

day-009-29-jan-loops-and-pattern-programs

1. Write a Program(WAP) to print Alphabets A, B, C, D, E, F, G, H, using pattern programming logic
2. Write a program to print triangle using star pattern programming logic
3. WAP to print



4. Write a program to print PW SKILLS using pattern programming logic.
5. Write a program to print your Full Name using pattern programming logic

1.

Question 01.java

```
public class Question_01 {

    // Number of lines for the alphabet's pattern
    static int height = 5;

    // Number of character width in each line
    static int width = (2 * height) - 1;

    // Function to print the pattern of 'A'
    static void printA() {
        int n = width / 2, i, j;
        for (i = 0; i < height; i++) {
            for (j = 0; j <= width; j++) {
                if (
                    j == n ||
                    j == (width - n) ||
                    (i == height / 2 && j > n && j < (width - n))
                ) System.out.printf("*"); else System.out.printf(" ");
            }
            System.out.printf("\n");
            n--;
        }
    }

    // Function to print the pattern of 'B'
```

```

static void printB() {
    int i, j, half = (height / 2);
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j < width; j++) {
            if (
                (i == 0 || i == height - 1 || i == half) && j <
(width - 2)
            ) System.out.printf("*"); else if (
                j == (width - 2) && !(i == 0 || i == height - 1 || i
== half)
            ) System.out.printf("*"); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'C'
static void printC() {
    int i, j;
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j < (height - 1); j++) {
            if (i == 0 || i == height - 1) System.out.printf("*");
else continue;
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'D'
static void printD() {
    int i, j;
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j < height; j++) {
            if ((i == 0 || i == height - 1) && j < height - 1)
System.out.printf(
                "*"
            ); else if (
                j == height - 1 && i != 0 && i != height - 1
            ) System.out.printf("*"); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'E'
static void printE() {
    int i, j;
    for (i = 0; i < height; i++) {

```

```

        System.out.printf("*");
        for (j = 0; j < height; j++) {
            if (
                (i == 0 || i == height - 1) || (i == height / 2 && j
<= height / 2)
            ) System.out.printf("*"); else continue;
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'F'
static void printF() {
    int i, j;
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j < height; j++) {
            if ((i == 0) || (i == height / 2 && j <= height / 2))
System.out.printf(
                "*"
            ); else continue;
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'G'
static void printG() {
    int i, j;
    width--;
    for (i = 0; i < height; i++) {
        for (j = 0; j < width; j++) {
            if (
                (i == 0 || i == height - 1) && (j == 0 || j == width
- 1)
            ) System.out.printf(" "); else if (j == 0)
System.out.printf(
                "*"
            ); else if (i == 0 && j <= height)
System.out.printf("*"); else if (
                i == height / 2 && j > height / 2
            ) System.out.printf("*"); else if (
                i > height / 2 && j == width - 1
            ) System.out.printf("*"); else if (
                i == height - 1 && j < width
            ) System.out.printf("*"); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}
}

```

```

// Function to print the pattern of 'H'
static void printH() {
    int i, j;
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j < height; j++) {
            if ((j == height - 1) || (i == height / 2))
System.out.printf(
                "*"
            ); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

public static void main(String[] args) {
    printA();
    System.out.println();
    printB();
    System.out.println();
    printC();
    System.out.println();
    printD();
    System.out.println();
    printE();
    System.out.println();
    printF();
    System.out.println();
    printG();
    System.out.println();
    printH();
}
}

```

Output :

```

**
* *
*****
*   *
*   *

*****
*   *
*****
*   *
*****

```

```

*****
*
*****

*****
*  *
*  *
*  *
*****

*****
*
****
*
*****

*****
*
****
*
*

*****
*
* *****
*  *
*****

*  *
*  *
*****
*  *
*  *

```

2.

