

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 PRG_01 {
    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) {
```

## 21BCA85(JOURNAL-3)

```
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 :

```
E:\Java\JOURNAL-3>javac PRG_01.java
```

```
E:\Java\JOURNAL-3>java PRG_01
```

```
Enter the starting character: l
```

```
Enter the ending character: s
```

```
lmnopqrs
```

```
E:\Java\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 PRG_02 {
```

```
    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();
        }
    }
}
```

## 21BCA85(JOURNAL-3)

### Output :

```
D:\SEM-4\JAVA\Java\JOURNAL-3>javac PRG_02.java

D:\SEM-4\JAVA\Java\JOURNAL-3>java PRG_02
Enter Emp 1 Name : MEET
Enter Emp 1 Age : 19
Enter Emp 1 Department : IT
Enter Emp 1 Salary : 20000

Enter Emp 2 Name : ANZAR
Enter Emp 2 Age : 20
Enter Emp 2 Department : ACCOUNTANT
Enter Emp 2 Salary : 20000

Enter Emp 3 Name : AYUSH
Enter Emp 3 Age : 19
Enter Emp 3 Department : SI
Enter Emp 3 Salary : 25000

Enter Emp 4 Name : SMIT
Enter Emp 4 Age : 20
Enter Emp 4 Department : CEO
Enter Emp 4 Salary : 30000

Enter Emp 5 Name : SAGAR
Enter Emp 5 Age : 19
Enter Emp 5 Department : IT
Enter Emp 5 Salary : 35000

Name: MEET, Age: 19, Department: IT, Salary: 20000.0
Name: ANZAR, Age: 20, Department: ACCOUNTANT, Salary: 20000.0
Name: AYUSH, Age: 19, Department: SI, Salary: 25000.0
Name: SMIT, Age: 20, Department: CEO, Salary: 30000.0
Name: SAGAR, Age: 19, Department: IT, Salary: 35000.0
D:\SEM-4\JAVA\Java\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.

```
import java.util.Arrays;

import java.util.Scanner;

public class PRG_03 {

    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 :

```
E:\Java\JOURNAL-3>javac PRG_03.java
```

```
E:\Java\JOURNAL-3>java PRG_03
```

```
Enter name of student 1: laxman
```

```
Enter age of student 1: 20
```

```
Enter name of student 2: jamu
```

```
Enter age of student 2: 16
```

```
Enter name of student 3: ashish
```

```
Enter age of student 3: 19
```

```
Enter name of student 4: abhishek
```

```
Enter age of student 4: 22
```

```
Enter name of student 5: ambulance
```

```
Enter age of student 5: 18
```

```
Enter name of student 6: 32gb
```

```
Enter age of student 6: 19
```

```
Enter name of student 7: cow
```

```
Enter age of student 7: 14
```

```
Enter name of student 8: buffalo
```

```
Enter age of student 8: 80
```

```
Enter name of student 9: ankit
```

```
Enter age of student 9: 21
```

```
Enter name of student 10: shanti
```

```
Enter age of student 10: 36
```

```
Select an option:
```

```
1. Sort via Name.
```

```
2. Sort via Age.
```

```
3. Exit
```

Select Your Choice : 1

Sorted Names in Descending Order:

shanti - 36  
laxman - 20  
jamu - 16  
cow - 14  
buffalo - 80  
ashish - 19  
ankit - 21  
ambulance - 18  
abhishek - 22  
32gb - 19

Select an option:

1. Sort via Name.
2. Sort via Age.
3. Exit

Select Your Choice : 2

Sorted Ages in Descending Order:

80 - buffalo  
36 - shanti  
22 - abhishek  
21 - ankit  
20 - laxman  
19 - ashish  
19 - 32gb  
18 - ambulance  
16 - jamu  
14 - cow

Select an option:

1. Sort via Name.
2. Sort via Age.
3. Exit

Select Your Choice : 3

Exiting program...

E:\Java\JOURNAL-3>\_

4. Create package stores. Under it create a class called stock with member variable (item\_no, item\_name, stock\_available, 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 PRG_04 {

    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 :

```
E:\Java\JOURNAL-3>javac PRG_04.java

E:\Java\JOURNAL-3>java PRG_04

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:3

Enter the quantity to add:66
Stock added successfully.

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: 96, Cost: 40.0

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

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 PRG_05 {  
    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 :**

```
E:\Java\JOURNAL-3>javac PRG_05.java
```

```
E:\Java\JOURNAL-3>java PRG_05
```

```
-----  
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 : 124
```

```
Enter Name of vehicle : hf dulex
```

```
Enter Color of vehicle : black
```

```
Enter Owner Name : sudhir
```

```
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 : 3
```

Vehicle details:

-----  
Chassis No: 124  
Name of Vehicle: hf dulex  
Colour: black  
Owner: sudhir  
-----  
-----

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 : 4

Program Exited...

E:\Java\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 beginning 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 .

