

# AP Tutorials

*Java Programming classes under Aryan Singh*

## Week 4 Assignment

1. Write a program to input a number and count the number of digits. The program further checks whether the number contains odd number of digits or even number of digits.

*Hint:* Sample Input: 749 Sample Output: Number of digits=3 The number contains odd number of digits.

2. Palindrome Number in Java: Write a program to accept a number from the user and check whether it is a Palindrome number or not. A number is a Palindrome which when reads in reverse order is same as in the right order.

*Hint:* Sample Input: 242 Sample Output: A Palindrome number Sample Input: 467 Sample Output: Not a Palindrome number

3. An Abundant number is a number for which the sum of its proper factors is greater than the number itself. Write a program to input a number and check and print whether it is an Abundant number or not.

*Hint:* Consider the number 12. Factors of 12 = 1, 2, 3, 4, 6 Sum of factors =  $1 + 2 + 3 + 4 + 6 = 16$  As  $16 > 12$  so 12 is an Abundant number.

4. Write a program to display all the 'Buzz Numbers' between p and q (where  $p < q$ ). A 'Buzz Number' is the number which ends with 7 or is divisible by 7.

*Note:* This kind of program is also known as a fizz-buzz program, a common interview question to test your fundamentals

5. A tech number has even number of digits. If the number is split in two equal halves, then the square of sum of these halves is equal to the number itself. Write a program to generate and print all four digits tech numbers.

*Hint:* Consider the number 3025 Square of sum of the halves of 3025 =  $(30 + 25)^2 = (55)^2 = 3025$  is a tech number.

### 1. Count the digits

```
import java.util.Scanner;

public class DigitCount
{
    public static void main(String args[]) {
        Scanner in = new Scanner(System.in);
        System.out.print("Enter number: ");
```

```

    int n = in.nextInt();
    int dc = 0;

    while (n != 0) {
        dc++;
        n /= 10;
    }

    System.out.println("Number of digits = " + dc);

    if (dc % 2 == 0)
        System.out.println("The number contains even number of digits");
    else
        System.out.println("The number contains odd number of digits");
}
}

```

## 2. Pallindrome

```

import java.util.Scanner;

public class PalindromeNumber
{
    public static void main(String args[]) {
        Scanner in = new Scanner(System.in);
        System.out.println("Enter the number: ");
        int num = in.nextInt();
        int copyNum = num;
        int revNum = 0;

        while(copyNum != 0) {
            int digit = copyNum % 10;
            copyNum /= 10;
            revNum = revNum * 10 + digit;
        }

        if (revNum == num)
            System.out.println("A Palindrome number");
        else
            System.out.println("Not a Palindrome number");
    }
}

```

### 3. Abundant Number

```
import java.util.Scanner;

public class AbundantNumber
{
    public static void main(String args[]) {
        Scanner in = new Scanner(System.in);
        System.out.print("Enter the number: ");
        int n = in.nextInt();
        int sum = 0;

        for (int i = 1; i < n; i++) {
            if (n % i == 0)
                sum += i;
        }

        if (sum > n)
            System.out.println(n + " is an abundant number");
        else
            System.out.println(n + " is not an abundant number");
    }
}
```

### 4. Fizz-Buzz

```
import java.util.Scanner;

public class BuzzNumber
{
    public static void main(String args[]) {
        Scanner in = new Scanner(System.in);
        System.out.print("Enter p: ");
        int p = in.nextInt();
        System.out.print("Enter q: ");
        int q = in.nextInt();
        if (p < q) {
            System.out.println("Buzz Numbers between "
                + p + " and " + q);
            for (int i = p; i <= q; i++) {
                if (i % 10 == 7 || i % 7 == 0)
                    System.out.println(i);
            }
        }
        else {
            System.out.println("Invalid Inputs!!!");
        }
    }
}
```

```

        System.out.println("p should be less than q");
    }

}

```

## 5. Tech Number

```

public class TechNumbers
{
    public static void main(String args[]) {
        for (int i = 1000; i <= 9999; i++) {
            int secondHalf = i % 100;
            int firstHalf = i / 100;
            int sum = firstHalf + secondHalf;
            if (i == sum * sum)
                System.out.println(i);
        }
    }
}

```