Daily Practice Program Date 24/11/2023

Program 1: Perfect Square

```
package ishwarchavan.com;

public class Perfectsquare {    //class created
	public static void main(String[] args) {     //main program started
		int n = 13;
		System.out.println(numSquares(n));    //function calling and printing value
	}

    public static int numSquares(int n) {    //function created
        int sqrt = (int) Math.sqrt(n);    //type casting

        if (sqrt * sqrt == n)    //condition checking
            return 1;

        while (n % 4 == 0)     //if true then execute below statement
            n = n / 4;

        if (n % 8 == 7)  //conditon checking
            return 4;

        for (int i = 1; i * i <= n; i++) {    //loop iterating
            int square = i * i;
            int base = (int) Math.sqrt(n - square);    //type casting

            if (base * base == n - square) return 2;
        }

        return 3;    //return result
    }
}
```

Program 1: Delete node in a linked list

```
package ishwarchavan.com;

public class DeleteNode {    //class created
	Node head;    // head of list

	class Node {    /* Linked list Node*/
		int data;
		Node next;
		Node(int d)
		{
			data = d;
			next = null;
		}
	}
	void deleteNode(int key)    //function created
	{
		Node temp = head, prev = null;    // Store head node

		if (temp != null && temp.data == key) {  // If head node itself holds the
key to be deleted
			head = temp.next; // Changed head
			return;
		}

		while (temp != null && temp.data != key) {    // Search for the key to be
deleted, keep track of the previous node as we need to change temp.next
			prev = temp;
			temp = temp.next;
		}
```

```
        if (temp == null)   // If key was not present in linked list
            return;
        prev.next = temp.next; // Unlink the node from linked list
    }

    public void push(int new_data)  /* Inserts a new Node at front of the list. */
    {
        Node new_node = new Node(new_data);
        new_node.next = head;
        head = new_node;
    }
    public void printList()    //function created
    {
        Node tnode = head;
        while (tnode != null) {
            System.out.print(tnode.data + " ");
            tnode = tnode.next;
        }
    }

    public static void main(String[] args)    //main program started
    {
        DeleteNode llist = new DeleteNode();

        llist.push(7);
        llist.push(1);
        llist.push(3);
        llist.push(2);

        System.out.println(" Created Linked list is:");
        llist.printList();

        llist.deleteNode(1); // Delete node with data 1

        System.out.println( "Linked List after Deletion of 1:");
        llist.printList();
    }
}
```