Linked List Operations

------------------------------------------------
1. Insert at Begining.
2. Insert at End.
3. Insert at Position.
4. Delete from Head.
5. Delete from Tail.
6. Display Data.
7. Exit.
------------------------------------------------
Enter your Choice : 1
Enter Your ID : 103
Enter Your Name : Ashish
Enter Quantity of Books : 5
Enter Author Name : Ashish

Data Inserted Successfully.

------------------------------------------------

Singly Linked List Operations

------------------------------------------------
```

```
1. Insert at Begining.
2. Insert at End.
3. Insert at Position.
4. Delete from Head.
5. Delete from Tail.
6. Display Data.
7. Exit.
------------------------------------------------
Enter your Choice : 2
Enter Your ID : 104
Enter Your Name : Drashti
Enter Quantity of Books : 4
Enter Author Name : Drashti

Data Inserted Successfully.

------------------------------------------------

Singly Linked List Operations

------------------------------------------------
1. Insert at Begining.
2. Insert at End.
3. Insert at Position.
4. Delete from Head.
5. Delete from Tail.
6. Display Data.
7. Exit.
------------------------------------------------
Enter your Choice : 3
```

```
Enter Position you want to Insert Record : 2
Enter Your ID : 105
Enter Your Name : Yash
Enter Quantity of Books : 3
Enter Author Name : Yash

Data Inserted Successfully.

------------------------------------------------

Singly Linked List Operations

------------------------------------------------
1. Insert at Begining.
2. Insert at End.
3. Insert at Position.
4. Delete from Head.
5. Delete from Tail.
6. Display Data.
7. Exit.
------------------------------------------------
Enter your Choice : 4

Data Deleted Successfully.

------------------------------------------------

Singly Linked List Operations

------------------------------------------------
```

```
------------------------------------------------
1. Insert at Begining.
2. Insert at End.
3. Insert at Position.
4. Delete from Head.
5. Delete from Tail.
6. Display Data.
7. Exit.
------------------------------------------------
Enter your Choice : 5

Data Deleted Successfully.

------------------------------------------------

Singly Linked List Operations

------------------------------------------------
1. Insert at Begining.
2. Insert at End.
3. Insert at Position.
4. Delete from Head.
5. Delete from Tail.
6. Display Data.
7. Exit.
------------------------------------------------
Enter your Choice : 6
------------------------------------------------
ID: 105, Name: Yash, Quantity: 3, Author: Yash
------------------------------------------------


------------------------------------------------

Singly Linked List Operations

------------------------------------------------
1. Insert at Begining.
2. Insert at End.
3. Insert at Position.
4. Delete from Head.
5. Delete from Tail.
6. Display Data.
7. Exit.
------------------------------------------------
Enter your Choice : 7
Program Exited...

C:\Ashish\21BCA103 journal-3>
```

7. Write a programme to draw smiley with colour using applet.