```
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 PRG_06  
{  
    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 :

```
E:\Java\JOURNAL-3>javac PRG_06.java
E:\Java\JOURNAL-3>java PRG_06

-----

Singly Linked List Operations

-----

1. Insert at Beginning.
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 : 25
Enter Author Name : ashu

Data Inserted Successfully.

-----

Singly Linked List Operations

-----

1. Insert at Beginning.
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 : 152
Enter Your Name : abhishek
Enter Quantity of Books : 75
Enter Author Name : abhi
```

Data Inserted Successfully.

-----

Singly Linked List Operations

-----

1. Insert at Beginning.
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 : 90
Enter Your Name : laxman
Enter Quantity of Books : 69
Enter Author Name : shiva
```

Data Inserted Successfully.

-----

Singly Linked List Operations

-----

1. Insert at Beginning.
2. Insert at End.
3. Insert at Position.
4. Delete from Head.
5. Delete from Tail.

5. Delete from Tail.
6. Display Data.
7. Exit.

-----  
Enter your Choice : 6  
-----

ID: 103, Name: ashish, Quantity: 25, Author: ashu  
ID: 90, Name: laxman, Quantity: 69, Author: shiva  
ID: 152, Name: abhishek, Quantity: 75, Author: abhi  
-----

### 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 Beginning.  
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: 90, Name: laxman, Quantity: 69, Author: shiva  
-----

-----  
Singly Linked List Operations

- 1. Insert at Beginning.  
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...

E:\Java\JOURNAL-3>

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

```
import java.awt.*;
import java.applet.*;

//<applet code="PRG_07.class" height="800" width="1860"> </applet>

public class PRG_07 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 :

```
E:\Java\JOURNAL-3>javac PRG_07.java
```

```
E:\Java\JOURNAL-3>appletviewer PRG_07.java
```

```
■
```



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.*;

//<applet code="PRG_08.class" height="800" width="1860"> </applet>

public class PRG_08 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 :

```
E:\Java\JOURNAL-3>javac PRG_08.java
```

```
E:\Java\JOURNAL-3>appletviewer PRG_08.java
```



VTCBCSR

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

```
import java.awt.*;
import java.applet.*;

//<applet code="PRG_09.class" height="800" width="1860"> </applet>

public class PRG_09 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);

    }

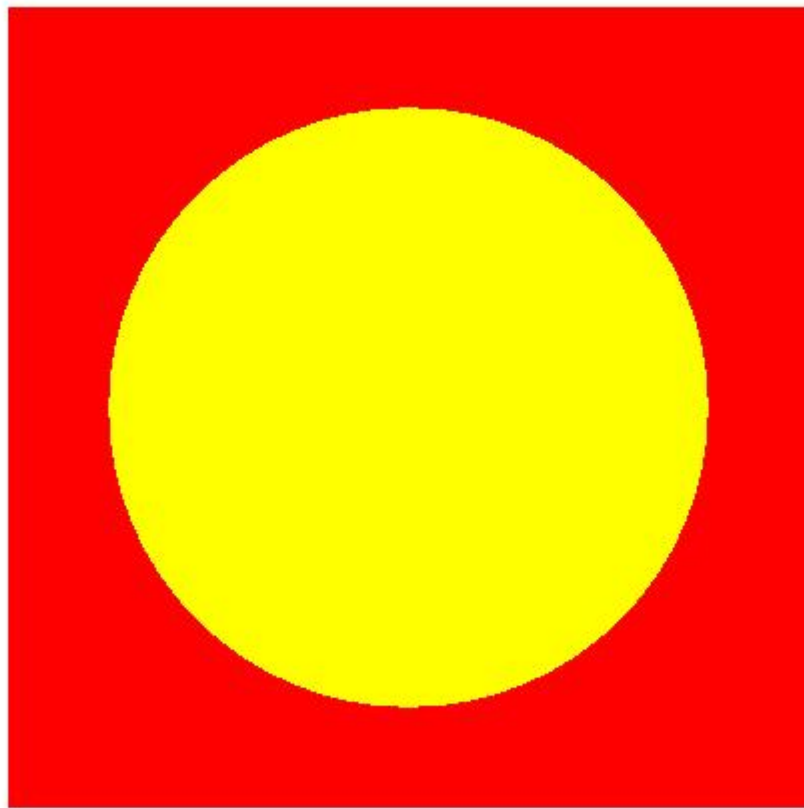
}
```



Output :

```
E:\Java\JOURNAL-3>javac PRG_09.java
```

```
E:\Java\JOURNAL-3>appletviewer PRG_09.java
```



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.*;

/*<applet code="PRG_10.class" height="800" width="1860">
<param name="numOvals" value="10">
</applet>*/

public class PRG_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);
        }
    }
}
```

Output :

```
E:\Java\JOURNAL-3>javac PRG_10.java
```

```
E:\Java\JOURNAL-3>appletviewer PRG_10.java
```

