#include <cstdio>

#include <cmath>

#include <algorithm>

using namespace std;

#define MAXC 10000

int n;

int s[510];

int cx[510], cy[510];

int check(int l)

{

int r=0, m, p, q, i, j;

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

{

m = 0;

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

if (cx[i] <= cx[j] && cx[j]-cx[i] < l)

s[m++] = cy[j];

sort(s, s+m);

for (p = q = 0; q < m; q++)

{

while (s[q]-s[p] >= l)

p++;

if (r < q-p+1)

r = q-p+1;

}

}

return r;

}

int main()

{

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

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

int c, p, q, k, i;

scanf("%d%d", &c, &n);

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

scanf("%d%d", cx+i, cy+i);

p = 1;

q = MAXC;

while (q-p > 1)

{

k = (p+q)>>1;

if (check(k) >= c)

q = k;

else

p = k;

}

if (check(p) >= c)

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

else

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

return 0;

}