Question_02.java

```

public class Question_02 {
    public static void main(String args[]) {
        //i for rows and j for columns
        //row denotes the number of rows you want to print
        int i, j, row = 6;
        //outer loop for rows
        for (i = 0; i < row; i++) {
            //inner loop for columns
            for (j = 0; j <= i; j++) {
                //prints stars
            }
        }
    }
}

```

```

        System.out.print("* ");
    }
    //throws the cursor in a new line after printing each
line
    System.out.println();
}
}
}

```

Output :

```

*
* *
* * *
* * * *
* * * * *
* * * * * *

```

3.

Question_03.java

```

public class Question_03
{
    public static void main(String[] args) {
        int n = 14;
        for(int i=0;i<=n;i++)
        {
            for(int j=0;j<=n;j++)
            {
                if(i==0&&j<(n-1) || i==(n-1) &&j<(n-1) || j==0&&i<(n-1) || j==(n-1) &&i<=(n-1) || i==1&&j!=(n-1)/2&&i<(n/4) &&j<(n-1) || i==2&&j!=(n-1)/2&&j<(n-1) &&j!=5&&j!=7 || i==3&&j!=(n-1)/2&&j<(n-1) &&j!=6&&j!=5&&j!=4&&j!=7&&j!=8 || i==4&&j!=(n-1)/2&&j<(n-1) &&j!=3&&j!=5&&j!=4&&j!=7&&j!=8&&j!=9 || i==5&&j!=(n-1)/2&&j<(n-1) &&j!=3&&j!=5&&j!=4&&j!=7&&j!=8&&j!=9&&j!=2&&j!=10 || i==6&&j!=(n-1)/2&&j<(n-1) &&j!=3&&j!=5&&j!=4&&j!=7&&j!=8&&j!=9&&j!=2&&j!=10&&j!=1&&j!=11)
                {
                    System.out.print("*");
                }
                else
                {
                    System.out.print(" ");
                }
            }
        }
    }
}

```

```

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

```

Output :

```

*****
***** *****
***** *****
**** *****
*** *****
** *****
* *****
* *****
* *****
* *****
* *****
* *****
* *****
*****

```

4.

Question_04.java

```

public class Question_04 {

    // Number of lines for the alphabet's pattern
    static int height = 5;

    // Number of character width in each line
    static int width = (2 * height) - 1;

    // Function to find the absolute value
    // of a number D
    static int abs(int d)
    {
        return d < 0 ? -1 * d : d;
    }

    // Function to print the pattern of 'P'
    static void printP() {
        int i, j;
        for (i = 0; i < height; i++) {
            System.out.printf("*");

```

```

        for (j = 0; j < height; j++) {
            if ((i == 0 || i == height / 2) && j < height - 1)
System.out.printf(
                "*"
            ); else if (
                i < height / 2 && j == height - 1 && i != 0
            ) System.out.printf("*"); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'W'
static void printW() {
    int i, j, counter = height / 2;
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j <= height; j++) {
            if (j == height) System.out.printf("*"); else if (
                (i >= height / 2) && (j == counter || j == height -
counter - 1)
            ) System.out.printf("*"); else System.out.printf(" ");
        }
        if (i >= height / 2) {
            counter++;
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'S'
static void printS() {
    int i, j;
    for (i = 0; i < height; i++) {
        for (j = 0; j < height; j++) {
            if ((i == 0 || i == height / 2 || i == height - 1))
System.out.printf(
                "*"
            ); else if (i < height / 2 && j == 0)
System.out.printf("*"); else if (
                i > height / 2 && j == height - 1
            ) System.out.printf("*"); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'K'
static void printK() {
    int i, j, half = height / 2, dummy = half;
    for (i = 0; i < height; i++) {

