Nested Loops - while and for, Jumps in Loops

Program: Simple chessboard

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

Sample Input

```
2
3
5
```

Sample Output

```
WBW
BWB
WBW
WBWBW
BWBWB
WBWBW
BWBWB
WBWBW
```

Program: Print Own Own Chessboard

```
#include <stdio.h>
int main()
{
  int T, d, i, i1, i2, o, z;
  char c, s;
  scanf("%d", &T);
  for(i=0; i<T; i++)
  {
    scanf("%d %c", &d, &s);
    for(i1=0; i1<d; i1++)
    {
      z = (s=='W') ? 0 : 1;
      o = (i1%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 v1, v, p3, c, in, i, i1, 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 (i1=0; i1<i; i1++ ) printf("**");
      }
    for (i1= i; i1<n; i1++)
    {
      if (i>0) c++;
      printf("%d0 ", ++v);
    }
    if (i==0) {
      p3= v+(v * (v-1))+1;
      in = p3;
    }
    in = in - c;
    p3 = in;
    for (i2= i; i2<n; i2++) {
      printf("%d0%d", p3++);
      if (i2!= n-1) printf("0");
    }printf("\n");
  }
}
```

Sample input

```
3
3
4
5
```

Sample output

```
Case#01
10203010011012
** 4050809
**** 607
Case#02
10203040170180190204
  ** 5060708 4015016
  **** 809012013
  ****** 10011
Case #3
10203040 50 260270280290300
** 607080 90 220230240250
**** 100110120 190200210
****** 130140 170180
******** 150160
```

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(rn!=nt||i==1);
  printf("%d", rn);
  return 0;
}
```

Sample Input

32

Sample Output

55

Program: Lucky Numbers

```
#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