Pattern Programs in Java

edureka.co/blog/30-pattern-programs-in-java

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Java Interviews can give a hard time to programmers, such is the severity of the process. The ones who have attended the process will know that a pattern program is ought to pop up in the list of **programs**.

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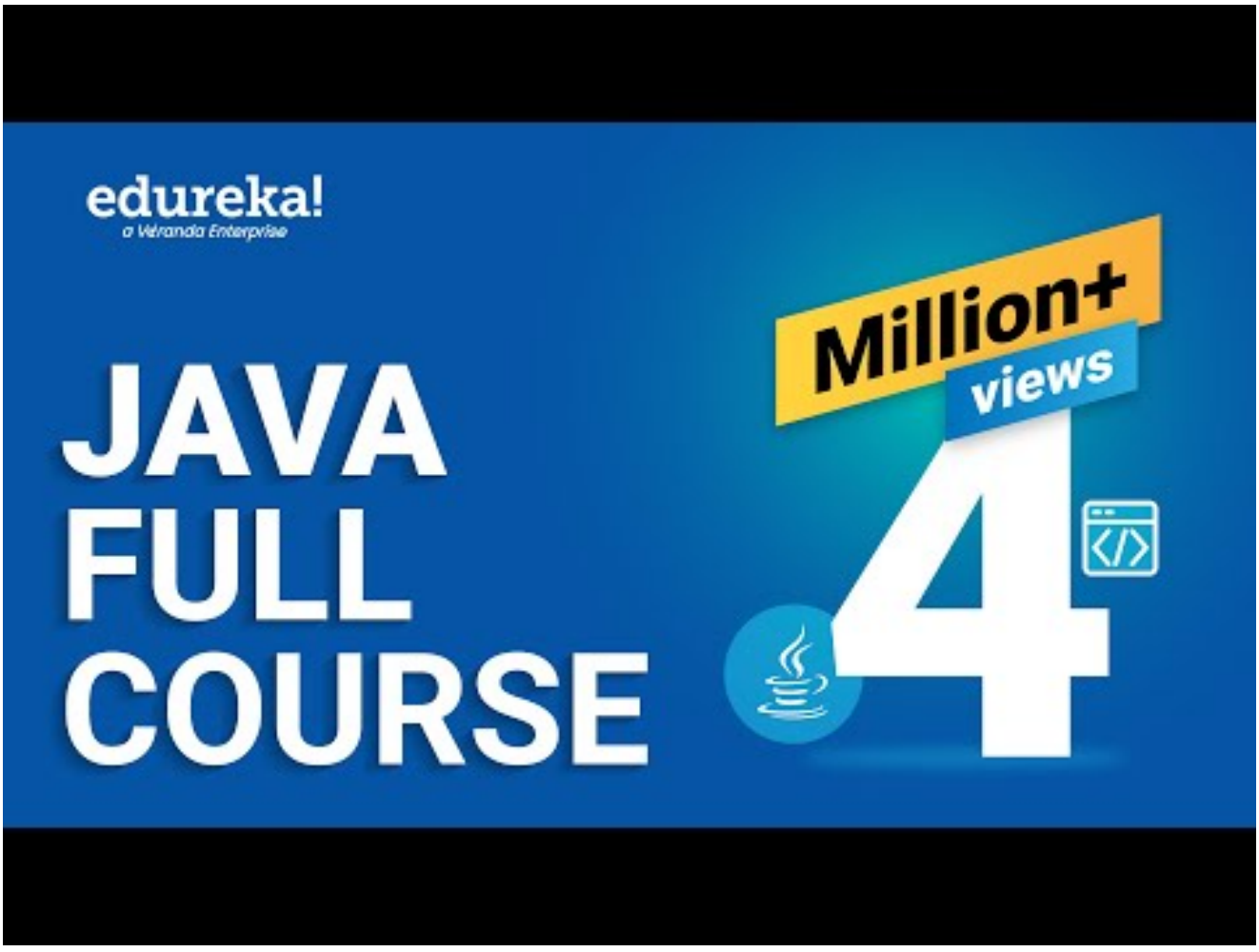

This Edureka Java Full Course will help you in understanding the various fundamentals of Java Programming and also helps you to became a master in Java concepts.

