

Week 5 - 1

Nested Loops - while and for, Jumps in Loops

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| Attempt 2 | |
|-----------|------------------------------------|
| Status | Finished |
| Started | Saturday, 11 January 2025, 7:06 PM |
| Completed | Saturday, 11 January 2025, 7:26 PM |
| Duration | 20 mins 6 secs |

Problem 1: Write a program that prints a simple chessboard. **Input**

format: The first line contains the number of inputs T. The lines after that contain a different value for size of the chessboard **Output**

format: Print a chessboard of dimensions size * size. Print W for white spaces and B for black spaces. **Sample Input:** 2 3 5 **Sample Output:**

WBW BWB WBW WBWBW BWBWB WBWBW BWBWB WBWBW **Code:**

```

1 #include <stdio.h>
2 int main()
3 {
4     int T,d,i=0,i1,i2,o;
5     char c;
6     scanf("%d",&T);
7     while(i<T)
8     {
9         scanf("%d",&d);
10        i1=0;
11        while(i1<d)
12        {
13            o=1;
14            i2=0;
15            if(i1%2==0)
16            {
17                o=0;
18            }
19            while(i2<d)
20            {
21                c= 'B';
22                if(i2%2==o)
23                {
24                    c= 'W';
25                }
26                printf("%c",c);
27                i2++;
28            }
29            i1+=1;
30            printf("\n");
31        }
32        i=i+1;
33    }
34 }

```

OUTPUT:

| | Input | Expected | Got |
|---|-------|----------|-------|
| ✓ | 2 | WBW | WBW ✓ |
| | 3 | BWB | BWB |
| | 5 | WBW | WBW |
| | | WBWBW | WBWBW |
| | | BWBWB | BWBWB |
| | | WBWBW | WBWBW |
| | | BWBWB | BWBWB |
| | | WBWBW | WBWBW |

Passed all tests! ✓

Problem 2: Let's print a chessboard!

Write a program that takes input:

The first line contains T, the number of test cases

Each test case contains an integer N and also the starting character of the chessboard

Output Format

Print the chessboard as per the given examples

Sample Input:

2

2 W

3 B

Sample Output:

WB BW BWB

WBW BWB **Code:**

```
1 #include <stdio.h>
2 int main()
3 {
4     int T,d,i,i1,i2,o,z;
5     char c,s;
6     scanf("%d",&T);
7     for(i=0; i<T; i++)
8     {
9         scanf("%d %c",&d,&s);
10        for(i1=0;i1<d;i1++)
11        {
12            z=(s=='W') ? 0:1;
13            o=(i1%2==z) ? 0:1;
14            for(i2=0;i2<d;i2++)
15            {
16                c=(i2%2==o) ? 'W' : 'B';
17                printf("%c",c);
18            }
19            printf("\n");
20        }
21    }
22    return 0;
23 }
```

OUTPUT:

| | Input | Expected | Got | |
|---|-------|----------|-----|---|
| ✓ | 2 | WB | WB | ✓ |
| | 2 W | BWB | BWB | |
| | 3 B | BWB | BWB | |
| | | WBW | WBW | |
| | | BWB | BWB | |

Passed all tests! ✓

Problem 3: Decode the logic and print the Pattern that corresponds to given input.

If N= 3 then pattern will be:

10203010011012

**4050809

****607

If N= 4, then pattern will be:

1020304017018019020

**50607014015016

****809012013

*****10011 **Constraints:** $2 \leq N \leq 100$ **Input Format** First line contains T, the number of test cases, each test case contains a single integer N **Output Format** First line print Case #i where i is the test case number, In the subsequent line, print the pattern **Sample Input** 3 3 4 5 **Sample Output Case #1** 10203010011012 **4050809
****607 **Case #2** 1020304017018019020 **50607014015016 ****809012013
*****10011 **Case #3** 102030405026027028029030 **6070809022023024025
****10011012019020021 *****13014017018 *****15016

Code:

```
1 #include<stdio.h>
2 int main(){
3     int n,v,p3,c,in,i,i1,i2,t,ti;
4     scanf("%d",&t);
5     for(ti=0;ti<t;ti++){
6         v=0;
7         scanf("%d",&n);
8         printf("Case #%d\n",ti+1);
9         for(i=0;i<n;i++){
10             {
11                 c=0;
12                 if(i>0){
13                     for(i1=0;i1<i;i1++) printf("***");
14                 }
15                 for(i1=i;i1<n;i1++){
16                     if(i>0) c++;
17                     printf("%d0",++v);
18                 }
19                 if(i==0){
20                     p3=v+(v*(v-1))+1;
21                     in=p3;
22                 }
23                 in=in-c;
24                 p3=in;
25                 for(i2=1;i2<n;i2++){
26                     printf("%d",p3++);
27                     if(i2!=n-1) printf("0");
28                 }printf("\n");
29             }
30         }
31     }
32 }
33
34 }
```

OUTPUT:

| | Input | Expected | Got | |
|---------------------|-------|--------------------------|--------------------------|---|
| ✓ | 3 | Case #1 | Case #1 | ✓ |
| | 3 | 10203010011012 | 10203010011012 | |
| | 4 | **4050809 | **4050809 | |
| | 5 | ****607 | ****607 | |
| | | Case #2 | Case #2 | |
| | | 1020304017018019020 | 1020304017018019020 | |
| | | **50607014015016 | **50607014015016 | |
| | | ****809012013 | ****809012013 | |
| | | *****10011 | *****10011 | |
| | | Case #3 | Case #3 | |
| | | 102030405026027028029030 | 102030405026027028029030 | |
| | | **6070809022023024025 | **6070809022023024025 | |
| | | ****10011012019020021 | ****10011012019020021 | |
| | | *****13014017018 | *****13014017018 | |
| | | *****15016 | *****15016 | |
| Passed all tests! ✓ | | | | |