Week 5 – 1

Nested Loops - while and for, Jumps in Loops

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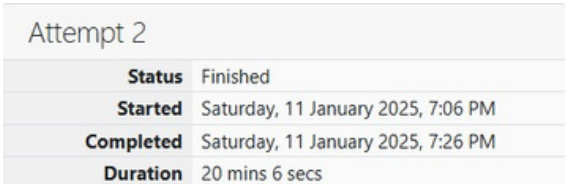

Problem 1: Write a program that prints a simple chessboard. **Input format:** The first line contains the number of inputs T. The lines after that contain a different value for size of the chessboard **Output format:** Print a chessboard of dimensions size * size. Print W for white spaces and B for black spaces. **Sample Input:** 2 3 5 **Sample Output:** WBW BWB WBW WBWBW BWBWB WBWBW BWBWB WBWBW **Code:**

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

OUTPUT:

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:**

```c
#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;
}
```

OUTPUT:

	Input	Expected	Got	
✓	2 2 W 3 B	WB BW BWB WBW BWB	WB BW BWB WBW 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 <= N <= 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 10203040502602702802 9030 **6070809022023024025 ****10011012019020021 ******13014017018 ********15016

Code:

```c
#include<stdio.h>
int main(){
    int n,v,p3,c,in,i,i1,i2,t,ti;
    scanf("%d",&t);
    for(ti=0;ti<t;ti++){
        v=0;
        scanf("%d",&n);
        printf("Case #%d\n",ti+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("%d",p3++);
            if(i2!=n-1) printf("0");
        }printf("\n");
        }
```

```c
    }
}
```

OUTPUT:

	Input	Expected	Got	
✓	3 3 4 5	Case #1 10203010011012 **4050809 ****607 Case #2 1020304017018019020 **50607014015016 ****809012013 ******10011 Case #3 10203040502602702802903 0 **6070809022023024025 ****100110120190200 21 ******13014017018 ********15016	Case #1 10203010011012 **4050809 ****607 Case #2 1020304017018019020 **50607014015016 ****809012013 ******10011 Case #3 10203040502602702802903 0 **6070809022023024025 ****100110120190200 21 ******13014017018 ********15016	✓

Passed all tests! ✓