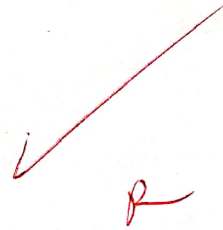


Nested Loops - while and for, Jumps in Loops

Program: Simple chessboard

```
#include <stdio.h>
int main()
{
    int T, d, i=0, i1, i2, 0;
    char c;
    scanf("%d", &T);
    while(i < T)
    {
        scanf("%d", &d);
        i1=0;
        while(i1 < d)
        {
            i2=0;
            if((i1%2==0))
            {
                c='B';
            }
            else
            {
                c='W';
            }
            printf("%c", c);
            i2++;
            i1++;
            printf("\n");
        }
        i=i1+1;
    }
}
```



Sample Input

2
2
5

Sample Output

WBW
BWB
WBW
WBWBW
BWBWB
WBWBW
BWBWB
WBWBW

Program: Print Out Own Chessboard

```

#include <stdio.h>
int main()
{
    int T, d, i, il, i2, o, z;
    char c, s;
    scanf("%d", &T);
    for (i=0; i<T; i++)
    {
        scanf("%d %c", &d, &s);
        for (il=0; il<d; il++)
        {
            z = (s == 'w') ? 0 : 1;
            o = (il%2 == z) ? 0 : 1;
            for (i2=0; i2<d; i2++)
            {
                c = (i2%2 == o) ? 'W' : 'B';
                printf("%c", c);
            }
            printf("\n");
        }
    }
    return 0;
}

```

Sample Input

2
2w
2B

Sample Output

WB
BW
BWB
WBW
BWB

Program: Pattern Printing

```
#include <stdio.h>
```

```
int main()
```

```
{
    int n, v, p3, c, in, i, il, i2, t, t1;
```

```
    scanf("%d", &t);
```

```
    for (t1 = 0; t1 < t; t1++)
```

```
{
```

```
        v = 0;
```

```
        scanf("%d", &n);
```

```
        printf("Case # %d\n", t1+1);
```

```
        for (i = 0; i < n; i++) {
```

```
            c = 0;
```

```
            if (i > 0) {
```

```
                for (il = 0; il < i; il++) printf(" ** ");
```

```
            }
```

```
            for (il = i; il < n; il++)
```

```
{
```

```
                if (i > 0) c++;
```

```
                printf("%d", ++v);
```

```
            }
```

```
            if (i == 0) {
```

```
                p3 = v + (v * (v - 1)) + 1;
```

```
                in = p3;
```

```
            }
```

```
            in = in - c;
```

```
            p3 = in;
```

```
            for (i2 = i; i2 < n; i2++) {
```

```
                printf("%d", p3++);
```

```
                if (i2 != n - 1) printf(" ");
```

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

```
    }
```

Sample Input

3
3
4
5

Sample Output

Case #01

10203010011012

** 4050809

*** 607

Case #02

10203040170180190204

** 5060704015011

*** 809012013

***** 10011

Case #3

102030405026027028029030

** 6070809022023024025

*** 10011012019020021

**** 13014017018

***** 16016

Program: Armstrong Number

```
#include <stdio.h>
#include <math.h>
int main()
{
    int n;
    scanf("%d", &n);
    int x=0; n2=n;
    while (n2!=0)
    {
        x++;
        n2/=10;
    }
    int sum=0;
    int n3=n, n4;
    while (n3!=0)
    {
        n4 = n3%10;
        sum = sum + pow(n4, x);
        n3/=10;
    }
    if (n==sum)
        printf("true");
    else
        printf("false");
    return 0;
}
```

Sample Input

123

Sample output

false

Program: Reverse and add until get a palindrome

```

#include <stdio.h>
int main()
{
    int rn, n, nt = 0, i = 0;
    scanf("%d", &n);
    do {
        nt = n; rn = 0;
        while (n != 0)
        {
            rn = rn * 10 + n % 10;
            n /= 10;
        }
        n = nt + rn;
        i++;
    }
    while (n != nt || i == 1);
    printf("%d", rn);
    return 0;
}

```

Sample Input

32

Sample Output

55

Program: Lucky Number

```
#include <stdio.h>
int main()
{
    int n=1, i=0, nt, co=0, e;
    scanf("%d", &e);
    while(i<e)
    {
        nt=n;
        while(nt!=0)
        {
            co=0;
            if(nt%10!=3 && nt%10!=4)
            {
                co=1;
                break;
            }
            nt/=10;
        }
        if(co==0)
        {
            i++;
            n++;
        }
        printf("%d", --n);
        return 0;
    }
    Sample Input
    3
    Sample Output
    33
```