coding_knowladge
Harry

Basic to Advanced Java programs

1. Reverse a String

```
public class ReverseString {
   public static void main(String[] args) {
      String str = "Automation";
      StringBuilder reversed = new StringBuilder(str).reverse();
      System.out.println(reversed);
   }
}
```

2. Check for Palindrome

```
public class Palindrome {
   public static void main(String[] args) {
      String str = "madam";
      String reversed = new StringBuilder(str).reverse().toString();
      System.out.println(str.equals(reversed));
   }
}
```

3. Fibonacci Series

```
public class Fibonacci {
   public static void main(String[] args) {
      int n = 10, num1 = 0, num2 = 1;
      System.out.print("Fibonacci Series: " + num1 + ", " + num2);
      for (int i = 2; i < n; i++) {
         int num3 = num1 + num2;
         System.out.print(", " + num3);
         num1 = num2; num2 = num3;
      }
   }
}
```

4. Factorial of a Number

```
public class Factorial {
    public static void main(String[] args) {
        int num = 5, factorial = 1;
        for (int i = 1; i <= num; i++) {
            factorial *= i;
        }
        System.out.println(factorial);
    }
}
```

5. Prime Number Check

```
public class PrimeCheck {
    public static void main(String[] args) {
        int num = 11;
        boolean isPrime = true;
        for (int i = 2; i <= Math.sqrt(num); i++) {
            if (num % i == 0) {
            isPrime = false;
            break;
            }
        }
        System.out.println(isPrime);
    }
}
```

6. Count Vowels and Consonants

```
public class VowelConsonantCount {
    public static void main(String[] args) {
        String str = "Automation";
```

```
        int vowels = 0, consonants = 0;
        for (char c : str.toCharArray()) {
            if ("aeiouAEIOU".indexOf(c) != -1) {
                vowels++;
            } else if (Character.isLetter(c)) {
                consonants++;
            }
        }
        System.out.println("Vowels: " + vowels + ", Consonants: " + consonants);
    }
}
```

7. Sort an Array

```
import java.util.Arrays;

public class SortArray {
    public static void main(String[] args) {
        int[] arr = {5, 2, 8, 1, 3};
        Arrays.sort(arr);
        System.out.println(Arrays.toString(arr));
    }
}
```

8. Merge Two Arrays

```
import java.util.Arrays; public class
MergeArrays {
    public static void main(String[] args) {
        int[] arr1 = {1, 3, 5}; int[] arr2 = {2, 4, 6}; int[] merged = new
        int[arr1.length + arr2.length]; System.arraycopy(arr1, 0,
        merged, 0, arr1.length); System.arraycopy(arr2, 0, merged,
        arr1.length, arr2.length);
```

```
        System.out.println(Arrays.toString(merged));
    }
}
```

9. Find the Largest Element in an Array

```
public class LargestInArray {
    public static void main(String[] args) {
        int[] arr = {1, 3, 5, 7, 9};
        int largest = arr[0]; for
        (int num : arr) {
            if (num > largest) {
                largest = num;
            }
        }
        System.out.println(largest);
    }
```

10. Remove Duplicates from an Array

```
import java.util.HashSet;

public class RemoveDuplicates {
    public static void main(String[] args) {
        int[] arr = {1, 2, 2, 3, 4, 4};
        HashSet<Integer> set = new HashSet<>();
        for (int num : arr) {
        set.add(num);
        }
        System.out.println(set);
    }
}
```

11. Check if a Number is Armstrong

```
public class ArmstrongNumber {
   public static void main(String[] args) {
      int num = 153, sum = 0, temp = num;
      while (temp != 0) {
         int digit = temp % 10;
         sum += Math.pow(digit, 3);
         temp /= 10;
      }
      System.out.println(num == sum);
   }
}
```

12. Reverse a Number

```
public class ReverseNumber {
   public static void main(String[] args) {
      int num = 12345, reversed = 0;
      while (num != 0) {
         reversed = reversed * 10 + num % 10;
         num /= 10;
      }
      System.out.println(reversed);
   }
}
```