This article precisely focuses on pattern programs in Java. I have classified the programs under the following clusters :

Let’s get started. :-)

Star Patterns in Java

First, let us begin with the basic and the commonly asked pattern program in **Java** i.e Pyramid.

1. Pyramid Program

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

Let’s write the java code to understand this pattern better.

```
1  public class Edureka
2  {
3  public static void pyramidPattern(int n)
4  {
5  for (int i=0; i<n; i++) //outer loop for number of rows(n) { for (int
   j=n-i; j>1; j--) //inner loop for spaces
6  {
7  System.out.print(" "); //print space
8  }
9  for (int j=0; j<=i; j++ ) //inner loop for number of columns
10 {
11 System.out.print("* "); //print star
12 }
13
14 System.out.println(); //ending line after each row
15 }
16 }
17
18 public static void main(String args[]) //driver function
19 {
20 int n = 5;
21 pyramidPattern(n);
22 }
23 }
```

2. Right Triangle Star Pattern

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

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

```
1  public class Edureka
2  {
3  public static void rightTriangle(int n)
4  {
5  int i, j;
6  for(i=0; i<n; i++) //outer loop for number of rows(n) { for(j=2*(n-i);
   j>=0; j--) // inner loop for spaces
7  {
8  System.out.print(" "); // printing space
9  }
10 for(j=0; j<=i; j++) //  inner loop for columns
11 {
12 System.out.print("* "); // print star
13 }
14 System.out.println(); // ending line after each row
15 }
16 }
17 public static void main(String args[])
18 {
19 int n = 5;
20 rightTriangle(n);
21 }
22 }
```

3. Left Triangle Star Pattern

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

```
public class Edureka
{
public static void printStars(int n)
{
int i, j;
for(i=0; i<n; i++) //outer loop for number of rows(n) { for(j=2*(n-i);
j>=0; j--) // inner loop for spaces
{
System.out.print(" "); // printing space
}
for(j=0; j<=i; j++) //  inner loop for columns
{
System.out.print("* "); // print star
}
System.out.println(); // ending line after each row
}
}
public static void main(String args[])
{
int n = 5;
printStars(n);
}
}
```

4. Diamond Shape Pattern Program in Java

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String args[])
5  {
6  int n, i, j, space = 1;
7  System.out.print("Enter the number of rows: ");
8  Scanner s = new Scanner(System.in);
9  n = s.nextInt();
10 space = n - 1;
11 for (j = 1; j<= n; j++)
12 {
13 for (i = 1; i<= space; i++)
14 {
15 System.out.print(" ");
16 }
17 space--;
18 for (i = 1; i <= 2 * j - 1; i++)
19 {
20 System.out.print("*");
21 }
```

```
22  System.out.println("");
23  }
24  space = 1;
25  for (j = 1; j<= n - 1; j++)
26  {
27  for (i = 1; i<= space; i++)
28  {
29  System.out.print(" ");
30  }
    space++;
31  for (i = 1; i<= 2 * (n - j) - 1; i++)
32  {
33  System.out.print("*");
34  }
35  System.out.println("");
36  }
37  }
38  }
39
```

5. Downward Triangle Star Pattern

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in);
7  System.out.println("Enter the number of rows: "); //takes input from
   user
8  int rows = sc.nextInt();
9  for (int i= rows-1; i>=0 ; i--)
10 {
11 for (int j=0; j<=i; j++)
12 {
13 System.out.print("*" + " ");
14 }
15 System.out.println();
16 }
17 sc.close();
18 }
19 }
20
21
22
```

6. Mirrored Right Triangle Star Program

Enter the number of rows: 5

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

```
import java.util.Scanner;
public class Edureka
{
public static void main(String[] args)
{
Scanner sc = new Scanner(System.in);
System.out.println("Enter number of rows: "); // takes input from user
int rows = sc.nextInt();

for (int i= 0; i<= rows; i++)
{
for (int j=1; j<=rows-i; j++)
{
System.out.print(" ");
}
for (int k=0;k<=i;k++)
{
System.out.print("*");
}
System.out.println("");
}
sc.close();
}
}
```