```
import java.awt.*;
import java.applet.*;
public class prog_7 extends Applet {
    public void paint(Graphics g) {
        g.setColor(Color.yellow);
        g.fillOval(50,50,200,200);
        g.setColor(Color.black);
        g.drawOval(50,50,200,200);
        g.setColor(Color.black);
        g.fillOval(100,100,25,25);
        g.fillOval(175,100,25,25);
        g.setColor(Color.black);
        g.drawArc(100,125,100,75,0,-180);
    }
}
// Output in html
// <html>
// <body>
// <applet code="prog_7.class" width="300" height="300">
// </applet>
// </body>
// </html>
```

Output

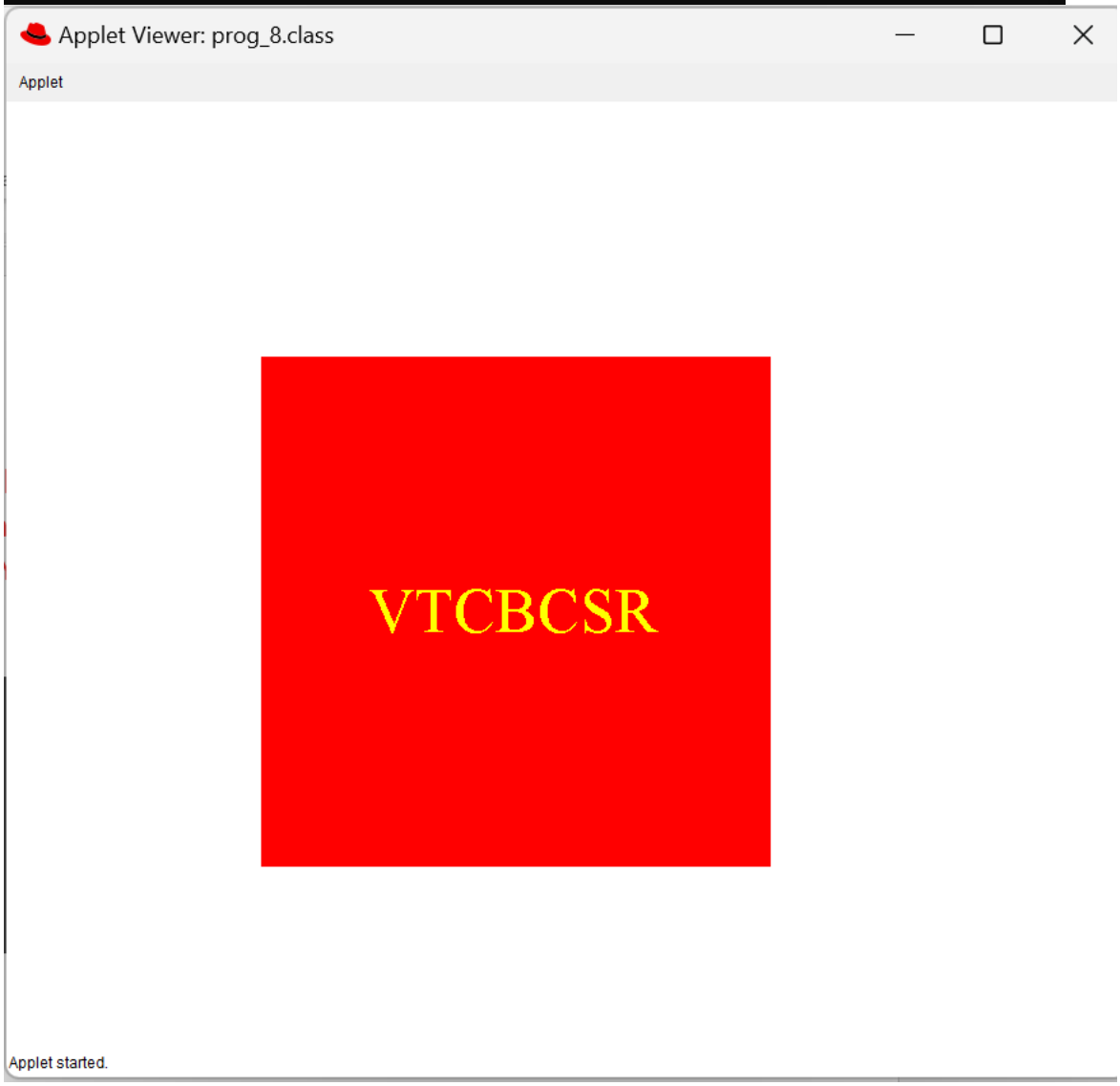
8. Create an applet which displays a solid square having red colour. Display name of your college within the square with font style =’Times New Roman’, font size=50 and font colour=’Yellow’.

```
import java.awt.*;
import java.applet.*;
public class prog_8 extends Applet {
    public void paint(Graphics g) {
        g.setColor(Color.red);
        g.fillRect(200,200,400,400);
        g.setColor(Color.yellow);
        Font font = new Font("Times New Roman", Font.PLAIN, 50);
        g.setFont(font);
        FontMetrics metrics = g.getFontMetrics(font);
        int x = (200 - metrics.stringWidth("My College")) / 2;
        int y = ((200 - metrics.getHeight()) / 2) + metrics.getAscent();
        g.drawString("VTCBCSR", 300+x, 300+y);
    }
}
// Output in html
// <html>
// <body>
// <applet code="prog_8.class" width="300" height="300">
// </applet>
// </body>
// </html>
```

Output

