Week 5 – 1:
Topic : nested loop
ROLL NO.:240801184
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Status	Finished
Started	Monday, 23 December 2024, 5:33 PM
Completed	Sunday, 15 December 2024, 2:06 PM
Duration	8 days 3 hours

Q1) 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:

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

Passed all tests! ✓

Q2) 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! ✓

Q3) 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:
10203040170180190 20
**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
102030405026027028029030
**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");
        }
    }
}
```

OUTPUT:

	Input	Expected	Got	
✓	3 3 4 5	Case #1 10203010011012 **4050809 ****607 Case #2 1020304017018019020 **50607014015016 ****809012013 ******10011 Case #3 10203040502602702802903 0 **6070809022023024025 ****10011012019020021 ******13014017018 ********15016	Case #1 10203010011012 **4050809 ****607 Case #2 1020304017018019020 **50607014015016 ****809012013 ******10011 Case #3 10203040502602702802903 0 **6070809022023024025 ****10011012019020021 ******13014017018 ********15016	✓

Passed all tests! ✓