

Java Tutorial 1.2

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1) input:

```
import java.util.Scanner;

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

        for (int i = 0; i < t; i++) {
            try {
                long n = sc.nextLong();
                System.out.println(n + " can be fitted in:");
                if (n >= -128 && n <= 127) {
                    System.out.println("* byte");
                }
                if (n >= -32768 && n <= 32767) {
                    System.out.println("* short");
                }
                if (n >= -2147483648L && n <= 2147483647L) {
                    System.out.println("* int");
                }
                if (n >= -9223372036854775808L && n <= 9223372036854775807L) {
                    System.out.println("* long");
                }
            } catch (Exception e) {
                System.out.println(sc.next() + " can't be fitted anywhere.");
            }
        }
    }
}
```

Output:

```
5
-150
```

[illegible]

-150 can be fitted in:

* byte

* short

```
* int
```

- * long

150000 can be fitted in:

* short

```
* int
```

* long

1500000000 can be fitted in:

```
* int
```

- * long

21333333333333333333333333333333 can't be fitted anywhere.

-1000000000000000 can be fitted in:

* long

2) input:

```
import java.util.Scanner;
```

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

        System.out.println("Enter the amount in cents:");
        int cents = sc.nextInt();

        double dollars = cents / 100.0;

        System.out.printf("The amount in dollars: %.2f%n", dollars);

        sc.close();
    }
}
```

Output:

Enter the amount in cents : 1250

The amount in dollars: 12.50

3) Input:

```
import java.util.Scanner;
public class GameScore {

    public static void main(String[] args) {

        Scanner input= new Scanner(System.in);

        double preciseScore = input.nextDouble();

        int displayScore = (int) preciseScore;

        System.out.println("Player's score: " + displayScore);
    }
}
```

Output:

```
1234.5678
Player's score:1234
```

4) Input:

```
import java.util.Scanner;

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

        System.out.print("Enter the initial salary (as an integer): ");
        int initialSalary = scanner.nextInt();

        System.out.print("Enter the percentage increase (as a double): ");
        double percentageIncrease = scanner.nextDouble();

        double increaseAmount = initialSalary * (percentageIncrease / 100.0);
        double newSalary = initialSalary + increaseAmount;
```

```
        System.out.printf("The new salary after a %.1f%% increase is: %.1f%n",
percentageIncrease, newSalary);
```

```
    }
}
```

Output:

```
Enter the initial salary (as an integer):45000
Enter the percentage increase (as a double):7.5
The new salary after a 7.5% increase is: 48375.0
```

5) input:

```
import java.util.Scanner;
public class rev
{
    public static void main(String[] args)
    {
        Scanner input=new Scanner(System.in);
        int n=input.nextInt();
        int t;
        int temp=n;
        int r=0;
        while(n!=0)
        {
            t=n%10;
            r=r*10+t;
            n=(int)(n/10);
        }
        if(temp==r)
        {
            System.out.println("it is palindrome.");
        }
        else
        {
            System.out.println("it is not palindrome.");
        }
    }
}
```

Output:

```
12321
It is a palindrome
```

6) Input:

```
import java.util.Scanner;
```

```
public class DiamondPattern {
```

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

```
        Scanner scanner = new Scanner(System.in);
```

```
        System.out.print("Enter the number of rows for the top half of the diamond: ");
```

```
        int n = scanner.nextInt();
```

```
        for (int i = 1; i <= n; i++) {  
            for (int j = n; j > i; j--) {  
                System.out.print(" ");  
            }  
        }
```

```
        for (int k = 1; k <= (2 * i - 1); k++) {  
            System.out.print("*");  
        }
```

```
        System.out.println();
```

```
    }
```

```
    for (int i = n - 1; i >= 1; i--) {
```

```
        for (int j = n; j > i; j--) {  
            System.out.print(" ");  
        }
```

```
        for (int k = 1; k <= (2 * i - 1); k++) {  
            System.out.print("*");  
        }
```

```
        System.out.println();
```

```
    }
```

```
}
```

```
}
```

Output:

Input 1:

Input: n = 3

Output 1:

Output:

```
*  
***  
*****  
***  
*
```

Input 2:

Input: n = 4

Output 2:

Output:

```
*  
***  
*****  
*****  
*****  
***  
*
```

7) Input:

```
import java.util.Scanner;
```

```
public class PascalHalfDiamond {
```

```
    public static void main(String[] args) {  
        Scanner scanner = new Scanner(System.in);
```

```
        System.out.print("Enter the number of rows for the top half of the pattern: ");  
        int n = scanner.nextInt();
```

```
        int[][] pascalTriangle = new int[n][];  
        for (int i = 0; i < n; i++) {  
            pascalTriangle[i] = new int[i + 1];  
            pascalTriangle[i][0] = 1;  
            pascalTriangle[i][i] = 1;  
            for (int j = 1; j < i; j++) {  
                pascalTriangle[i][j] = pascalTriangle[i - 1][j - 1] + pascalTriangle[i - 1][j];  
            }  
        }  
    }
```

```

        for (int i = 0; i < n; i++) {
            for (int j = 0; j <= i; j++) {
                System.out.print(pascalTriangle[i][j] + " ");
            }
            System.out.println();
        }

        for (int i = n - 2; i >= 0; i--) {
            for (int j = 0; j <= i; j++) {
                System.out.print(pascalTriangle[i][j] + " ");
            }
            System.out.println();
        }

        ;
    }
}

```

Sample Output 1:

Output:

```

1
1 1
1 2 1
1 1
1

```

Sample Input 2:

Input: n = 4

Sample Output 2:

Output:

```

1
1 1
1 2 1
1 3 3 1
1 2 1
1 1
1

```

Sample Input 3:

Input: n = 5

Sample Output 3:

Output:

```

1
1 1
1 2 1

```

1 3 3 1
1 4 6 4 1
1 3 3 1
1 2 1

1 1
1

8) Input:

```
import java.util.Scanner;
```

```
public class SeriesGenerator {
```

```
    public static void main(String[] args) {  
        Scanner scanner = new Scanner(System.in);
```

```
  
        int q = scanner.nextInt();
```

```
  
        for (int query = 0; query < q; query++) {
```

```
            int a = scanner.nextInt();  
            int b = scanner.nextInt();  
            int n = scanner.nextInt();
```

```
  
            int[] series = new int[n];
```

```
  
            int currentTerm = a;
```

```
            for (int i = 0; i < n; i++) {  
                int sum = 0;  
                for (int j = 0; j <= i; j++) {  
                    sum += (1 << j) * b;                }  
                series[i] = currentTerm + sum;  
            }
```

```
            for (int i = 0; i < n; i++) {  
                System.out.print(series[i]);  
                if (i < n - 1) {  
                    System.out.print(" ");  
                }  
            }  
        }
```



```
        System.out.println();
    }

}
```

Output:

Sample Input

2

0 2 10

5 3 5

Sample Output

2 6 14 30 62 126 254 510 1022 2046

8 14 26 50 98