```
C:\Ashish\21BCA103 journal-3>javac prog_8.java

C:\Ashish\21BCA103 journal-3>appletviewer prog_8.java
```

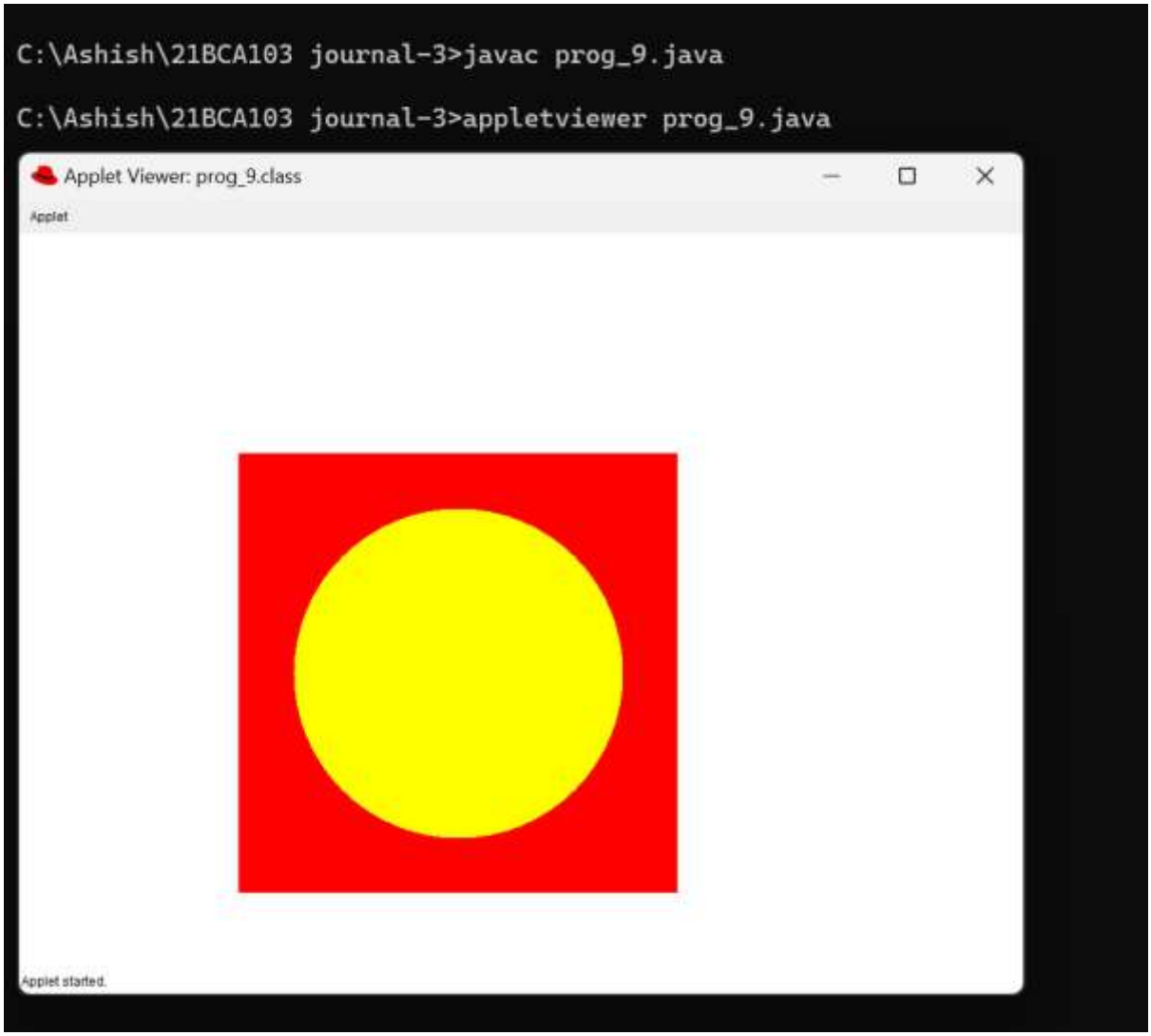


9. Write a program to draw circle inside a square in applet with different colours.

```
import java.awt.*;
import java.applet.*;
public class prog_9 extends Applet {
    public void paint(Graphics g) {
        g.setColor(Color.red);
```

```
        g.fillRect(200,200,400,400);
        g.setColor(Color.yellow);
        g.fillOval(250,250,300,300);
    }
}
// Output in html
// <html>
// <body>
// <applet code="prog_9.class" width="300" height="300">
// </applet>
// </body>
// </html>
```

Output



10. Write an applet program which accepts number of ovals user wants to display using parameter tag and draws ovals in different positions.

```
import java.awt.*;
import java.applet.*;
public class prog_10 extends Applet {
    private int numOvals;
    public void init() {
        String numOvalsStr = getParameter("numOvals");
        numOvals = Integer.parseInt(numOvalsStr);
    }
    public void paint(Graphics g) {
        for (int i = 0; i < numOvals; i++) {
            int x = (int)(Math.random() * 300);
            int y = (int)(Math.random() * 300);
            int w = (int)(Math.random() * 100);
            int h = (int)(Math.random() * 100);
            g.drawOval(x, y, w, h);
        }
    }
}
/*<applet code="prog_10.class" height="800" width="1860">
<param name="numOvals" value="10">
</applet>*/
```

```
C:\Ashish\21BCA103 journal-3>javac prog_10.java

C:\Ashish\21BCA103 journal-3>appletviewer prog_10.java
```