**Worksheet-3.1**

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**Subject Name:-** Competitive Coding Lab

1. **Aim :-** To find the number of ways to construct an array such that consecutive positions contain different values.

[**https://www.hackerrank.com/challenges/construct-the-array/problem**](https://www.hackerrank.com/challenges/construct-the-array/problem)

1. **Code:-**

#include <bits/stdc++.h>

using namespace std;

typedef long long ll;

const int maxn = 1e5 + 100, mod = 1e9 + 7;

ll d[maxn][2];

long countArray(int n, int k, int x) {

d[0][0] = 1;

d[0][1] = 0;

for (int i = 1; i < n; i++){

d[i][0] = (d[i - 1][1] \* (k - 1)) % mod;

d[i][1] = (d[i - 1][1] \* (k - 2) + d[i - 1][0]) % mod;

}

if (x == 1)

return d[n - 1][0];

return d[n - 1][1];

}

int main() {

int n;

int k;

int x;

cin >> n >> k >> x;

long answer = countArray(n, k, x);

cout << answer << endl;

return 0;

}

1. **Output:-**