

# Assignment 10

## Question 4

```
//Number Diamond Pattern

#include<stdio.h>

int main()
{
    int n, a;

    printf("Enter Number of Rows : ");
    scanf("%d", & n);

    for (int i = 1; i <= n; i++)
    {
        a = 1;

        for (int j = i; j <= n; j++) {
            printf(" ");
        }

        for (int k = 1; k <= 2 * i - 1; k++) {
            printf("%d", a++);
        }

        printf("\n");
    }

    for (int i = n - 1; i >= 1; i--)
    {
        a = 1;

        for (int j = n; j >= i; j--) {
            printf(" ");
        }

        for (int k = 1; k <= 2 * i - 1; k++) {
            printf("%d", a++);
        }
    }
}
```

```
    printf("\n");  
}  
  
return 0;  
}
```

## Output

```
Enter Number of Rows : 5  
    1  
   123  
  12345  
 1234567  
123456789  
 1234567  
   12345  
    123  
     1  
  
...Program finished with exit code 0  
Press ENTER to exit console. 
```

## Question 5

```
//Full Pyramid of Numbers

#include <stdio.h>
int main()
{
    int i, space, rows, k = 0, count = 0, count1 = 0;

    printf("Enter the number of rows: ");
    scanf("%d", &rows);

    for (i = 1; i <= rows; ++i)
    {
        for (space = 1; space <= rows - i; ++space)
        {
            printf(" ");
            ++count;
        }

        while (k != 2 * i - 1)
        {
            if (count <= rows - 1)
            {
                printf("%d ", i + k);
                ++count;
            }
            else
            {
                ++count1;
                printf("%d ", (i + k - 2 * count1));
            }

            ++k;
        }

        count1 = count = k = 0;
        printf("\n");
    }

    return 0;
}
```

## Output

```
Enter the number of rows: 5
    1
  2 3 2
3 4 5 4 3
4 5 6 7 6 5 4
5 6 7 8 9 8 7 6 5

...Program finished with exit code 0
Press ENTER to exit console. 
```

## Question 6

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

    printf("Enter the Number of Rows : ");
    scanf("%d", &rows);

    for (i = rows; i >= 1; i--)
    {
        for (j = 1; j <= i; j++)
        {
            printf("%d ", j);
        }
        printf("\n");
    }

    printf("\n");

    for (i = 1; i <= rows; i++)
    {
        for (j = 1; j <= i; j++)
        {
            printf("%d ", j);
        }
        printf("\n");
    }
    return 0;
}
```

## Output

```
Enter the Number of Rows : 6
1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6

...Program finished with exit code 0
Press ENTER to exit console. 
```

## Question 7

```
#include<stdio.h>
int main()
{
    int n,i,j;

    printf("Enter Number of Rows : ");
    scanf("%d",&n);

    for(i=1;i<=n;i++)
    {
        for(j=1;j<=n-i+1;j++)
        {
            printf("%d",j);
        }
        for(j=1;j<=(i-1);j++)
        {
            printf(" ");
        }
        for(j=n-i+1;j>=1;j--)
        {
            printf("%d",j);
        }

        printf("\n");
    }

    for(i=2;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d",j);
        }
        for(j=1;j<=n-i;j++)
        {
            printf(" ");
        }
        for(j=i;j>=1;j--)
        {
            printf("%d",j);
        }
    }
```

```
        printf("\n");  
    }  
  
    return 0;  
}
```

## Output

```
Enter Number of Rows : 6  
123456654321  
12345  54321  
1234   4321  
123    321  
12     21  
1      1  
12     21  
123    321  
1234   4321  
12345  54321  
123456654321  
  
...Program finished with exit code 0  
Press ENTER to exit console. 
```



## Question 8

```
#include<stdio.h>
int main()
{
    int n,i,j;

    printf("Enter Number of Rows : ");
    scanf("%d",&n);

    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d",j);
        }
        for(j=1;j<=n-i;j++)
        {
            printf(" ");
        }
        for(j=i;j>=1;j--)
        {
            printf("%d",j);
        }

        printf("\n");
    }

    return 0;
}
```

## Output

```
Enter Number of Rows : 5
1      1
12     21
123    321
1234   4321
1234554321

...Program finished with exit code 0
Press ENTER to exit console. 
```

## Question 9

```
//C program to print hollow pyramid triangle star pattern
```

```
#include <stdio.h>

int main()
{
    int i, j, rows;

    printf("Enter Number of Rows : ");
    scanf("%d", &rows);

    for(i=1; i<=rows; i++)
    {
        for(j=i; j<rows; j++)
        {
            printf(" ");
        }

        for(j=1; j<=(2*i-1); j++)
        {
            if(i==rows || j==1 || j==(2*i-1))
            {
                printf("*");
            }
            else
            {
                printf(" ");
            }
        }

        printf("\n");
    }

    return 0;
}
```

## Output

```
Enter Number of Rows : 6
      *
     * *
    *   *
   *     *
  *       *
 *         *
*****

...Program finished with exit code 0
Press ENTER to exit console. 
```