JOURNAL-03

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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_01.java

E:\BCA SEM-4\java\Java\Java\JOURNAL-3>java PRG_01
Enter the starting character: a
Enter the ending character: k
abcdefghijk
```

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 :

```
E:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_02.java

E:\BCA SEM-4\java\Java\Java\JOURNAL-3>java PRG_02
Enter Emp 1 Name : vishal
Enter Emp 1 Age : 19
Enter Emp 1 Department : bcom
Enter Emp 1 Salary : 35000

Enter Emp 2 Name : dev
Enter Emp 2 Age : 20
```

Enter Emp 2 Department : bca
Enter Emp 2 Salary : 35000

Enter Emp 3 Name : jay
Enter Emp 3 Age : 23
Enter Emp 3 Department : bba
Enter Emp 3 Salary : 27000

Enter Emp 4 Name : nirav
Enter Emp 4 Age : 22
Enter Emp 4 Department : diploma
Enter Emp 4 Salary : 33000

Enter Emp 5 Name : chirag
Enter Emp 5 Age : 30
Enter Emp 5 Department : mca
Enter Emp 5 Salary : 45000

Name: vishal, Age: 19, Department: bcom, Salary: 35000.0
Name: dev, Age: 20, Department: bca, Salary: 35000.0
Name: jay, Age: 23, Department: bba, Salary: 27000.0
Name: nirav, Age: 22, Department: diploma, Salary: 33000.0
Name: chirag, Age: 30, Department: mca, Salary: 45000.0

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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_03.java

E:\BCA SEM-4\java\Java\Java\JOURNAL-3>java PRG_03
```

Enter name of student 1: raj

Enter age of student 1: 21

Enter name of student 2: ravi

Enter age of student 2: 32

Enter name of student 3: ram

Enter age of student 3: 23

Enter name of student 4: sujal

Enter age of student 4: 22

Enter name of student 5: shahil

Enter age of student 5: 21

Enter name of student 6: jay

Enter age of student 6: 19

Enter name of student 7: nirav

Enter age of student 7: 22

Enter name of student 8: sumit

Enter age of student 8: 21

Enter name of student 9: shiv

Enter age of student 9: 21

Enter name of student 10: vijay

Enter age of student 10: 24

Select an option:

1. Sort via Name.

2. Sort via Age.

3. Exit

Select Your Choice : 1

Sorted Names in Descending Order:

vijay - 24

sumit - 21

sujal - 22

shiv - 21

shahil - 21

ravi - 32

ram - 23

raj - 21

nirav - 22

jay - 19

Select an option:

1. Sort via Name.

2. Sort via Age.

3. Exit

Select Your Choice : 2

Sorted Ages in Descending Order:

32 - ravi

24 - vijay

23 - ram

22 - sujal

22 - nirav

21 - sumit

21 - shiv

21 - raj

21 - shahil

19 - jay

Select an option:

1. Sort via Name.

2. Sort via Age.

3. Exit

Select Your Choice : 3

Exiting program...

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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_04.java
```

```
E:\BCA SEM-4\java\Java\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:1

Enter the quantity to add:30
Stock added successfully.

Current Stock:
Item No.: 1, Item Name: Apple, Stock Available: 40, 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:0
```

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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_05.java

E:\BCA SEM-4\java\Java\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 : 1231
Enter Name of vehicle : maruti suzike
Enter Color of vehicle : white
Enter Owner Name : shiv

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 : 45633
Enter Name of vehicle : honda ct
Enter Color of vehicle : cyan
Enter Owner Name : mehul

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: 1231
Name of Vehicle: maruti suzike
Colour: white
Owner: shiv

Chassis No: 45633
Name of Vehicle: honda ct
Colour: cyan
Owner: mehul

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: 1231
Name of Vehicle: maruti suzike
Colour: white
Owner: shiv
---------------------------------------------


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

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...
```

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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_06.java

E:\BCA SEM-4\java\Java\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 : 101

Enter Your Name : raj

Enter Quantity of Books : 40

Enter Author Name : ronak panchal

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 : 103

Enter Your Name : vijay

Enter Quantity of Books : 50

Enter Author Name : yatin patel

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 : 102

Enter Your Name : ravi

Enter Quantity of Books : 50

Enter Author Name : viral

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 : 6

ID: 101, Name: raj, Quantity: 40, Author: ronak panchal

ID: 102, Name: ravi, Quantity: 50, Author: viral

ID: 103, Name: vijay, Quantity: 50, Author: yatin patel

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 : 6

ID: 102, Name: ravi, Quantity: 50, Author: viral

ID: 103, Name: vijay, Quantity: 50, Author: yatin patel

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: 102, Name: ravi, Quantity: 50, Author: viral

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...

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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_07.java

E:\BCA SEM-4\java\Java\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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_08.java

E:\BCA SEM-4\java\Java\Java\JOURNAL-3>appletviewer PRG_08.java
```

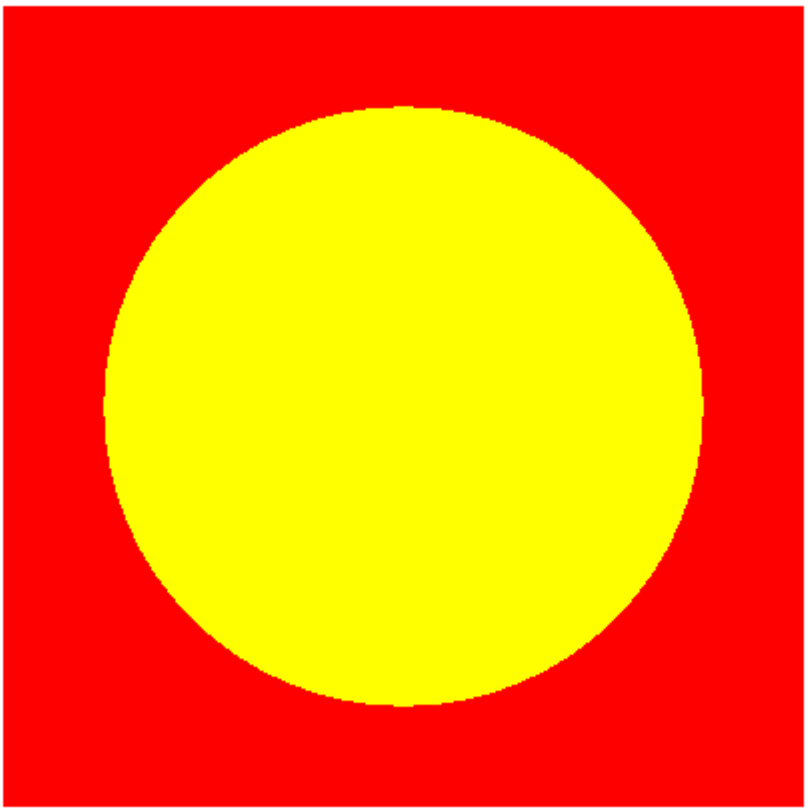
9. Write a program to draw circle inside a square in applet with different colours.

```
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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_09.java

E:\BCA SEM-4\java\Java\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:\BCA SEM-4\java\Java\Java\JOURNAL-3>javac PRG_10.java

E:\BCA SEM-4\java\Java\Java\JOURNAL-3>appletviewer PRG_10.java
Warning: Can't read AppletViewer properties file:
C:\Users\Hp\.hotjava\properties Using defaults.
```