13. Calculate GCD of Two Numbers

```
public class GCD {
   public static void main(String[] args) {
      int a = 60, b = 48;
      while (b != 0) {
         int temp = b;
```

```
        b = a % b;
        a = temp;
      }
      System.out.println(a);
   }
}
```

14. Check for Anagram

```
import java.util.Arrays;
public class AnagramCheck {

   public static void main(String[] args) {
   String str1 = "listen", str2 = "silent";
   char[] arr1 = str1.toCharArray();
   char[] arr2 = str2.toCharArray();
   Arrays.sort(arr1);
   Arrays.sort(arr2);
   System.out.println(Arrays.equals(arr1, arr2));
   }
}
```

15. Count the Number of Digits in a Number

```
public class CountDigits {
   public static void main(String[] args) {
      int num = 12345;
      int count = String.valueOf(num).length();
      System.out.println(count);
   }
}
```

16. Print the Prime Numbers in a Range

```
public class PrimeInRange {
   public static void main(String[] args) {
```

```
    int start = 10, end = 50;
    for (int num = start; num <= end; num++) {
        boolean isPrime = true;
        for (int i = 2; i <= Math.sqrt(num); i++) {
            if (num % i == 0) {
            isPrime    =    false;
            break;
            }
        }
        if (isPrime && num > 1) {
            System.out.print(num + " ");
        }
    }
}
```

17. Find the Second Largest Element in an Array

```
public class SecondLargest {
        public static void main(String[] args) {
            int[] arr = {12, 35, 1, 10, 34, 1};
            int first = Integer.MIN_VALUE, second = Integer.MIN_VALUE;
            for (int num : arr) {
                if (num > first) {
                    second = first;
                    first = num;
                } else if (num > second && num != first) {
                    second = num;
                }
            }
            System.out.println(second);
        }
```

```
}
```

18. Swap Two Numbers

```
public class SwapNumbers {


   public static void main(String[] args) {
      int a = 5, b = 10; a = a + b; b = a - b; a = a
      - b; System.out.println("a: " + a + ", b: " +
      b);
   }
}
```

19. Print the Pascal's Triangle

```
public class PascalsTriangle {
    public static void main(String[] args) {
        int rows = 5;
        for (int i = 0; i < rows; i++) {
            int num = 1;
            System.out.format("%" + (rows - i) * 2 + "s", "");
            for (int j = 0; j <= i; j++) {
                System.out.format("%4d", num);
                num = num * (i - j) / (j + 1);
            }
            System.out.println();
        }
    }
}
```

20. Find the Missing Number in an Array

```
public class MissingNumber {

   public static void main(String[] args) {
```

```
    int[] arr = {1, 2, 4, 5, 6};
    int n = arr.length + 1;
    int total = n * (n + 1) / 2;
    for (int num : arr) {
      total -= num;
    }
    System.out.println(total);
  }
}
```

21. Convert Decimal to Binary

```
public class DecimalToBinary {
    public static void main(String[] args) {
      int num = 10;
      String binary = Integer.toBinaryString(num);
      System.out.println(binary);
    }
}
```

22. Check for Perfect Number

```
public class PerfectNumber {
  public static void main(String[] args) {
    int num = 28, sum = 0;
    for (int i = 1; i <= num / 2; i++) {
      if (num % i == 0) {
        sum += i;
      }
    }
    System.out.println(num == sum);
  }
}
```

```
}
```

18. Swap Two Numbers

```
public class SwapNumbers {


   public static void main(String[] args) {
      int a = 5, b = 10; a = a + b; b = a - b; a = a
      - b; System.out.println("a: " + a + ", b: " +
      b);
   }
}
```

19. Print the Pascal's Triangle

```
public class PascalsTriangle {
        public static void main(String[] args) {
            int rows = 5;
            for (int i = 0; i < rows; i++) {
                int num = 1;
                System.out.format("%" + (rows - i) * 2 + "s", "");
                for (int j = 0; j <= i; j++) {
                    System.out.format("%4d", num);
                    num = num * (i - j) / (j + 1);
                }
                System.out.println();
            }
        }
}
```