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**Subject: Data Structures Lab**

## **Practical – 3**

**Aim:** Program to print pascal's triangle.

```
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
```

**Program:**

```
#include <stdio.h>
int main(){
    int rows, coef = 1, space, i, j;

    printf("\nEnter the number of rows: ");

    scanf("%d", &rows);
    for (i = 0; i < rows; i++){
        for (space = 1; space <= rows - i; space++){
            printf(" ");
        }
        for (j = 0; j <= i; j++){
            if (j == 0 || i == 0){
                coef = 1;
            }
            else{
                coef = coef * (i - j + 1) / j;
            }
            printf("%d ", coef);
        }
        printf("\n");
    }
    return 0;
}
```

Output:

Enter the number of rows: 6

```
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
```

Screenshot:

The screenshot displays the Visual Studio Code editor with a C program named `Practical_3_PascalsTriangle.c` open. The code uses nested loops to calculate and print the values of Pascal's Triangle for a given number of rows. The terminal window shows the program being compiled and executed, with the input '6' and the resulting Pascal's Triangle output.

```
Practical_3_PascalsTriangle.c - Data Structure Lab - Visual Studio Code
```

```
Practical_3_PascalsTriangle.c > main()
5
6     printf("\nEnter the number of rows: ");
7
8     scanf("%d", &rows);
9     for (i = 0; i < rows; i++){
10         for (space = 1; space <= rows - i; space++){
11             printf(" ");
12         }
13         for (j = 0; j <= i; j++){
14             if (j == 0 || i == 0){
15                 coef = 1;
16             }
17             else{
18                 coef = coef * (i - j + 1) / j;
19             }
20             printf("%d ", coef);

```

```
PS C:\Users\Admin\Desktop\Notes\Data Structure Lab> cd "C:\Users\Admin\Desktop\Notes\Data Structure Lab\" ; if ($?) { gcc Practical_3_PascalsTriangle.c -o Practical_3_PascalsTriangle } ; if ($?) { .\Practical_3_PascalsTriangle }

Enter the number of rows: 6
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
PS C:\Users\Admin\Desktop\Notes\Data Structure Lab>
```

**Conclusion:** I have successfully completed practical 3.