**BÁO CÁO PROJECT 1**

**WEEK 2**

Nội dung

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[**Problem: Week 2 - BINARY\_SEQUENCE\_GEN** 2](#_Toc181106596)

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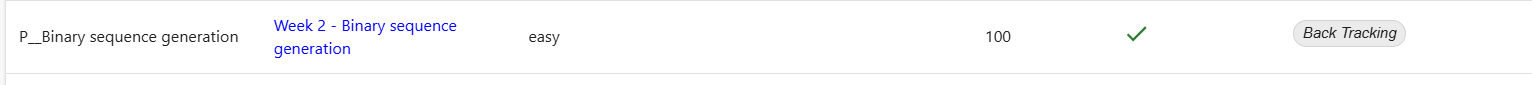
[**Problem: Week 2 C\_K\_N** 5](#_Toc181106598)

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# **Hoàn Thành 5/5**



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# **Problem: Week 2 - [BINARY\_SEQUENCE\_GEN](https://hustack.soict.ai/programming-contest/student-view-contest-problem-detail/PROJECT_1_2024_1/BINARY_SEQUENCE_GEN" \t "_blank)**

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#include <bits/stdc++.h>

#define Task "bai1"

#define ll long long

#define maxn 1000005

using namespace std;

ll n,m,d[maxn],l[maxn],r[maxn], f[maxn];

int main()

{

ios\_base::sync\_with\_stdio(0);

cout.tie(0);cin.tie(0);

if(fopen(Task".inp", "r"))

{

freopen(Task".inp","r",stdin);

freopen(Task".out","w",stdout);

}

cin >> n;

long long h = (1 << n);

h--;

for(int i = 0; i <= h; i++)

{

for(int j = n - 1; j >= 0; j--)

cout << ((i>>j)&1);

cout <<"\n";

}

}

# **Problem: Week 2 - [BINARY\_GEN\_WITHOUT\_CONSECUTIVE](https://hustack.soict.ai/programming-contest/student-view-contest-problem-detail/PROJECT_1_2024_1/BINARY_GEN_WITHOUT_CONSECUTIVE_11" \t "_blank)**

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Description automatically generated**

#include <bits/stdc++.h>

#define Task "bai1"

#define ll long long

#define maxn 1000005

using namespace std;

ll n,m,d[maxn],l[maxn],r[maxn], f[maxn];

int main()

{

ios\_base::sync\_with\_stdio(0);

cout.tie(0);cin.tie(0);

if(fopen(Task".inp", "r"))

{

freopen(Task".inp","r",stdin);

freopen(Task".out","w",stdout);

}

cin >> n;

long long h = (1 << n);

h--;

for(int i = 0; i <= h; i++)

{

string s;

for(int j = n - 1; j >= 0; j--)

s = s + char(int(((i>>j)&1)) + '0');

int check = 0;

for(int j = 1; j < s.length(); j++)

if(s[j] == s[j - 1] && s[j] == '1') check++;

if(check == 0) cout <<s<<"\n";

}

}

# **Problem: Week 2** [**C\_K\_N**](https://hustack.soict.ai/programming-contest/student-view-contest-problem-detail/PROJECT_1_2024_1/C_K_N)

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#include <bits/stdc++.h>

#define Task "bai1"

#define ll long long

#define maxn 1000005

#define MOD 1000000007

using namespace std;

ll ans[1005][1005];

long long tinh(int k, int n)

{

if (k == n || k == 0) ans[k][n] = 1;

else

if(ans[k][n] == 0)

ans[k][n] = (tinh(k - 1, n - 1) % MOD + tinh(k, n - 1) % MOD)%MOD;

return ans[k][n];

}

int main()

{

ios\_base::sync\_with\_stdio(0);

cout.tie(0);cin.tie(0);

if(fopen(Task".inp", "r"))

{

freopen(Task".inp","r",stdin);

freopen(Task".out","w",stdout);

