



JOURNAL-03

21BCA90

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) {
```

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

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

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Output :

```
E:\Java\JOURNAL-3>java PRG_02
Enter Emp 1 Name : laxman
Enter Emp 1 Age : 20
Enter Emp 1 Department : bca
Enter Emp 1 Salary : 200000

Enter Emp 2 Name : jamu
Enter Emp 2 Age : 16
Enter Emp 2 Department : ssc
Enter Emp 2 Salary : 16000

Enter Emp 3 Name : manu
Enter Emp 3 Age : 18
Enter Emp 3 Department : hsc
Enter Emp 3 Salary : 10000

Enter Emp 4 Name : gangu
Enter Emp 4 Age : 19
Enter Emp 4 Department : bba
Enter Emp 4 Salary : 25000

Enter Emp 5 Name : ram
Enter Emp 5 Age : 30
Enter Emp 5 Department : msc
Enter Emp 5 Salary : 100000

Name: laxman, Age: 20, Department: bca, Salary: 200000.0
Name: jamu, Age: 16, Department: ssc, Salary: 16000.0
Name: manu, Age: 18, Department: hsc, Salary: 10000.0
Name: gangu, Age: 19, Department: bba, Salary: 25000.0
Name: ram, Age: 30, Department: msc, Salary: 100000.0
```

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
```

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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.

```
package stores;
```

```
public class stock {
```

```
    private int item_no;
```

```
    private String item_name;
```

```
    private int stock_available;
```

```
    private double cost;
```

```
    public stock(int item_no, String item_name, int stock_available, double cost) {
```

```
        this.item_no = item_no;
```

```
        this.item_name = item_name;
```

```
        this.stock_available = stock_available;
```

```
        this.cost = cost;
```

```
    }
```

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```
public int getItem_no() {  
    return item_no;  
}
```

```
public String getItem_name() {  
    return item_name;  
}
```

```
public int getStock_available() {  
    return stock_available;  
}
```

```
public double getCost() {  
    return cost;  
}
```

```
public void setStock_available(int stock_available) {  
    this.stock_available = stock_available;  
}
```

```
public void setCost(double cost) {
```

```
        this.cost = cost;
    }

    public String toString() {
        return "Item No.: " + item_no + ", Item Name: " + item_name + ", Stock
Available: " + stock_available + ", Cost: " + cost;
    }
}

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;
```

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```
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...

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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;  
    }
```

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```
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;
    }
}
}
```

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Output :

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

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

```
-----  
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 : 25
Enter Author Name : ashu
```

```
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
```

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```
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.

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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 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 : 4

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 : 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);

    }
}
```

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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);

    }
}
```

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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);

    }

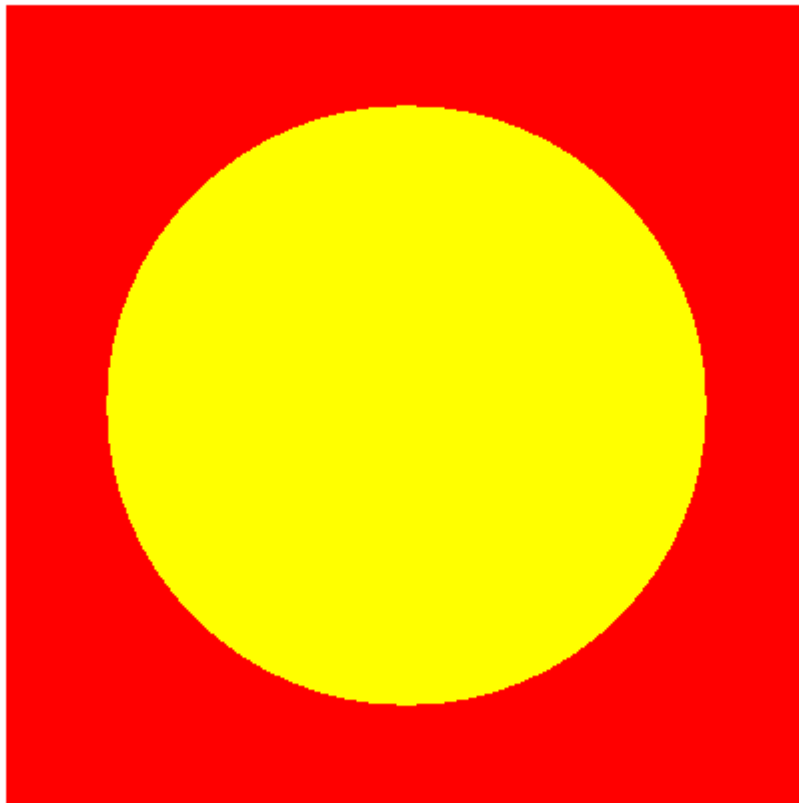
}
```

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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);
        }
    }
}
```

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Output :

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

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

