Program 1: Add Digits

```java
package ishwarchavan.com;
import java.util.*;

public class AddDigits {

static int digSum(int num){   //function to calculate the sum of digits
int sum = 0;   //variable to store sum of digits
while (num > 0 || sum > 9){      //loop to do sum while sum is not less than or equal
to 9
if (num == 0)    {
num = sum;
sum = 0;
}
sum = sum + num % 10;

num = num / 10;      //remove the last digit of the number
}

return sum;      //returns the number
}

public static void main(String args[]){     //main program
int num = 38;
System.out.println("The sum of digits is: "+digSum(num));
}
}
```

Program 2: Additive Number

```java
package ishwarchavan.com;

public class AdditiveNumber {

    private static String strAdd(String s1, String s2){   // Standard function to add
two strings
        StringBuilder sum = new StringBuilder();
        int carry = 0;             // carry digit

        for (int i = s1.length() - 1, j = s2.length() - 1;   // Traversing the two
strings
            i >= 0 || j >= 0; i--, j--) {

            int a = i >= 0 ? (s1.charAt(i) - '0') : 0;   // Add s1[i] - '0' to a

            int b = j >= 0 ? (s2.charAt(j) - '0') : 0;   // Add s2[j] - '0' to b

            sum.insert(0, (a + b + carry) % 10);

            carry = (a + b + carry) / 10;
        }

        return carry == 1 ? "1" + sum.toString(): sum.toString();  // If carry
found at last, then add it to the sum

    }
    private static boolean isAdditiveNumberUtil(String num, String f, String s){
        int i = f.length()+ s.length(); // Starting position for the next number
after "s"
        while (i < num.length()) {    //condition checking

            if ((f.length() > 1 && f.charAt(0) == '0')|| (s.length() > 1 &&
s.charAt(0) == '0'))
```

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                    break;

                String sum = strAdd(f, s);  // Sum two strings

                if (sum.equals(num.substring(i))) {
                    return true; // Valid till the end, found one solution, return
true
                }
                f = s;     // Continue validation
                s = sum;
                i += sum.length();
            }
            return false; // No valid additive sequence found
    }

    private static boolean additiveSequence(String num){
        int n = num.length();

        if (n < 3)    // If size is less than 3, then it's never possible
            return false;
        for (int i = 0; i < n; i++) {   //loop iterating
            for (int j = i + 1; j < n; j++) {
                                        // If found, it's an additive
number
                if (isAdditiveNumberUtil(num, num.substring(0, i +
1),num.substring(i + 1, j + 1))) {
                    return true;
                }
            }
        }
        return false;  // No valid additive sequence found
    }
    public static void main(String[] args){   //main program started
        String num = "235813";
        boolean res = additiveSequence(num);
        if (res) {
            System.out.println("True");
        }
        else {
            System.out.println("False");
        }

    }
}
```

Program 3: Power of Three

```java
package ishwarchavan.com;
import java.util.*;

public class PowerOf3 {  //class created
static boolean isPower_of_Three(long n){   //function created
    if (n <= 0)  //condition checking
        return false;
    if (n % 3 == 0)
        return isPower_of_Three(n / 3);  //Returning power
    if (n == 1)    //if true then return true otherwise false
        return true;
    return false;
}

public static void main(String[] args){  //main program started
    long num1 = 243;
    if (isPower_of_Three(num1))
        System.out.print("Yes" +"\n");
    else
```

```java
                System.out.print("No" +"\n");

    }
}
```

Program 4: Password strength checker

```java
package ishwarchavan.com;
import java.io.*;
import java.util.*;

public class StrongPasswordCheck {   //class created
      public static void printStrongNess(String input){    //function created

            int n = input.length();    // Checking lower alphabet in string
            boolean hasLower = false, hasUpper = false,
                       hasDigit = false, specialChar = false;
            Set<Character> set = new HashSet<Character>(Arrays.asList('!', '@', '#',
'$', '%', '^', '&','*', '(', ')', '-', '+'));

            for (char i : input.toCharArray()){    //loop created
                  if (Character.isLowerCase(i))
                        hasLower = true;
                  if (Character.isUpperCase(i))
                        hasUpper = true;
                  if (Character.isDigit(i))
                        hasDigit = true;
                  if (set.contains(i))
                        specialChar = true;
            }

            System.out.print("Strength of password:- ");
            if (hasDigit && hasLower && hasUpper && specialChar && (n >= 8))
//checking condition
                  System.out.print(" Strong");
            else if ((hasLower || hasUpper || specialChar)&& (n >= 6))   //checking
condition
                  System.out.print(" Moderate");
            else
                  System.out.print(" Weak");
      }

      public static void main(String[] args){   //main program started
            String input = "IshwarChavan!@12";
            printStrongNess(input);
      }
}
```

Program 5: Perfect number

```java
package ishwarchavan.com;

public class PerfectNumberChecking {    //class created

      static boolean isPerfect(int n){   // Returns true if n is perfect

            if (n == 1)    // 1 is not a perfect number
                  return false;

            int sum = 1;

            for (int i = 2; i < n; i++) {    //loop iterating

                  if (n % i == 0) {   //condition checking
                        sum += i;
```

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            }
        }

        if (sum == n)   //is true then return true otherwise false
            return true;

        return false;
    }

    public static void main(String[] args){   //main program created
        int n = 6;

        if (isPerfect(n))   //function calling
            System.out.println(n + " is a perfect number");
        else
            System.out.println(
                n + " is not a perfect number");
    }
}
```