#include

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int t[26];

int mc[5], mr[5];

int dp[6][6][6][6][6];

int solve(int a, int b, int c, int d, int e)

{

int &it = dp[a][b][c][d][e];

if (it != -1)

return it;

if (e == 5)

return it = 1;

int l = a+b+c+d+e+1, i;

for (i = 0; i < 25; i++)

l -= t[i];

for (i = 0; i < 25 && l; i++)

l -= 1-t[i];

i--;

it = 0;

if (a < 5 && i > mr[0] && i > mc[a])

it += solve(a+1, b, c, d, e);

if (b < a && i > mr[1] && i > mc[b])

it += solve(a, b+1, c, d, e);

if (c < b && i > mr[2] && i > mc[c])

it += solve(a, b, c+1, d, e);

if (d < c && i > mr[3] && i > mc[d])

it += solve(a, b, c, d+1, e);

if (e < d && i > mr[4] && i > mc[e])

it += solve(a, b, c, d, e+1);

return it;

}

int a[5];

int main()

{

freopen("twofive.in", "r", stdin);

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

int n, l, k, i, j;

memset(mr, -1, sizeof(mr));

memset(mc, -1, sizeof(mc));

if (getchar() == 'W')

{

n = 0;

getchar();

for (i = 0; i < 5; i++)

for (j = 0; j < 5; j++)

{

a[i]++;

l = getchar()-'A';

for (k = 0; k < l; k++)

if (t[k] == 0 && k > mr[i] && k > mc[j])

{

t[k] = 1;

mr[i] = mc[j] = k;

memset(dp, -1, sizeof(dp));

n += solve(a[0], a[1], a[2], a[3], a[4]);

t[k] = 0;

}

t[l] = 1;

mr[i] = mc[j] = l;

}

printf("%d\n", n+1);

}

else

{

scanf("%d", &n);

n--;

for (i = 0; i < 5; i++)

for (j = 0; j < 5; j++)

{

a[i]++;

for (l = 0; l < 25 && n >= 0; l++)

if (t[l] == 0 && l > mr[i] && l > mc[j])

{

t[l] = 1;

mr[i] = mc[j] = l;

memset(dp, -1, sizeof(dp));

n -= solve(a[0], a[1], a[2], a[3], a[4]);

t[l] = 0;

}

t[--l] = 1;

putchar(l+'A');

n += solve(a[0], a[1], a[2], a[3], a[4]);

}

putchar('\n');

}

return 0;

}