

## CSE 115 Lab on nested loop (part 1) – Ara2

Write C programs to print the following patterns:	
<b>1. Square pattern for N lines. E.g. for N=4:</b>  <pre>***** ***** ***** *****</pre>	<b>2. <u>Hollow</u> square pattern for N lines. E.g. for N=4:</b>  <pre>***** *   * *   * *   * *****</pre>
<pre>#include &lt;stdio.h&gt;  void main() {     int i, j, N;     printf("No. of rows:");     scanf("%d", &amp;N);      //In each of N rows/lines     for(i=1; i&lt;=N; i++)     {         //print N stars         for(j=1; j&lt;=N; j++)         {             printf("*");         }          //Go to next line         printf("\n");     } }</pre>	<pre>#include &lt;stdio.h&gt;  void main() {     int i, j, N;     printf("No. of rows:");     scanf("%d", &amp;N);      for(i=1; i&lt;=N; i++)     {         for(j=1; j&lt;=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:

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