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:

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

```
#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("*");
        }//j

        //Go to next line
        printf("\n");
    }//i
}
```

2. Hollow square pattern for N lines. E.g. for N=4:

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

```
#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(" ");
        }//j
        printf("\n");
    }//i
}
```

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:**

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