

PW SKILLS

JAVA With DSA & System Design

Assignment - Pattern Programming

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

Solution:

```
public class Alphabets {
    public static void main(String[] args) {
        int n=7;
        for(int i=0;i<n;i++)
        {
            // A Pattern
            for(int j=0;j<n;j++)
            {
                if(i==0 && j>0 && j<(n-1)/2 || j==0 && i>0 || i==(n-1)/2 && j<=(n-1)/2 || j==(n-1)/2
                && i>0)
                {
                    System.out.print("* ");
                }
                else
                {
                    System.out.print(" ");
                }
            }

            //B Pattern
            for(int j=0;j<n;j++)
            {
                if(i==0 && j<(n-1)/2 || j==0 || i==n-1 && j<(n-1)/2 || j==(n-1)/2 && i>0 && i<(n-1)/2
                || j==(n-1)/2 && i>(n-1)/2 && i<n-1 || i==(n-1)/2 && j<(n-1)/2)
                {
                    System.out.print("* ");
                }
                else
                {
                    System.out.print(" ");
                }
            }

            //C Pattern
            for(int j=0;j<n;j++)
            {
                if(i==0 && j<(n-1)/2 && j>0 || j == 0 && i>0 && i<n-1 || i == n-1 && j<(n-1)/2
                && j>0 || j==(n-1)/2 && i==n-1-1 || j==(n-1)/2 && i==1)
                {
                    System.out.print("* ");
                }
                else
            }
```

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```
    {  
        System.out.print(" ");  
    }  
}
```

//D Pattern

```
for(int j=0;j<n;j++)  
{  
    if(i==0 && j<(n-1)/2 || j==0 || i==n-1 && j<(n-1)/2 || j==(n-1)/2 && i>0 && i<n-1)  
    {  
        System.out.print("* ");  
    }  
    else  
    {  
        System.out.print(" ");  
    }  
}
```

//E Pattern

```
for(int j=0;j<n;j++)  
{  
    if(i==0 && j<=(n-1)/2 || j == 0 || i == n-1 && j<=(n-1)/2 || i==(n-1)/2 && j<=(n-1)/2)  
    {  
        System.out.print("* ");  
    }  
    else  
    {  
        System.out.print(" ");  
    }  
}
```

//F Pattern

```
for(int j=0;j<n;j++)  
{  
    if(i==0 && j<=(n-1)/2 || j == 0 || i==(n-1)/2 && j<=(n-1)/2)  
    {  
        System.out.print("* ");  
    }  
    else  
    {  
        System.out.print(" ");  
    }  
}
```

//G Pattern

```
for(int j=0;j<n;j++)  
{
```

Output:

2. Write a program to print triangle using star pattern programming logic.

```
public class Triangle {
    public static void main(String[] args) {
        int n=11;
```

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```
for(int i=0;i<n;i++)
{
    for(int j=0;j<n;j++)
    {
        if(i==(n-1)/2 || i+j>=(n-1)/2 && i<=(n-1)/2 && j-i<=(n-1)/2)
        {
            System.out.print("* ");
        }
        else
        {
            System.out.print(" ");
        }
    }
    System.out.println();
}
```

Output:

3. WAP to print.

Solution:

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```
public class HouseShaped {
    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==0 || j==n-1 || i+j<=(n-1)/2 || j-i>=(n-1)/2 || i==n-1)
                {
                    System.out.print("* ");
                }
                else
                {
                    System.out.print(" ");
                }
            }
            System.out.println();
        }
    }
}
```

4. Write a program to print PW SKILLS using pattern programming logic.

Solution:

```
public class PWSKILLS {
    public static void main(String[] args) {
        int n=11;
        for(int i=0;i<n;i++)
        {
            //P Pattern
            for(int j=0;j<n;j++)
            {
                if(i==0 && j<(n-1)/2 || j==0 || j==(n-1)/2 && i>0 && i<(n-1)/2 || i==(n-1)/2 &&
j<(n-1)/2)
                {
                    System.out.print("* ");
                }
                else
                {
                    System.out.print(" ");
                }
            }

            //W Pattern
            for(int j=0;j<n;j++)
            {
```

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```
        if(j==0 || i+j==(n-1) && j<=(n-1)/4 || i-j==(n-1)/2 && j>(n-1)/4 || j==(n-1)/2)
        {
            System.out.print("* ");
        }
        else
        {
            System.out.print(" ");
        }
    }

    System.out.print(" ");
    //S Pattern
    for(int j=0;j<n;j++)
    {
        if(i==0 && j<(n-1)/2 && j>0 || j==0 && i>0 && i<(n-1)/2 || i==n-1 && j<(n-1)/2
        && j>0 || j==0 && i==n-2 || j==(n-1)/2 && i>(n-1)/2 && i<n-1 || j==(n-1)/2 && i>(n-1)/2 &&
        i<n-1 || i==(n-1)/2 && j<(n-1)/2 && j>0 || j==(n-1)/2 && i==1)
        {
            System.out.print("* ");
        }
        else
        {
            System.out.print(" ");
        }
    }

    //K Pattern
    for(int j=0;j<n;j++)
    {
        if(j==0 || i+j==(n-1)/2 || i-j==(n-1)/2)
        {
            System.out.print("* ");
        }
        else
        {
            System.out.print(" ");
        }
    }

    //I Pattern
    for(int j=0;j<n;j++)
    {
        if(i==0 && j<=(n-1)/2 || i==n-1 && j<=(n-1)/2 || j == (n-1)/4 )
        {
            System.out.print("* ");
        }
    }
```

