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) {
```

```
        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();
          }

        }
    }
}
```

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 : KRISHNA
Enter Emp 1 Age : 19
Enter Emp 1 Department : ACCOUNTANT
Enter Emp 1 Salary : 20000

Enter Emp 2 Name : JESSICA
Enter Emp 2 Age : 19
Enter Emp 2 Department : MD
Enter Emp 2 Salary : 25000

Enter Emp 3 Name : ZEBA
Enter Emp 3 Age : 19
Enter Emp 3 Department : CEO
Enter Emp 3 Salary : 30000

Enter Emp 4 Name : MEET
Enter Emp 4 Age : 19
Enter Emp 4 Department : SI
Enter Emp 4 Salary : 35000

Enter Emp 5 Name : AYUSH
Enter Emp 5 Age : 19
Enter Emp 5 Department : IT
Enter Emp 5 Salary : 40000


Name: KRISHNA, Age: 19, Department: ACCOUNTANT, Salary: 20000.0
Name: JESSICA, Age: 19, Department: MD, Salary: 25000.0
Name: ZEBA, Age: 19, Department: CEO, Salary: 30000.0
Name: MEET, Age: 19, Department: SI, Salary: 35000.0
Name: AYUSH, Age: 19, Department: IT, Salary: 40000.0
```

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
```

```
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_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 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 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 .

```
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 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
```

```
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 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 : 90
Enter Your Name : laxman
Enter Quantity of Books : 69
Enter Author Name : shiva

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.
```

```
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.
```

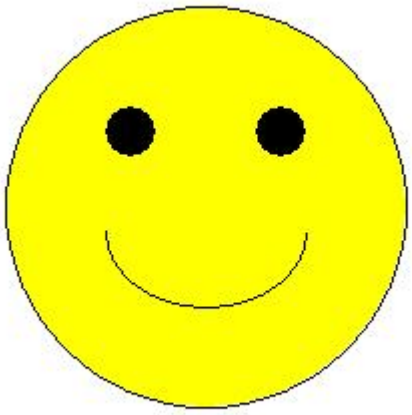
```
7. Exit.
-------------------------------------------------
Enter your Choice : 5

Data Deleted Successfully.

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

Singly Linked List Operations

-------------------------------------------------
1. Insert at 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: 90, Name: laxman, Quantity: 69, Author: shiva
-------------------------------------------------

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

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...

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 :

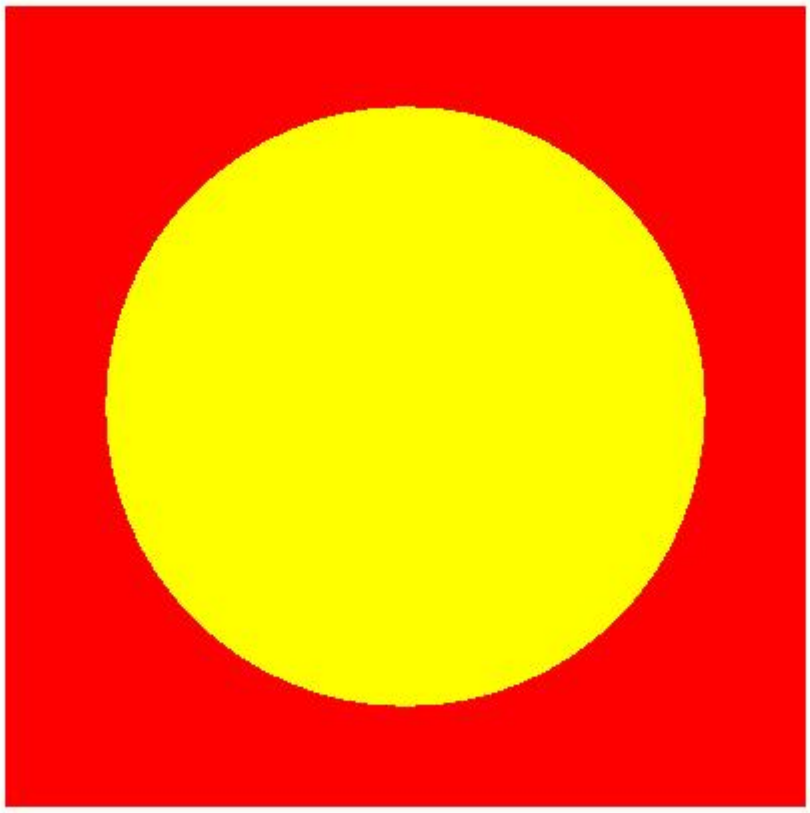
```
E:\Java\JOURNAL-3>javac PRG_08.java

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

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
```