C programming basic problems and solutions

Part #2

1. C program to print number from 1 to 10 using for loop

   Solution:

```
#include <stdio.h>
int main(){
    int i;
    for(i=1; i<=10; i++){
        printf("%d ", i);
    }

return 0;
}
```

2. C program to print number from 1 to 10 using while loop

   Solution:


```
#include <stdio.h>
int main(){
    int i=1;
    while(i<=10){
        printf("%d ", i);
        i++;
    }

return 0;
}
```

3. C program to print number from 1 to 10 using do while loop

   Solution:

```
#include <stdio.h>
int main(){
    int i=1;
    do{
        printf("%d ", i);
        i++;
    }while(i<=10);

return 0;
}
```

4. C program to print all the odd numbers from 1-50 (for loop)

   Solution:

```
#include <stdio.h>
int main(){

    int i;
    for(i=1; i<=50; i++){
        if(i%2 != 0){
            printf("%d ", i);
        }
    }

return 0;
}
```

5. C program to print all the even numbers from 1-50 (for loop)

   Solution:

```
#include <stdio.h>
int main(){

    int i;
    for(i=1; i<=50; i++){
        if(i%2 == 0){
            printf("%d ", i);
        }
    }

return 0;
}
```

6. C program to print all the even numbers from 1-50 (do while loop)

   Solution:

```
#include <stdio.h>
int main(){
    int i=1;
    do{
        if(i%2 == 0){
            printf("%d ", i);
        }
        i++;
    }while(i<=50);
return 0; }
```

7. C program to print all the odd numbers from 1-50 (while loop)

Solution:

```
#include <stdio.h>
int main(){
    int i=1;
    while(i<=50){
        if(i%2 != 0){
            printf("%d ", i);
        }
      i++;
    }
return 0;
}
```

8. C program to print numbers from 10-1

Solution:

```
#include <stdio.h>
int main(){
    int i;
    for(i=10; i>=1; i--){
        printf("%d ", i);
    }
return 0;
}
```


9. C program to print number series like 1, 5, 10, 15, ... N

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("Enter range: ");
    scanf("%d", &n);
    int i;
    for(i=0; i<=n; i+=5){
        if(i == 0){
            printf("1 ");
        }
        else{
            printf("%d ", i);
        }
    }

return 0;
}
```

10. C program to print number from 1-10 without printing 5

Solution:

```
#include <stdio.h>
int main(){
    int i;
    for(i=1; i<=10; i++){
        if(i==5){
            continue;
        }
        printf("%d ", i);
    }
return 0;
}
```

11. Let you have a series of numbers from 1-10 but you have to stop at 5 write a c program from this problem as solution

Solution:

```
#include <stdio.h>
int main(){
    int i;
    for(i=1; i<=10; i++){
        if(i==5){
            break;
        }
        printf("%d ", i);
    }
return 0;
}
```

12. C program to find out the summation of number between 1-10

Solution:

```
#include <stdio.h>
int main(){
    int i, sum = 0;
    for(i=1; i<=10; i++){
        sum = sum+i;
    }
    printf("Sum is = %d ", sum);
return 0;
}
```

13. C program to print Alphabets from A-Z

Solution:

```
#include <stdio.h>
int main(){
    char i;
    for(i='A'; i<='Z'; i++){
        printf("%c ", i);
    }
return 0;
}
```


14. C program to count how many numbers are there from 1-100

Solution:

```
#include <stdio.h>
int main(){
    int i, counter = 0;
    for(i=1; i<=100; i++){
        counter++;
    }
    printf("Total numbers are = %d", counter);
return 0;
}
```

15. C program to print multiplication table of a given number

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("Enter number: ");
    scanf("%d", &n);
    int i, multi = 0;
    for(i=1; i<=10; i++){
        multi = i*n;
        printf("%d X %d = %d \n",n, i, multi);
    }
return 0;
}
```

16. Print a pattern like this for a given input

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


Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j;
    for(i=1; i<=n; i++){
        for(j=1; j<=n; j++){
            printf("*");
        }
        printf("\n");
    }
return 0;
}
```

17. Print a pattern like this for a given input

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

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j;
    for(i=1; i<=n; i++){
        for(j=1; j<=i; j++){
            printf("*");
        }
        printf("\n");
    }
return 0;
}
```

