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1. Differentiate between structured programming and object-oriented programming, with
the help of the codes. Use two codes to show the varied features.

```
package com.OOP;
import java.util.Scanner;
public class StructureVsOop {
    static  Scanner in = new Scanner(System.in);
    public static void main(String[] args) {
        System.out.println("Enter two numbers : ");
        int num1 = in.nextInt();
        int num2 = in.nextInt();
        System.out.println("With use of structured
programming : ");
        System.out.println(num1 + num2); // this will run only
once
        System.out.println("With use of object oriented
programming : ");
        object(); // this will run till infinity
    }
    static void object() {
        int num1 = in.nextInt();
        int num2 = in.nextInt();
        System.out.println(num1 + num2);
        object();
    }
}
```

2. WAP in JAVA program to reverse a number using:
a. Using loop
b. Using recursion

```
package com.OOP;
import java.util.Scanner;
public class ReverseNumber {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.println("Using loop");
        System.out.println("Enter the Number : ");
        int num = in.nextInt();
        int temp,n=num;    // every time number will change
that's why we save that in temp
        while(num>0){
            temp = num%10;    // modulo will give us remainder
means last digit
            System.out.print(temp);
            num=num/10;
        }
        System.out.print("\nUsing recursion\n");
        reverse(n);
    }
    static void reverse(int num){
        if(num<10){
            System.out.println(num);
        }
        else{
            System.out.print(num%10);
            reverse(num/10);
        }
    }
}
```

3.WAP in JAVA code to implement Linear search using arrays.

```java
package com.OOP;
import java.util.Scanner;
public class LinearSearch {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
//        int[] array= {1,2,5,7,9,10,55,70};  //increasing
order
        int[] array = {5,3,1,0,-8};    //decreasing order
        int target = in.nextInt();
        int start=0;
        int end= array.length-1;

System.out.println(linearSearch(array,start,end,target));
    }
    static int linearSearch(int[] arr,int start,int end,int
target){
        // condition tells us that weather array is in
increasing
        // or decreasing order
        if(arr[start]<arr[end]){
            for (int i = 0; i < arr.length ; i++) {
                if(arr[i]==target){
                    return i;
                }
            }
        }
        else{
            for (int i = end; i >= start ; i--) {
                if(arr[i]==target){
                    return i;
                }
            }
        }
        return -1;  // if target was not found than return -1
    }
}
```

4. Write a program to create a room class, the attributes/variables of this class is roomno,
roomtype, and roomarea. In this class, the member functions are setdata and displaydata.
The program should perform some tasks such as assigning roomarea, printing room details,
etc.

```
package com.OOP;
//import java.util.Scanner;
public class Room {
//      Scanner in = new Scanner(System.in);
      int roomno;
      String  roomtype;
      float roomarea;
     public static void main(String[] args) {
          Room room = new Room();
          room.setdata();
          room.displaydata();
     }
    void displaydata() {
          System.out.println("Room number is : " + roomno );
         System.out.println("Room type is : " + roomtype);
         System.out.println("Room area is : " + roomarea);
     }
    void setdata() {
          roomno = 227;
          roomtype = "Delux";
          roomarea = 130.55f;
     }
}
```