7. Reversed Pyramid Star Pattern

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in);
7  System.out.println("Enter the number of rows: ");
8  int rows = sc.nextInt();
9  for (int i= 0; i<= rows-1 ; i++)
10 {
11 for (int j=0; j<=i; j++)
12 {
13 System.out.print(" ");
14 }
15 for (int k=0; k<=rows-1-i; k++)
16 {
17 System.out.print("*" + " ");
18 }
19 System.out.println();
20 }
21 sc.close();
22 }
23
24
25
```

8. Right down Mirror Star Pattern

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in); // takes input
7  System.out.println("Enter number of rows: ");
8  int rows = sc.nextInt();
9  for (int i= rows; i>= 1; i--)
10 {
11 for (int j=rows; j>i;j--)
12 {
13 System.out.print(" ");
14 }
15 for (int k=1;k<=i;k++)
16 {
17 System.out.print("*");
18 }
19 System.out.println("");
20 }
21 sc.close();
22 }
23
24
```

9. Right Pascal’s Triangle

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in);
7  System.out.println("Enter the number of rows: ");
8  int rows = sc.nextInt();
9  for (int i= 0; i<= rows-1 ; i++)
10 {
11 for (int j=0; j<=i; j++) { System.out.print("*"+ " "); }
   System.out.println(""); } for (int i=rows-1; i>=0; i--)
12 {
13 for(int j=0; j <= i-1;j++)
14 {
15 System.out.print("*"+ " ");
16 }
17 System.out.println("");
18 }
19 sc.close();
20 }
21 }
22
```

10. Left Triangle Pascal’s

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in);
7  System.out.println("Enter the number of rows: ");
8  int rows = sc.nextInt();
9  for (int i= 1; i<= rows ; i++)
10 {
11 for (int j=i; j <rows ;j++)
12 {
13 System.out.print(" ");
14 }
15 for (int k=1; k<=i;k++) { System.out.print("*"); }
   System.out.println(""); } for (int i=rows; i>=1; i--)
16 {
17 for(int j=i; j<=rows;j++)
18 {
19 System.out.print(" ");
20 }
```

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

11. Sandglass Star Pattern

Enter the number of rows: 5

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

```
import java.util.Scanner;
public class Edureka
{
public static void main(String[] args)
{
Scanner sc = new Scanner(System.in);
System.out.println("Enter the number of rows: ");
```

```
int rows = sc.nextInt();
for (int i= 0; i<= rows-1 ; i++)
{
for (int j=0; j <i; j++)
{
System.out.print(" ");
}
for (int k=i; k<=rows-1; k++) { System.out.print("*" + " "); }
System.out.println(""); } for (int i= rows-1; i>= 0; i--)
{
for (int j=0; j< i ;j++)
{
System.out.print(" ");
}
for (int k=i; k<=rows-1; k++)
{
System.out.print("*" + " ");
}
System.out.println("");
}
sc.close();
}
}

```

12. Alphabet A Pattern

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


```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  // Java program to print alphabet A pattern
5  void display(int n)
6  {
7  // Outer for loop for number of lines
8  for (int i = 0; i<=n; i++) {
9  // Inner for loop for logic execution
10 for (int j = 0; j<= n / 2; j++) {
11 // prints two column lines
12 if ((j == 0 || j == n / 2) && i != 0 ||
   // print first line of alphabet
```

```
13  i == 0 && j != n / 2 ||
14  // prints middle line
15  i == n / 2)
16  System.out.print("*");
17  else
18  System.out.print(" ");
19  }
20  System.out.println();
21  }
22  }
23  public static void main(String[] args)
24  {
25  Scanner sc = new Scanner(System.in);
26  Edureka a = new Edureka();
27  a.display(7);
28  }
29  }
30
```

