

PROBLEM STATEMENT:

1)Print Pascal's Triangle

Write a program to generate and print the first n rows of Pascal's triangle without using built-in math or

array functions.

INPUT: n = 5

OUTPUT:

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

SOLUTION:

```
#!/bin/bash

generate_pascals_triangle() {
    local n=$1
    for ((line = 0; line < n; line++)); do
        for ((j = 0; j < n - line - 1; j++)); do
            echo -n " "
        done
        local value=1
        for ((i = 0; i <= line; i++)); do
            echo -n "$value "
            value=$((value * (line - i) / (i + 1)))
        done
        echo
    done
}
```

```

done

}

read -p "Enter the number of rows: " rows

generate_pascals_triangle $rows

```

OUTPUT:

```

joshi03@JOSHKA MINGW64 ~ (master)
$ #!/bin/bash

# Function to calculate and print Pascal's Triangle
generate_pascals_triangle() {
    local n=$1
    for ((line = 0; line < n; line++)); do
        # Print leading spaces
        for ((j = 0; j < n - line - 1; j++)); do
            echo -n " "
        done

        # Calculate and print values
        local value=1
        for ((i = 0; i <= line; i++)); do
            echo -n "$value "
            value=$((value * (line - i) / (i + 1)))
        done
        echo
    done
}

# Get number of rows from user
read -p "Enter the number of rows: " rows
generate_pascals_triangle $rows
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

```

```

joshi03@JOSHKA MINGW64 ~ (master)
$ #!/bin/bash

# Function to calculate and print Pascal's Triangle
generate_pascals_triangle() {
    local n=$1
    for ((line = 0; line < n; line++)); do
        # Print leading spaces
        for ((j = 0; j < n - line - 1; j++)); do
            echo -n " "
        done

        # Calculate and print values
        local value=1
        for ((i = 0; i <= line; i++)); do
            echo -n "$value "
            value=$((value * (line - i) / (i + 1)))
        done
        echo
    done
}

# Get number of rows from user
read -p "Enter the number of rows: " rows
generate_pascals_triangle $rows
Enter the number of rows: 4
1
1 1
1 2 1
1 3 3 1

```

```

joshi03@JOSHKA MINGW64 ~ (master)
$ #!/bin/bash

# Function to calculate and print Pascal's Triangle
generate_pascals_triangle() {
    local n=$1
    for ((line = 0; line < n; line++)); do
        # Print leading spaces
        for ((j = 0; j < n - line - 1; j++)); do
            echo -n " "
        done

        # Calculate and print values
        local value=1
        for ((i = 0; i <= line; i++)); do
            echo -n "$value "
            value=$((value * (line - i) / (i + 1)))
        done
        echo
    done
}

# Get number of rows from user
read -p "Enter the number of rows: " rows
generate_pascals_triangle $rows
Enter the number of rows: 5
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1

```