

## NAUT B05 - Java Assessment

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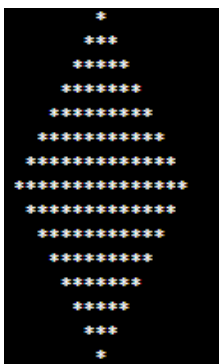
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### Programs:

1. Write a java program to calculate:
  - a. Area of Triangle
  - b. Area of Square
  - c. Area of Rectangle
2. Write a java program to check if two numbers are: (use ternary operator)
  - a. Equal
  - b. Not equal
  - c. Greater than
  - d. Lesser than
  - e. Greater than equal to
  - f. Lesser than equal to
3. Write a java program to print the diamond shape on the console using the character ('\*') – no of rows can be 5



4. Write a java program to find if a number is palindrome or not

Note: Use proper naming conventions standards while writing the programs.

## Solutions:

### 1. Calculate Area of Triangle, Square and Rectangle

```
import java.io.*;
```

```
class CalculateArea
```

```
{
```

```
void calarea(int x, int y, int z)
```

```
{
```

```
double s = ((x+y+z)/2);
```

```
double area = Math.sqrt(s*(s-x)*(s-y)*(s-z));
```

```
System.out.println("Area of Triangle is : " +area);
```

```
}
```

```
void calarea(int x, int y)
```

```
{
```

```
double area = x * y;
```

```
System.out.println("Area of Rectangle is :" +area);
```

```
}
```

```
void calarea(int x)
```

```
{
```

```
double area = x*x;
```

```
System.out.println("Area of Square is :" +area);
```

```
}
```

```
public static void main(String args[]) throws IOException
{
    boolean t = true;
    CalculateArea a = new CalculateArea();
    BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
    while(t)
    {
        System.out.println("Enter your choice to find area of:");
        System.out.println("\n1. Triangle \n2. Square \n3. Rectangle");
        int ch = Integer.parseInt(br.readLine());
        switch(ch)
        {
            case 1:
            {
                System.out.println("Enter the 3 sides:\nEnter the 1st side");
                int x = Integer.parseInt(br.readLine());
                System.out.println("Enter the 2nd side");
                int y = Integer.parseInt(br.readLine());
                System.out.println("Enter the 3rd side");
                int z = Integer.parseInt(br.readLine());
                a.calarea(x,y,z);
                break;
            }

            case 2:
            {
                System.out.println("Enter the side of the square");
                int x = Integer.parseInt(br.readLine());
```

```

a.calarea(x);
break;
}
case 3:
{
System.out.println("Enter the 2 sides of the rectangle:\nEnter the 1st side");
int x = Integer.parseInt(br.readLine());
System.out.println("Enter the 2nd side");
int y = Integer.parseInt(br.readLine());
a.calarea(x,y);
break;
}
default:
t = false;
System.out.println("Please input a correct option");
}}}}

```

### Output:

```

reuben@reuben:~/Desktop/Java$ javac CalculateArea.java
reuben@reuben:~/Desktop/Java$ java CalculateArea
Enter your choice to find area of:

1. Triangle
2. Square
3. Rectangle
1
Enter the 3 sides:
Enter the 1st side
3
Enter the 2nd side
4
Enter the 3rd side
5
Area of Triangle is : 6.0

```

```
Enter your choice to find area of:
1. Triangle
2. Square
3. Rectangle
2
Enter the side of the square
6
Area of Square is :36.0
```

```
Enter your choice to find area of:
1. Triangle
2. Square
3. Rectangle
3
Enter the 2 sides of the rectangle:
Enter the 1st side
4
Enter the 2nd side
5
Area of Rectangle is :20.0
```

## 2. Check two numbers using Ternary operators

```
import java.io.*;

class Compare
{
    public static void main(String args[]) throws IOException
    {
        BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
        System.out.println("\nCompare two numbers:");
        System.out.println("\nEnter the 1st number");
        int x = Integer.parseInt(br.readLine());
```

```

System.out.println("\nEnter the 2nd number");
int y = Integer.parseInt(br.readLine());
String eq = (x==y)?"The numbers are equal":"The numbers are not equal";
String ne = (x!=y)?"The numbers are not equal":"The numbers are equal";
String gt = (x>y)?x+" is greater than "+y:x+" is not greater than " +y;
String lt = (x<y)?x+" is lesser than "+y:x+" is not lesser than " +y;
String ge = (x>=y)?x+" is greater than or equal to "+y:x+" is not greater than or equal to "+y;
String le = (x<=y)?x+" is lesser than or equal to "+y:x+" is not lesser than or equal to "+y;
System.out.println(eq);
System.out.println(ne);
System.out.println(gt);
System.out.println(lt);
System.out.println(ge);
System.out.println(le);
}
}