13. Triangle Star pattern

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
```

```
public static void main(String[] args)
{
Scanner sc = new Scanner(System.in);
System.out.println("Enter the number of rows: ");
int rows = sc.nextInt();

for (int i=1; i<= rows ; i++)
{
for (int j = i; j < rows ; j++) {
System.out.print(" ");
}
for (int k = 1; k <= (2*i -1) ;k++) {
if( k==1 || i == rows || k==(2*i-1)) {
System.out.print("*");
}
else {
System.out.print(" ");
}
}
System.out.println("");
}
sc.close();
}
}
```

14. Down triangle

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in);
7  System.out.println("Enter the number of rows: ");
8  int rows = sc.nextInt();
9  for (int i=rows; i>= 1 ; i--)
10 {
11 for (int j = i; j < rows ; j++) {
12 System.out.print(" ");
13 }
14 for (int k = 1; k <= (2*i -1) ;k++) {
15 if( k==1 || i == rows || k==(2*i-1)) {
16 System.out.print("*");
17 }
18 else {
19 System.out.print(" ");
20 }
21 }
22 System.out.println("");
23 }
24 sc.close();
25 }
26
27
```

15. Diamond Star Pattern

Enter the number of rows: 5

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

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in);
7  System.out.println("Enter the number of rows: ");
8  int rows = sc.nextInt();
9  for (int i=1; i<= rows ; i++) { for (int j = rows; j > i ; j--) {
10 System.out.print(" ");
11 }
12 System.out.print("*");
13 for (int k = 1; k < 2*(i -1) ;k++) { System.out.print(" "); } if( i==1) {
   System.out.println(""); } else { System.out.println("*"); } } for (int
14 i=rows-1; i>= 1 ; i--)
15 {
16 for (int j = rows; j > i ; j--) {
17 System.out.print(" ");
18 }
19 System.out.print("*");
20 for (int k = 1; k < 2*(i -1) ;k++) {
   System.out.print(" ");
```

```
21  }
22  if( i==1)
23  System.out.println("");
24  else
25  System.out.println("*");
26  }
27  sc.close();
28  }
29  }
30
31
```

Now that we have implemented star pattern programs in Java. Let us move further and implement some Numeric patterns.

Numeric Pattern in Java

1. Simple number program

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

```
1  public class Edureka
2  {
3  public static void printNums(int n)
4  {
5  int i, j,num;
6
7  for(i=0; i<n; i++) // outer loop for rows
   {
```

```
num=1;
for(j=0; j<=i; j++) // inner loop for rows
{
// printing num with a space
System.out.print(num+ " ");

//incrementing value of num
num++;
}

// ending line after each row
System.out.println();
}
}
public static void main(String args[])
{
int n = 5;
printNums(n);
}
}
```

2. Number Pattern Program in java

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

```
import java.util.Scanner;

public class Edureka
{
public static void main(String[] args) {
int i, j, k = 1;
for (i = 1; i <= 5; i++) {
for (j = 1; j< i + 1; j++) {
System.out.print(k++ + " ");
}

System.out.println();
}
}

}
```

3. Pascal's Triangle Program in Java

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

```
import java.util.Scanner;
public class Edureka
{
public static void main(String[] args) {

int n = 5;

for (int i = 0; i < n; i++) {
int number = 1;
System.out.printf("%" + (n - i) * 2 + "s", "");
for (int j = 0; j <= i; j++) {
System.out.printf("%4d", number);
number = number * (i - j) / (j + 1);
}
System.out.println();
}

}

}
```

4. Diamond Pattern Program in Java

```
   1
  212
 32123
4321234
 32123
  212
   1
```

```
1  import java.util.Scanner;
2
3  public class Edureka
4  {
5  public static void main(String[] args) {
6  for (int i = 1; i <= 4; i++)
7  {
8  int n = 4;
9
10 for (int j = 1; j<= n - i; j++) { System.out.print(" "); } for (int k = i;
   k >= 1; k--)
11 {
12 System.out.print(k);
13 }
14 for (int l = 2; l <= i; l++) { System.out.print(l); }
15 System.out.println(); } for (int i = 3; i >= 1; i--)
16 {
17 int n = 3;
18
19 for (int j = 0; j<= n - i; j++) { System.out.print(" "); } for (int k = i;
   k >= 1; k--)
20 {
21 System.out.print(k);
22 }
23 for (int l = 2; l <= i; l++)
24 {
25 System.out.print(l);
26 }
27
28 System.out.println();
```