```



```

        System.out.printf("*");
        for (j = 0; j <= half; j++) {
            if (j == abs(dummy)) System.out.printf("*"); else
System.out.printf(
                " "
            );
        }
        System.out.printf("\n");
        dummy--;
    }
}

// Function to print the pattern of 'I'
static void printI() {
    int i, j;
    for (i = 0; i < height; i++) {
        for (j = 0; j < height; j++) {
            if (i == 0 || i == height - 1) System.out.printf("*");
else if (
                j == height / 2
            ) System.out.printf("*"); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'L'
static void printL() {
    int i, j;
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j <= height; j++) {
            if (i == height - 1) System.out.printf("*"); else
System.out.printf(
                " "
            );
        }
        System.out.printf("\n");
    }
}

public static void main(String[] args) {
    printP();
    printW();
    System.out.println();
    printS();
    printK();
    printI();
    printL();
    printL();
    printS();
}

```

```
}  
}
```

Output :

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

5.

Question_05.java

```
public class Question_05 {

    // Number of lines for the alphabet's pattern
    static int height = 5;

    // Number of character width in each line
    static int width = (2 * height) - 1;

    // Function to print the pattern of 'A'
    static void printA() {
        int n = width / 2, i, j;
        for (i = 0; i < height; i++) {
            for (j = 0; j <= width; j++) {
                if (
                    j == n ||
                    j == (width - n) ||
                    (i == height / 2 && j > n && j < (width - n))
                ) System.out.printf("*"); else System.out.printf(" ");
            }
            System.out.printf("\n");
            n--;
        }
    }

    // Function to print the pattern of 'D'
    static void printD() {
        int i, j;
        for (i = 0; i < height; i++) {
            System.out.printf("*");
            for (j = 0; j < height; j++) {
                if ((i == 0 || i == height - 1) && j < height - 1)
                    System.out.printf(
                        "*"
                    ); else if (
                        j == height - 1 && i != 0 && i != height - 1
                    ) System.out.printf("*"); else System.out.printf(" ");
            }
            System.out.printf("\n");
        }
    }

    // Function to print the pattern of 'H'
    static void printH() {
        int i, j;
        for (i = 0; i < height; i++) {
```

```

        System.out.printf("*");
        for (j = 0; j < height; j++) {
            if ((j == height - 1) || (i == height / 2))
System.out.printf(
                "*"
            ); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'L'
static void printL() {
    int i, j;
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j <= height; j++) {
            if (i == height - 1) System.out.printf("*"); else
System.out.printf(
                " "
            );
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'R'
static void printR() {
    int i, j, half = (height / 2);
    for (i = 0; i < height; i++) {
        System.out.printf("*");
        for (j = 0; j < width; j++) {
            if ((i == 0 || i == half) && j < (width - 2))
System.out.printf(
                "*"
            ); else if (
                j == (width - 2) && !(i == 0 || i == half)
            ) System.out.printf("*"); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

// Function to print the pattern of 'T'
static void printT() {
    int i, j;
    for (i = 0; i < height; i++) {
        for (j = 0; j < height; j++) {
            if (i == 0) System.out.printf("*"); else if (
                j == height / 2
            ) System.out.printf("*"); else System.out.printf(" ");
        }
    }
}

```

```

    }
    System.out.printf("\n");
}
}

// Function to print the pattern of 'U'
static void printU() {
    int i, j;
    for (i = 0; i < height; i++) {
        if (i != 0 && i != height - 1) System.out.printf(
            "*"
        ); else System.out.printf(" ");
        for (j = 0; j < height; j++) {
            if ((i == height - 1) && j >= 0 && j < height - 1))
System.out.printf(
            "*"
        ); else if (
            j == height - 1 && i != 0 && i != height - 1
        ) System.out.printf("*"); else System.out.printf(" ");
        }
        System.out.printf("\n");
    }
}

public static void main(String[] args) {
    printR();
    printA();
    printH();
    printU();
    printL();
    System.out.println();
    printD();
    printU();
    printT();
    printT();
    printA();
}
}

```

Output :

```

*****
*      *
*****
*      *
*      *
**
*  *

```

* *

* *

* *

* *

* *

* *

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