import java.util.Scanner;

class Linkedlist {

Node head;

class Node {

int data;

Node next;

Node(int val) {

data = val;

next = null;

}

}

Linkedlist() {

head = null;

}

public void insertAtbeg(int val) {

Node newnode = new Node(val);

if (head == null)

head = newnode;

else {

newnode.next = head;

head = newnode;

}

System.out.println("Successfully inserted at the beginning.");

}

public void insertAtEnd(int val) {

Node newnode = new Node(val);

if (head == null) {

head = newnode;

} else {

Node temp = head;

while (temp.next != null) {

temp = temp.next;

}

temp.next = newnode;

}

System.out.println("Successfully inserted at the end.");

}

void insertpos(int pos, int val) {

if (pos == 0) {

insertAtbeg(val);

return;

} else {

Node newNode = new Node(val);

Node temp = head;

for (int i = 0; i < pos - 1; i++) {

temp = temp.next;

if (temp == null) {

System.out.println("Position exceeds");

return;

}

}

newNode.next = temp.next;

temp.next = newNode;

}

System.out.println("Successfully inserted at position " + pos);

}

public void delete(int pos) {

if (head == null) {

System.out.println("List is empty");

return;

}

if (pos == 0) {

head = head.next;

System.out.println("Successfully deleted at position " + pos);

return;

}

Node prev = head;

for (int i = 0; i < pos - 1; i++) {

prev = prev.next;

if (prev == null || prev.next == null) {

System.out.println("Position exceeds");

return;

}

}

prev.next = prev.next.next;

System.out.println("Successfully deleted at position " + pos);

}

public void display() {

Node temp = head;

while (temp != null) {

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

temp = temp.next;

}

System.out.println();

}

}

public class Main {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

Linkedlist l = new Linkedlist();

int choice, val, pos;

do {

System.out.println("Menu:");

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

System.out.println("2. Insert at end");

System.out.println("3. Insert at position");

System.out.println("4. Delete at position");

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

System.out.print("Enter your choice: ");

choice = scanner.nextInt();

switch (choice) {

case 1:

System.out.print("Enter value to insert: ");

val = scanner.nextInt();

l.insertAtbeg(val);

break;

case 2:

System.out.print("Enter value to insert: ");

val = scanner.nextInt();

l.insertAtEnd(val);

break;

case 3:

System.out.print("Enter position to insert: ");

pos = scanner.nextInt();

System.out.print("Enter value to insert: ");

val = scanner.nextInt();

l.insertpos(pos, val);

break;

case 4:

System.out.print("Enter position to delete: ");

pos = scanner.nextInt();

l.delete(pos);

break;

case 5:

System.out.println("Exiting...");

break;

default:

System.out.println("Invalid choice. Please try again.");

}

l.display();

} while (choice != 5);

scanner.close();

}

}