You are required to write a Java program to calculate the total salary of an employee based on their hourly wage, hours worked in a week, and the number of weeks they worked. The program should consider the following rules:
- If an employee works more than 40 hours in a week, they are paid 1.5 times their hourly wage for the overtime hours.
- If an employee works less than 20 hours in aweek,they are penalized with a deduction of 10% of their weekly salary.
- The program should handle invalid inputs (e.g., negative values for hours or wages).

```
import java.util.*;

class SalaryCalculation {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        double hourlyRate = sc.nextDouble();
        int hoursWorked = sc.nextInt();
        int weeks = sc.nextInt();

        if (hourlyRate <= 0 || hoursWorked < 0 || weeks <= 0) {
            System.out.println("Invalid output");
            System.exit(1);
        }

        double weeklySalary;
        if (hoursWorked > 40) {
            int regularHours = 40;
            int overtimeHours = hoursWorked - 40;
            weeklySalary = (regularHours * hourlyRate) + (overtimeHours * hourlyRate * 1.5);
        } else {
            weeklySalary = hoursWorked * hourlyRate;
        }

        if (hoursWorked < 20) {
            weeklySalary = weeklySalary * 0.90;
        }

        double totalSalary = weeklySalary * weeks;

        System.out.printf("Total Salary: $%.2f%n", totalSalary);
    }
}
```

```
D:\230701126>java SalaryCalculation
45
78
6
Total Salary: $26190.00
```

You are required to calculate the total cost of purchasing tickets for an event based on the ticket type and the number of tickets bought.
The program should consider the following rules:
- Regular Ticket: 50 each. If more than 10 tickets are bought, a discount of 10% is applied.
- VIP Ticket: 100 each. If more than 5 tickets are bought, a discount of 15% is applied.
- Premium Ticket: 150 each. If more than 3 tickets are bought, a discount of 20% is applied.
- If the total cost before any discount is less than 200, an additional service fee of 20 is applied.
- The program should handle invalid inputs (e.g., negative values for number of tickets, or invalid ticket types).

```
import java.util.*;
import java.lang.*;
public class Ticket{
public static void main(String[] args)
{
Scanner sc=new Scanner(System.in);
String a =sc.nextLine();
int n=sc.nextInt();
double amt=0;
if(a.equals("Regular"))
{if(n>10)
amt=50*0.9*n;
else
amt=50*n;
if(amt<200){amt=amt+20;}
}

if(a.equals("VIP"))
{
if(n>5)
amt=100*0.85*n;
else
amt=100*n;
if(amt<200)
{amt=amt+20;}
}

if(a.equals("Premium"))
{
if(n>3)
amt=150*0.8*n;
else
amt=150*n;
if(amt<200)
{
amt=amt+20;
}}

System.out.println("Ticket Cost is " +amt);

}}
```

```
D:\230701126>java Ticket
67
90
Ticket Cost is 0.0
```

You are developing a scheduling application where users can check whether a given day is a weekday or a weekend. The application should prompt the user to enter a day of the week (e.g., "Monday", "Saturday"), and based on the input, the program should determine if the day is a weekday or a weekend.

```
import java.util.*;
import java.lang.*;
class Weekdayorend{
public static void main(String args[]){
Scanner sc=new Scanner(System.in);
String day;
day=sc.nextLine();
switch(day){
case"Monday":
case"Tuesday":
case"Wednesday":
case"thursday":
case"Friday":
System.out.println("It's a weekday");
break;
case"saturday":
case"sunday":
System.out.println("It's a weekend");
break;
default:
System.out.println("Invalid day");
break;
}}}
```

```
D:\230701126>java Weekdayorend
Monday
It's a weekday
```

GivenN, a Positive integer,You are supposed to print in the below format.

```
import java.util.*;
class NumberPyramid{
public static void main(String args[]){
Scanner sc=new Scanner(System.in);
int n=sc.nextInt();
for(int i=n;i>0;i--){
for(int j=1;j<=i;j++){
System.out.print(j + " ");
}
System.out.println();
}}}
```

```
D:\230701126>java NumberPyramid
8
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7
1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

Write a program to check whether a number is a Strong Number or not.
A strong number is a positive integer whose sum of the factorials of its digits equals the original number

Few examples of strong numbers are : 1,2,145 and 40585.

```
D:\230701126>java Second
156
It is Not a Strong Number
```

```
import java.util.*;
public class Second{
public static void main(String[]args){
int n,i,r=0,s=0,f=1,j,sum=0;
Scanner sc=new Scanner(System.in);
n=sc.nextInt();
int temp=n;
while(n>0){
f=1;
s=n/10;
r=n%10;
n=s;
for(i=1;i<=r;i++){
f=f*i;}
sum=sum+f;}
if(sum==temp){
System.out.println("It is a Strong Number");
}
else{
System.out.println("It is Not a Strong Number");
}}}
```

This problem to understand the nested loop. Given N, a Positive integer, You are supposed to print the alternating 1's and 0's in triangle format.
Input Format :

Input is positive integer : 5

```
import java.util.*;
class Zotriangle{
public static void main(String args[]){
Scanner sc=new Scanner(System.in);
int n=sc.nextInt();
for(int i=1;i<=n;i++){
for(int j=1;j<=i;j++){
if((i+j)%2==0){
System.out.print("1" + " ");
}
else{
System.out.print("0" + " ");
}}
System.out.println();
}}}
```

```
D:\230701126>java Zotriangle
5
1
0 1
1 0 1
0 1 0 1
1 0 1 0 1
```

Given a number N. The task is to find the largest and the smallest digit of the number.

```
import java.util.*;
public class Main{
public static void main(String[]args){
Scanner sc=new Scanner(System.in);
int n=sc.nextInt();
int s=9;
int l=0;
while(n>0){
int d=n%10;
if(d<s)s=d;
if(d>=l)l=d;
n=n/10;
}
System.out.println(s+" "+l);}}
```

```
D:\230701126>java Main
7890
0 9
```