```

**Output:**

```

reuben@reuben:~/Desktop/Java$ javac Compare.java
reuben@reuben:~/Desktop/Java$ java Compare

Compare two numbers:

Enter the 1st number
5

Enter the 2nd number
4
The numbers are not equal
The numbers are not equal
5 is greater than 4
5 is not lesser than 4
5 is greater than or equal to 4
5 is not lesser than or equal to 4

```

### 3. Print diamond pattern with '\*' character.

```
import java.io.*;

class Pattern
{
    public static void main(String args[]) throws IOException
    {
        BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
        System.out.println("\nEnter the number of lines for the pattern:");
        int n = Integer.parseInt(br.readLine());

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

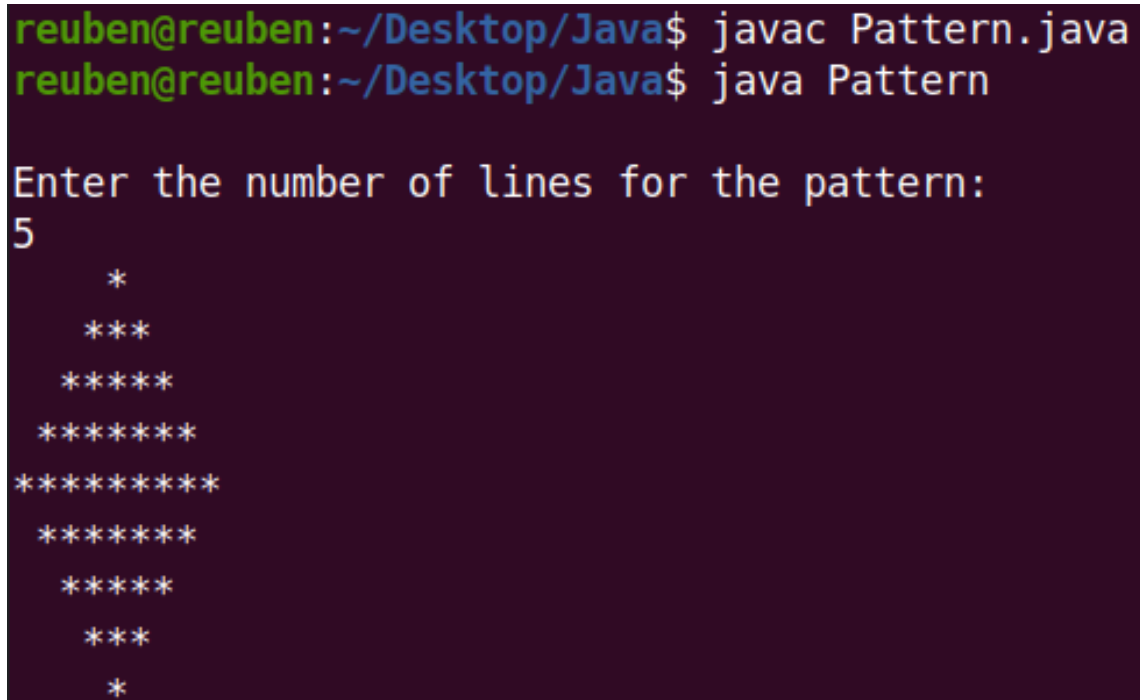
            for(int j=1;j<=i*2-1;j++)
            {
                System.out.print("*");
            }

            System.out.println();

        }
        for(int i=n-1;i>0;i--)
        {
            for(int j=1;j<=n-i;j++)
            {
```

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

**Output:**



```
reuben@reuben:~/Desktop/Java$ javac Pattern.java
reuben@reuben:~/Desktop/Java$ java Pattern

Enter the number of lines for the pattern:
5
    *
   ***
  *****
 *****
*****
 *****
  *****
   ***
    *
```



#### 4. Check if a given number is palindrome or not.

```
import java.io.*;

class Palindrome
{
    public static void main(String args[]) throws IOException
    {
        int sum=0, remainder;

        BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
        System.out.println("\nEnter the number to check for palindrome:");
        int num = Integer.parseInt(br.readLine());
        int n = num;

        while(num>0)
        {
            remainder = num%10;
            sum = (sum*10)+remainder;
            num = num/10;
        }
        if(n == sum)
        {
            System.out.println("\nNumber is Palindrome");
        }
        else
        {
            System.out.println("\nNumber is not a Palindrome");
        }
    }
}
```

Output:

```
reuben@reuben:~/Desktop/Java$ javac Palindrome.java
reuben@reuben:~/Desktop/Java$ java Palindrome

Enter the number to check for palindrome:
343

Number is Palindrome
```

```
reuben@reuben:~/Desktop/Java$ java Palindrome

Enter the number to check for palindrome:
433

Number is not a Palindrome
```