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```
        else
        {
            System.out.print(" ");
        }
    }
    //L Pattern
    for(int j=0;j<n;j++)
    {
        if(j==0 || i==n-1 && j<=(n-1)/2)
        {
            System.out.print("* ");
        }
        else
        {
            System.out.print(" ");
        }
    }

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

    //S Pattern
    for(int j=0;j<n;j++)
    {
        if(i==0 && j<(n-1)/2 && j>0 || j==0 && i>0 && i<(n-1)/2 || i==n-1 && j<(n-1)/2
        && j>0 || j==0 && i==n-2 || j==(n-1)/2 && i>(n-1)/2 && i<n-1 || j==(n-1)/2 && i>(n-1)/2 &&
        i<n-1 || i==(n-1)/2 && j<(n-1)/2 && j>0 || j==(n-1)/2 && i==1)
        {
            System.out.print("* ");
        }
        else
        {
            System.out.print(" ");
        }
    }
    System.out.println();
```

$$\left\{ \begin{array}{l} \\ \end{array} \right\}$$

```
[Running] cd "/config/workspace/" && javac PWSKILLS.java && java PWSKILLS
```

```
PWSKILLS
```

```
[Done] exited with code=0 in 0.928 seconds
```

- Solution:**

```

public class MyName{
    public static void main(String[] args) {
        int n=9;
        for(int i=0;i<n;i++)
        {
            //M
            for(int j=0;j<n;j++)
            {
                if(j==0 || i+j==(n-1)/2 && i<=(n-1)/4 || i-j==0 && j<(n-1)/2 && i<=(n-1)/4||
j==(n-1)/2)
                {
                    System.out.print("* ");
                }
                else
                {
                    System.out.print(" ");
                }
            }

            //O
            for(int j=0;j<n;j++)
            {
                if( j==0 && i>0 && i<n-1 || j==(n-1)/2 && i>0 && i<n-1 || i==0 && j<(n-1)/2 &&
j>0 || i==n-1 && j<(n-1)/2 && j>0)
                {
                    System.out.print("* ");
                }
                else
                {

```


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```
        System.out.print(" ");
    }
}
//H
for(int j=0;j<n;j++)
{
    if(j==0 || j==(n-1)/2 || i==(n-1)/2 && j<=(n-1)/2 )
    {
        System.out.print("* ");
    }
    else
    {
        System.out.print(" ");
    }
}

//D
for(int j=0;j<n;j++)
{
    if(i==0 && j<(n-1)/2 || j==0 || i==n-1 && j<(n-1)/2 || j==(n-1)/2 && i>0 && i<n-1)
    {
        System.out.print("* ");
    }
    else
    {
        System.out.print(" ");
    }
}

//S
for(int j=0;j<n;j++)
{
    if(i==0 && j<(n-1)/2 && j>0 || j==0 && i>0 && i<(n-1)/2 || i==n-1 && j<(n-1)/2
    && j>0 || j==0 && i==n-2 || j==(n-1)/2 && i>(n-1)/2 && i<n-1 || j==(n-1)/2 && i>(n-1)/2 &&
    i<n-1 || i==(n-1)/2 && j<(n-1)/2 && j>0 || j==(n-1)/2 && i==1)
    {
        System.out.print("* ");
    }
    else
    {
        System.out.print(" ");
    }
}

//H
```

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```
for(int j=0;j<n;j++)
{
    if( j==0 || j==(n-1)/2 || i==(n-1)/2 && j<=(n-1)/2 )
    {
        System.out.print("* ");
    }
    else
    {
        System.out.print(" ");
    }
}

//A
for(int j=0;j<n;j++)
{
    if(i==0 && j>0 && j<(n-1)/2 || j==0 && i>0 || i==(n-1)/2 && j<=(n-1)/2 || j==(n-1)/2
&& i>0)
    {
        System.out.print("* ");
    }
    else
    {
        System.out.print(" ");
    }
}

//D
for(int j=0;j<n;j++)
{
    if(i==0 && j<(n-1)/2 || j==0 || i==n-1 && j<(n-1)/2 || j==(n-1)/2 && i>0 && i<n-1)
    {
        System.out.print("* ");
    }
    else
    {
        System.out.print(" ");
    }
}

//A
for(int j=0;j<n;j++)
{
    if(i==0 && j>0 && j<(n-1)/2 || j==0 && i>0 || i==(n-1)/2 && j<=(n-1)/2 || j==(n-1)/2
&& i>0)
    {
```

```

        System.out.print("* ");
    }
    else
    {
        System.out.print(" ");
    }
}

//B
for(int j=0;j<n;j++)
{
    if(i==0 && j<(n-1)/2 || j==0 || i==n-1 && j<(n-1)/2 || j==(n-1)/2 && i>0 &&
i<(n-1)/2 || j==(n-1)/2 && i>(n-1)/2 && i<n-1 || i==(n-1)/2 && j<(n-1)/2)
    {
        System.out.print("* ");
    }
    else
    {
        System.out.print(" ");
    }
}

System.out.println();
}
}
}

```

Output:

```
[Running] cd "/config/workspace/" && javac MyName.java && java MyName
```