18. Print a pattern like this for a given input

```
1
22
333
4444
```

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j;
    for(i=1; i<=n; i++){
        for(j=1; j<=i; j++){
            printf("%d", i);
        }
        printf("\n");
    }
return 0;
}
```

19. Print a pattern like this for a given input

```
1
12
123
1234
```

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j;
    for(i=1; i<=n; i++){
        for(j=1; j<=i; j++){
            printf("%d", j);
        }
        printf("\n");
    }
return 0;
}
```

20. Print a pattern like this for a given input

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

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j;
    for(i=n; i>=1; i--){
        for(j=i; j>=1; j--){
            printf("*");
        }
        printf("\n");
    }
return 0;
}
```

21. Print a pattern like this for a given input (Floyd's Triangle)

```
1
2 3
3 4 5
6 7 8 9
```

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j, ft = 1;
    for(i=1; i<=n; i++){
        for(j=1; j<=i; j++){
            printf("%d ", ft);
            ft++;
        }
        printf("\n");
    }
return 0;
}
```

22. Print a pattern like this for a given input

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

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j, k, r;
    for(i=1; i<=n; i++){
        for(k=i; k<n; k++){
            printf(" ");
        }
        for(j=1; j<=i; j++){
            printf(" *");
        }
        printf("\n");
    }

return 0;
}
```

23. Print a pattern like this for a given input

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

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j, k, r;
    for(i=n; i>=1; i--){
        for(k=i; k<n; k++){
            printf(" ");
        }
        for(j=1; j<=i; j++){
            printf(" *");
        }
        printf("\n");
    }

return 0;
}
```

24. Print a pattern like this for a given input

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

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j, k, r, l, t, s;
    for(l=1; l<n; l++){
        for(t=l; t<n; t++){
            printf(" ");
        }
        for(s=1; s<=l; s++){
            printf(" *");
        }
        printf("\n");
    }
    for(i=n; i>=1; i--){
        for(k=i; k<n; k++){
            printf(" ");
        }
        for(j=1; j<=i; j++){
            printf(" *");
        }
        printf("\n");
    }
return 0; }
```

25. Print a pattern like this for a given input

```
    1
   2 2
  3 3 3
 4 4 4 4
5 5 5 5 5
```

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j, k;
    for(i=1; i<=n; i++){
        for(k=i; k<n; k++){
            printf(" ");
        }
        for(j=1; j<=i; j++){
            printf(" %d", i);
        }
        printf("\n");
    }

return 0;
}
```

26. Print a pattern like this for a given input

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

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j, k;
    for(i=1; i<=n; i++){
        for(k=i; k<n; k++){
            printf("  "); //3 spaces
        }
        for(j=1; j<=2*i-1; j++){
                printf("* "); //Space after star
        }
        printf("\n");
    }

return 0;
}
```

27. Print a pattern like this for a given input

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

Solution:

```
#include <stdio.h>
int main(){
    int n;
    printf("How many?: ");
    scanf("%d", &n);
    int i, j, k;
    for(i=1; i<=n; i++){
        for(k=1; k<i; k++){
            printf("  "); //3 spaces
        }
        for(j=2*n-1; j>=2*i-1; j--){
                printf("* "); //Space after star
        }
        printf("\n");
    }

return 0;
}
```

28. Print a pattern like this for a given input (Pascal's triangle)
    Formula: nCr = r!/r!*(n-r)! or nCr = nCr*(n-r+1)/r

```
                    1
                  1 1
                1 2 1
              1 3 2 3 1
```

Solution:

```
#include <stdio.h>
int main(){
    int m;
    printf("How many?: ");
    scanf("%d", &m);
    int n, r, s, ncr = 0;

    for(n=0; n<m; n++){
        for(s=n; s<m; s++){
            printf(" ");
        }
        for(r=0; r<=n; r++){
            if(n==0 || r==0){
                ncr = 1;
                printf(" %d", ncr);
            }
            else{
                ncr = (ncr*(n-r+1))/r;
                printf(" %d", ncr);
            }
        }
        printf("\n");
    }
return 0;
}
```