

Pascal 三角形

輸入一整數 N，印出 N 層 Pascal 三角形

例：N=6 印出

1	N= 0
1 1	N= 1
1 2 1	N= 2
1 3 3 1	N= 3
1 4 6 4 1	N= 4
1 5 10 10 5 1	N= 5
1 6 15 20 15 6 1	N= 6

Python:

```
n = int(input("請輸入有幾層:"))
```

```
#宣告 n*n 層二維陣列
```

```
P = [[0 for i in range(n+1)] for j in range(n+1)]
```

```
#將計算的 Pascal 三角形填入二維陣列
```

```
P[0][0]=1
```

```
for i in range(1,n+1):
```

```
    for j in range(i+1):
```

```
        P[i][j] = P[i-1][j-1] + P[i-1][j]
```

```
#印出結果
```

```
for i in range(n+1):
```

```
    print(i, " ", " "*(n-i), end="")
```

```
    for j in range(n+1):
```

```
        print(P[i][j] if P[i][j]!=0 else "", end=" ")
```

```
    print()
```

VB:

```
Sub Main()  
    Dim N As Integer  
    Console.Write("印出 N 層 Pascal 三角形,請輸入 N:")  
    N = Console.ReadLine()  
  
    '建立 Pascal 三角  
    Dim P(N, N + 2) As Integer  
    P(0, 1) = 1    '初值  
    For i = 1 To N  
        For j = 1 To i + 1  
             $P(i, j) = P(i - 1, j - 1) + P(i - 1, j)$   
        Next  
    Next  
  
    '印出陣列  
    For i = 0 To N  
        Console.Write(Space(N - i))  
        For j = 0 To N + 1  
            If P(i, j) = 0 Then  
                Console.Write(" ")  
            Else  
                Console.Write(P(i, j) & " ")  
            End If  
        Next  
        Console.WriteLine()  
    Next  
    Console.ReadLine()  
End Sub
```

C:

```
#include <stdio.h>
#include <stdlib.h>

int main(void)
{
    int n;
    printf("印出 N 層 Pascal 三角形, 請輸入 N:");
    scanf("%d",&n);

    int P[n+1][n+2];          //宣告一個二維陣列
    for(int i=0;i<=n;i++)     //將陣列值清為 0
        for(int j=0;j<=n+1;j++)
            P[i][j]=0;

    P[0][1]=1;               //建立 Pascal 三角形
    for(int i=1;i<=n;i++)
        for(int j=1;j<=i+1;j++)
            P[i][j] = P[i-1][j-1] + P[i-1][j];

    for(int i=0;i<=n;i++)     //印出結果
    {
        for(int k=0;k<n-i;k++) printf(" "); //印前置空白
        for(int j=0;j<=n+1;j++)
            if(P[i][j]!=0) printf("%d ",P[i][j]);
        printf("\n");
    }
    return 0;
}
```