```
29  }
30
31  }
    }
```

5. Number Pattern Programs in Java

Enter the number of rows: 5

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

```
1  import java.util.Scanner;
2
3  public class Edureka
4  {
5  public static void main(String[] args)
6  {
7  Scanner sc = new Scanner(System.in); //Taking rows value from the
   user
8  System.out.println("Enter the number of rows: ");
9  int rows = sc.nextInt();
10 for (int i = 1; i <= rows; i++)
11 {
12 for (int j = 1; j <= i; j++)
13 {
14 System.out.print(i+" ");
15 }
16
17 System.out.println();
18 }
19 sc.close();
20 }
21 }
```

6. Descending order Pattern

Enter the number of rows: 5

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```
5
5 4
5 4 3
5 4 3 2
5 4 3 2 1
```

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in);
7  //Taking rows value from the user
8  System.out.println("Enter the number of rows: ");
9  int rows = sc.nextInt();
10 for (int i = rows; i >= 1; i--)
11 {
12 for (int j = rows; j >= i; j--)
13 {
14 System.out.print(j+" ");
15 }
16 System.out.println();
17 }
18 sc.close();
19 }
20
21
22
23
24
```

7. Right Triangle Numeric Pattern

Enter the number of rows: 5

```
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
```

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

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

System.out.println("Enter the number of rows: ");
int rows = sc.nextInt();

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

System.out.println();
}
sc.close();
}
}

```

8. Binary Number Pattern

Enter the number of rows: 5

```
10101
01010
10101
01010
10101
```

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4
5  public static void main(String[] args)
6  {
7  Scanner sc = new Scanner(System.in);
8
9  System.out.println("Enter the number of rows: ");
10
11 int rows = sc.nextInt();
12
13 for (int i = 1; i <= rows; i++)
14 {
15 int num;
16
17 if(i%2 == 0)
18 {
19 num = 0;
20
21 for (int j = 1; j <= rows; j++)
22 {
   System.out.print(num);
```

```
23
24  num = (num == 0)? 1 : 0;
25  }
26  }
27  else
28  {
29  num = 1;
30
31  for (int j = 1; j <= rows; j++)
32  {
33  System.out.print(num);
34
35  num = (num == 0)? 1 : 0;
36  }
37  }
38
39  System.out.println();
40  }
41
42  sc.close();
43  }
44
45
46
```

9. Zeros/ ones Pattern Programs

Enter the number of rows: 5

```
1
10
101
1010
10101
```

```
1  import java.util.Scanner;
2  public class Edureka
3  {
4  public static void main(String[] args)
5  {
6  Scanner sc = new Scanner(System.in);
7
8  System.out.println("Enter the number of rows: ");
9
10 int rows = sc.nextInt();
11 for (int i = 1; i <= rows; i++)
12 {
13 for (int j = 1; j <= i; j++)
14 {
15 if(j%2 == 0)
16 {
17 System.out.print(0);
18 }
19 else
20 {
21 System.out.print(1);
22 }
23 }
24 System.out.println();
```

```
25  }
26
27  sc.close();
28  }
29  }
30
31
```

10. Diamond Numeric Pattern

```
1 2 3 4 5
 2 3 4 5
  3 4 5
   4 5
    5
   4 5
  3 4 5
 2 3 4 5
1 2 3 4 5
```

```
1   import java.util.Scanner;
2   public class Edureka
3   {
4   public static void main(String[] args)
5   {
6
7   int n = 5;
8
9   for (int i = 1; i <= n; i++)
10  {
11  for (int j = 1; j < i; j++)
12  {
13  System.out.print(" ");
    }
```

```
14
15  for (int k = i; k <= n; k++) { System.out.print(k+" "); }
    System.out.println(); } for (int i = n-1; i >= 1; i--)
16
    {
17
    for (int j = 1; j < i; j++)
18
    {
19
    System.out.print(" ");
20
    }
21
    for (int k = i; k <= n; k++)
22
    {
23
    System.out.print(k+" ");
24
    }
25
26  System.out.println();
27  }
28
29  }
30  }
31
```

Now that we have implemented numeric pattern programs in Java. Let us move further and implement some character/ alphabet patterns.

Alphabet/ Character Patterns in Java

1. Right Alphabetic triangle

