

CSE 115 Lab on nested loop (part 1)

Write C programs to print the following patterns:	
1. Square pattern for N lines. E.g. for N=4: <pre>***** ***** ***** *****</pre>	2. <u>Hollow</u> square pattern for N lines. E.g. for N=4: <pre>***** * * * * * * *****</pre>
<pre>#include <stdio.h> void main() { int i, j, N; printf("No. of rows:"); scanf("%d", &N); //In each of N rows/lines for(i=1; i<=N; i++) { //print N stars for(j=1; j<=N; j++) { printf("*"); } //Go to next line printf("\n"); } }</pre>	<pre>#include <stdio.h> void main() { int i, j, N; printf("No. of rows:"); scanf("%d", &N); for(i=1; i<=N; i++) { for(j=1; j<=N; j++){ //Print star in first and last row as //well as in first and last column if(i==1 i==N j==1 j==N) printf("*"); else printf(" "); } printf("\n"); } }</pre>

Try yourself 1a: Write a C program to print a rectangle pattern of size m*n. For e.g. for m=10, n=5 print:

```
*****
*****
*****
*****
*****
```

Try yourself 2a: Write a C program to print a hollow rectangle pattern of size m*n. For e.g. for m=10, n=5 print:

```
*****
*           *
*           *
*           *
*           *
*****
```

Try yourself 2b: Write a C program to print a hollow right angled triangle of height n. For e.g. for n=7 print:

```
*
**
*  *
*   *
*    *
*     *
*****
```

3. Rhombus pattern for N lines. E.g. for N=4:

```
    ****
   ****
  ****
 ****
```

```
#include <stdio.h>

void main()
{
    int i, j, N;

    printf("Enter rows: ");
    scanf("%d", &N);

    for(i=1; i<=N; i++)
    {
        //Print leading spaces
        for(j=1; j<=N - i; j++)
            printf(" ");

        //Print stars after spaces
        for(j=1; j<=N; j++)
            printf("*");

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

Exercise Problems:

1. Write a C program to print hollow rhombus star pattern of N lines. E.g. for N=5 print:

```
    *****
   *      *
  *      *
 *      *
*****
```

Assignment Problems:

1. Write a C program to print a hollow parallelogram pattern of size m*n. E.g for m=10, n=5 print:

```
    *****
   *          *
  *          *
 *          *
*****
```

2. Write a C program to print a right justified hollow right angled triangle of height n. For e.g. for n=7 print:

```
    *
   **
  ***
 ****
*****
```