Dinamicko programiranje

1.Data je matrica mxn popunjena celim brojevima. Dozvoljeno je kretati se samo desno ili na dole. Polazeci od gornjeg levog polja naci put maksimalne vrednosti I ispisati njihove koordinate unazad.

Program matrica;

var a,d:array[1..50,1..50] of integer;

i,j,n,m:integer;

begin

readln(n,m);

for i:=1 to n do

for j:=1 to m do read(a[i,j]);

d[1,1]:=a[1,1];

for j:=2 to m do d[1,j]:=d[1,j-1]+a[1,j];

for i:=2 to n do d[i,1]:=d[i-1,1]+a[i,1];

for j:=2 to m do

for i:=2 to n do

if d[i-1,j]>d[i,j-1] then d[i,j]:=d[i-1,j]+a[i,j]

else d[i,j]:=d[i,j-1]+a[i,j];

while (i<>1) or (j<>1) do

begin

if d[i,j-1]>d[i-1,j] then

begin

write('(',i,',',j,')',' ');

j:=j-1;

end

else

begin

write('(',i,',',j,')',' ');

i:=i-1;

end;

end;

write('(1,1)');

end.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 3 | 1 | 0 | 0 |
| -11 | 4 | 10 | -10 | 8 |
| 4 | 2 | 5 | 7 | 0 |
| 10 | 1 | -2 | 1 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 4 | 5 | 5 | 5 |
| -10 | 8 | 18 | 8 | 16 |
| -6 | 10 | 23 | 30 | 30 |
| 4 | 11 | 21 | 31 | 32 |

matrica *a*  matrica *d* resenje podproblema

for i:=2 to n do d[i,1]:=d[i-1,1]+a[i,1];

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 3 | 1 | 0 | 0 |
| -10 | 4 | 10 | -10 | 8 |
| -6 | 2 | 5 | 7 | 0 |
| 4 | 1 | -2 | 1 | 1 |

for j:=2 to m do d[1,j]:=d[1,j-1]+a[1,j];

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 4 | 5 | 5 | 5 |
| -10 | 4 | 10 | -10 | 8 |
| -6 | 2 | 5 | 7 | 0 |
| 4 | 1 | -2 | 1 | 1 |

for j:=2 to m do

for i:=2 to n do if d[i-1,j]>d[i,j-1] then

d[i,j]:=d[i-1,j]+a[i,j] else d[i,j]:=d[i,j-1]+a[i,j];

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 4 | 5 | 5 | 5 |
| -10 | 8 | 18 | 8 | 16 |
| -6 | 10 | 23 | 30 | 30 |
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