```
A
A B
A B C
A B C D
A B C D E
A B C D E F
```

```
import java.util.Scanner;
public class Edureka
{
public static void main(String[] args)
{
int alphabet = 65;
for (int i = 0; i <= 5; i++)
{
for (int j = 0; j <= i; j++)
{
System.out.print((char) (alphabet + j) + " ");
}
System.out.println();
}
}
}
```

2. Alphabet/ Character Pattern Programs

```
A
B B
C C C
D D D D
E E E E E
F F F F F F
```

```
import java.util.Scanner;
public class Edureka
{
public static void main(String[] args)
{
int alphabet = 65;
for (int i = 0; i<= 5; i++)
{
for (int j = 0; j <= i; j++)
{
System.out.print((char) alphabet + " ");
}
alphabet++;
System.out.println();
}
}
}
```

3. K Shape Character Pattern Program

```
A B C D E F
A B C D E
A B C D
A B C
A B
A
A
A B
A B C
A B C D
A B C D E
A B C D E F
```

```
1  import java.util.Scanner;
2  public class Edureka
3  {public static void main(String[] args)
4  {
5  for (int i = 5; i >= 0; i--)
6  {
7  int alphabet = 65;
8  for (int j = 0; j <= i; j++)
9  {
10 System.out.print((char) (alphabet + j) + " ");
11 }
12 System.out.println();
13 }
14 for (int i = 0; i<= 5; i++)
15 {
16 int alphabet = 65;
17 for (int j = 0; j <= i; j++)
18 {
19 System.out.print((char) (alphabet + j) + " ");
20 }
21 System.out.println();
22 }
23 }
24
25
26
27
```

4. Triangle Character Pattern Program in Java

```
      A
    A B
  A B C
A B C D
A B C D E
A B C D E F
```

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```
1  public class Edureka
2  {
3  public static void main(String[] args)
4  {
5  for (int i = 0; i <= 5; i++) { int alphabet = 65; for (int j = 5; j > i;
   j--)
6  {
7  System.out.print(" ");
8  }
9  for (int k = 0; k <= i; k++)
10 {
11 System.out.print((char) (alphabet + k) + " ");
12 }
13 System.out.println();
14 }
15 }
16 }
```

5. Diamond Pattern in Java

Enter a Character between A to Z : F

```
     A
    B B
   C   C
  D     D
 E       E
F         F
 E       E
  D     D
   C   C
    B B
     A
```

```
1  import java.util.Scanner;
2  public class Edureka
```

```
{public static void main(String[] args) {
char[] letter = { 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J',
'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V',
'W', 'X', 'Y', 'Z' };
int letter_number = 0;
String[] diamond = new String[26]; // array of strings
System.out.print("Enter a Character between A to Z : ");
Scanner reader = new Scanner(System.in);
try {
char user_letter = reader.next("[A-Z]").charAt(0);
// search for letter number in the array letter
for (int i = 0; i < letter.length; i++) {
if (letter[i] == user_letter) {
letter_number = i;
break;
}
}
// construct diamond
for (int i = 0; i <= letter_number; i++) {
diamond[i] = "";
// add initial spaces
for (int j = 0; j < letter_number - i; j++) {
diamond[i] += " ";
}
// add letter
diamond[i] += letter[i];
// add space between letters
if (letter[i] != 'A') {

```

```
31 for (int j = 0; j < 2 * i - 1; j++) { diamond[i] += " "; } // add letter
   diamond[i] += letter[i]; } // Draw the first part of the diamond
32 System.out.println(diamond[i]); } for (int i = letter_number - 1; i >=
   0; i--)
33 {
34 // Draw the second part of the diamond
35 // Writing the diamondArray in reverse order
36 System.out.println(diamond[i]);
37 }
38 } catch (Exception e) {
39 e.printStackTrace();
40 } finally {
41 reader.close();
42 }
43 }
44 }
45
46
47
48
49
```

So this brings us to the end of the top 30 pattern programs in java blog. I hope you found it informative and helped you in understanding Java Fundamentals.

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