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package geet;

import java.util.Scanner;

class nodee//creating node

{

int data;

node link;

nodee(int d)

{

data=d;

link=null;

}

}

public class loop {

node head,currptr;

loop() //constructor

{

head=null;

}

public void insert(int d)

{

node newnode=new node(d);

newnode.data=d;

newnode.link=null;

if(head==null)

{

head=newnode;

}

else

{

currptr=head;

while(currptr.link!=null)

{

currptr=currptr.link;

}

currptr.link=newnode;

}

}

public void display()

{

node currptr=head;

if(head==null)

{

System.out.print("Empty List ");

return;

}

while(currptr!=null)

{

System.out.print(currptr.data + " " );

currptr=currptr.link;

}

System.out.println( );

}

public void createloop()

{

head=new node(6);

head.link=new node(9);

head.link.link=new node(67);

node b=head.link.link.link=new node(16);

head.link.link.link.link=new node(10);

head.link.link.link.link.link=new node(61);

head.link.link.link.link.link=b;

System.out.print("Loop successfully Created");

}

public void detect()

{

node slow ,fast;

slow = fast =head;

while(slow!=null && fast!=null && fast.link!=null )

{

slow=slow.link;

fast=fast.link.link;

if(slow==fast)

{

System.out.println("Loop Detected ");

break;

}

}

}

public void removeLoop(){

//node slow,fast;

node slow = head;

node fast = head.link;

slow = head;

while (slow.link!= fast.link)

{

slow = slow.link;

fast = fast.link;

}

fast.link = null; // removing loop

System.out.print(" remove loop ");

}

public static void main(String args[])

{

int i,choice;

char ch;

Scanner sc=new Scanner(System.in);

loop li=new loop();

do

{

System.out.println("1. Insert ");

System.out.println("2. Display ");

System.out.println("3. create ");

System.out.println("4. Detect ");

System.out.println("5. Remove ");

System.out.print(" Enter Your Appropriate Option ");

choice=sc.nextInt();

switch(choice)

{

case 1:

System.out.print("Enter How many elements you want to enter : ");

int n=sc.nextInt();

System.out.println("Enter the Data : ");

for(i=0;i<n;i++)

{

li.insert(sc.nextInt());

}

break;

case 2:

li.display();

break;

case 3:

li.createloop();

break;

case 4:

li.detect();

break;

case 5:

li.removeLoop();

break;

default:

System.out.print("Invalid ");

}

System.out.println("\n\n Do you Want to continue(Y/N)");

ch=sc.next().charAt(0);

}

while(ch=='Y'||ch=='y');

}

}