#include

#define Min(a, b) ((a)<(b)?(a):(b))

int n, m;

int ans[1000000];

int pr[1000000][2];

int ones[550][550];

char s[550][550], x[550][550];

int a[1000000], b[1000000], c[1000000], d[1000000];

void build()

{

int i;

m = 1;

a[1] = b[1] = 1;

c[1] = d[1] = n;

for (i = 1; a[m] != n || b[m] != n; i++)

{

a[i\*4-2] = a[i];

b[i\*4-2] = b[i];

c[i\*4-2] = (a[i]+c[i])/2;

d[i\*4-2] = (b[i]+d[i])/2;

a[i\*4-1] = a[i];

b[i\*4-1] = d[i\*4-2]+1;

c[i\*4-1] = c[i\*4-2];

d[i\*4-1] = d[i];

a[i\*4] = c[i\*4-2]+1;

b[i\*4] = b[i];

c[i\*4] = c[i];

d[i\*4] = d[i\*4-2];

a[i\*4+1] = c[i\*4-2]+1;

b[i\*4+1] = d[i\*4-2]+1;

c[i\*4+1] = c[i];

d[i\*4+1] = d[i];

m += 4;

}

}

int n\_ones(int p)

{

return ones[c[p]][d[p]]-ones[c[p]][b[p]-1]-ones[a[p]-1][d[p]]+ones[a[p]-1][b[p]-1];

}

void set\_ch(int p, char ch)

{

int i, j;

for (i = a[p]; i <= c[p]; i++)

for (j = b[p]; j <= d[p]; j++)

x[i][j] = ch;

}

void calc(int p)

{

if (a[p] == c[p])

{

set\_ch(p, s[a[p]][b[p]]);

return;

}

int i, j, k;

for (k = 0; k < 2; k++)

set\_ch(p\*4+pr[p][k], k+'0');

for (k = -2; k <= 1; k++)

if (k != pr[p][0] && k != pr[p][1])

calc(p\*4+k);

}

int main()

{

int i, j, k, l, w, p, q;

scanf("%d", &n);

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

scanf("%s", s[i]+1);

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

for (j = 1; j <= n; j++)

ones[i][j] = s[i][j]-'0'+ones[i-1][j]+ones[i][j-1]-ones[i-1][j-1];

build();

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

pr[i][0] = pr[i][1] = -1;

for (i = m; i >= 1; i--)

{

if (a[i] == c[i])

{

ans[i] = 0;

continue;

}

w = 0;

ans[i] = n\*n;

for (k = -2; k <= 1; k++)

w += ans[i\*4+k];

for (k = -2; k <= 1; k++)

{

p = n\_ones(i\*4+k);

for (l = -2; l <= 1; l++)

if (k != l)

{

q = (c[i]-a[i]+1)\*(d[i]-b[i]+1)/4-n\_ones(i\*4+l);

if (ans[i] > p+q+w-ans[i\*4+k]-ans[i\*4+l])

{

pr[i][0] = k;

pr[i][1] = l;

ans[i] = p+q+w-ans[i\*4+k]-ans[i\*4+l];

}

}

}

}

calc(1);

printf("%d\n", ans[1]);

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

{

for (j = 1; j <= n; j++)

putchar(x[i][j]);

putchar('\n');

}

return 0;

}

/\*

#include

#include

#include

int main()

{

freopen("input.txt", "w", stdout);

int i, j, n=512;

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

srand(time(0));

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

{

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

printf("%d", 1);

putchar('\n');

}

return 0;

}

\*/