}

int u, v;

cin >> u >> v;

cout << tinh(u, v);

}

# **Problem: Week 2 - [SUDOKU\_COUNT](https://hustack.soict.ai/programming-contest/student-view-contest-problem-detail/PROJECT_1_2024_1/SUDOKU_COUNT" \t "_blank)**

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#include <bits/stdc++.h>

#define Task "bai1"

#define int long long

#define maxn 1000005

#define MOD 1000000007

using namespace std;

int a[9][9],ketqua,hang[11][11], cot[11][11], hop[11][11];

int loai(int x, int y)

{

return (x / 3) \* 3 + (y / 3) + 1;

}

void thu(int x, int y)

{

if (x == 9)

{

ketqua++;

return;

}

int nx = x, ny = y;

if (ny < 8) ny++;

else

{

nx++;

ny = 0;

}

if (a[x][y]) thu(nx, ny);

else

{

for (int so = 1; so < 10; so++)

{

if (!hang[x][so] && !cot[y][so] && !hop[loai(x, y)][so])

{

hang[x][so]++;

cot[y][so]++;

hop[loai(x, y)][so]++;

thu(nx, ny);

hang[x][so]--;

cot[y][so]--;

hop[loai(x, y)][so]--;

}

}

}

}

main()

{

ios\_base::sync\_with\_stdio(0);

cout.tie(0);

cin.tie(0);

if (fopen(Task".inp", "r"))

{

freopen(Task".inp", "r", stdin);

freopen(Task".out", "w", stdout);

}

for (int i = 0; i < 9; i++)

{

for (int j = 0; j < 9; j++)

{

cin >> a[i][j];

if (!a[i][j]) continue;

hang[i][a[i][j]]++;

cot[j][a[i][j]]++;

hop[loai(i, j)][a[i][j]]++;

if (hang[i][a[i][j]] > 1 || cot[j][a[i][j]] > 1 || hop[loai(i, j)][a[i][j]] > 1)

return !(cout << 0);

}

}

thu(0, 0);

cout << ketqua;

return 0;

}

# **Problem: Week 2** [**HuyDQ\_Cintro\_Midterm\_bai2**](https://hustack.soict.ai/programming-contest/student-view-contest-problem-detail/PROJECT_1_2024_1/HuyDQ_Cintro_Midterm_bai2)

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Description automatically generated

#include <bits/stdc++.h>

#define Task "bai1"

#define ll long long

#define maxn 1000005

using namespace std;

ll n,m,d[maxn],l[maxn],r[maxn], f[maxn];

int main()

{

ios\_base::sync\_with\_stdio(0);

cout.tie(0);cin.tie(0);

if(fopen(Task".inp", "r"))

{

freopen(Task".inp","r",stdin);

freopen(Task".out","w",stdout);

}

cin >> n;

f[0] = 0;

f[1] = 1;

f[2] = 1;

for(int i = 3; i <=n ; i++)

{

f[i] = f[i - 1] + f[i - 2];

}

cout << f[n-1];

}

# **Problem: Week 2 - [PERMUTATION\_GEN](https://hustack.soict.ai/programming-contest/student-view-contest-problem-detail/PROJECT_1_2024_1/PERMUTATION_GEN" \t "_blank)**

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Description automatically generated

#include <bits/stdc++.h>

#define Task "bai1"

#define ll long long

#define maxn 1000005

using namespace std;

ll n,m,d[maxn],l[maxn],r[maxn], f[maxn];

int main()

{

ios\_base::sync\_with\_stdio(0);

cout.tie(0);cin.tie(0);

if(fopen(Task".inp", "r"))

{

freopen(Task".inp","r",stdin);

freopen(Task".out","w",stdout);

}

cin >> n;

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

{

d[i] = i;

cout << d[i] <<" ";

}

cout <<"\n";

while(next\_permutation(d + 1, d + n + 1))

{

for(int i = 1; i <= n; i++) cout << d[i] <<" ";

cout <<"\n";

}

}