

1191 – Bar Codes

A bar-code symbol consists of alternating dark and light bars, starting with a dark bar on the left. Each bar is a number of units wide. Figure 1 shows a bar-code symbol consisting of 4 bars that extend over $1+2+3+1=7$ units.

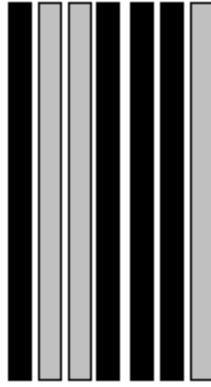


Figure 1: Bar-code over 7 units with 4 bars

In general, the bar code $\mathbf{BC(n, k, m)}$ is the set of all symbols with \mathbf{k} bars that together extend over exactly \mathbf{n} units, each bar being at most \mathbf{m} units wide. For instance, the symbol in Figure 1 belongs to $\mathbf{BC(7,4,3)}$ but not to $\mathbf{BC(7,4,2)}$. Figure 2 shows all 16 symbols in $\mathbf{BC(7,4,3)}$. Each '1' represents a dark unit, each '0' represents a light unit.

0: 1000100 | 4: 1001110 | 8: 1100100 | 12: 1101110
 1: 1000110 | 5: 1011000 | 9: 1100110 | 13: 1110010
 2: 1001000 | 6: 1011100 | 10: 1101000 | 14: 1110100
 3: 1001100 | 7: 1100010 | 11: 1101100 | 15: 1110110

Figure 2: All symbols of $\mathbf{BC(7,4,3)}$

Input

Input starts with an integer \mathbf{T} (≤ 20000), denoting the number of test cases.

Each case contains three integers: $\mathbf{n, k, m}$ ($1 \leq \mathbf{k, m} \leq \mathbf{n} \leq 50$).

Output

For each case, print the case number and $\mathbf{BC(n, k, m)}$.

Sample Input	Output for Sample Input
2	Case 1: 16
7 4 3	Case 2: 4
7 4 2	