Re: Program to generate a Spiral Matrix

3 messages

pradyot <pdot.sam@gmail.com> Wed, Jul 19, 2017 at 12:05 AM
To: Varun Gupta <varungupta3009@gmail.com>, CAT_2017_BATCH1 <cat_2017_batch1@googlegroups.com>

Hey..

Tried something with the algorithm.. Though I'm not very sure whether it'll actually work..

//Initialize m*n matrix to 0..

c=n
d=m

For i=1 to n do
For j=1 to m do

If a(i,j+1) = 0 do
While j < c do
a(i,j+1) = a(i,j) + 1

Else if a(i+1,j) = 0 do
While i<d-1 do
a(i+1,j+1) = a(i,j+1) + 1

c=c-1
d=d-1

Pls correct me if and where I'm going wrong

On July 18, 2017, at 10:51 PM, Varun Gupta <varungupta3009@gmail.com> wrote:

The program has been created in Python.
Those who do not have Python, download the latest version from https://www.python.org/ftp/python/3.6.2/python-3.6.2.exe

The Source Code has been attached below.

Raw File:

```
#! python 3
# spiralMatrixGenerator.py - Creates a spiral matrix given dimensions
# Created by Varun R. Gupta

while True:
    row = input("Please enter the number of rows in the matrix - ")
    try:
        row = int(row)
        break
    except ValueError:
```

```
        print("Please enter a valid integer")
        continue
    if row < 1:
        print("Please enter a valid integer greater than 1")

while True:
    col = input("Please enter the number of columns in the matrix - ")
    try:
        col = int(col)
        break
    except ValueError:
        print("Please enter a valid integer")
        continue
    if col < 1:
        print("Please enter a valid integer greater than 1")

a = [[]]

for i in range(0, row):
    for j in range(0, col):
        a[i].append(0)
    a.append([])

direc = "U"
n = row*col
l = 0
RR = 0
DC = col - 1
LR = row - 1
UC = 0

while l != n:
    if direc == "U":
        r = RR
        RR += 1
        for c in range(0, col):
```

```
            if a[r][c] == 0:
                a[r][c] = l + 1
                l += 1
        direc = "R"
    elif direc == "R":
        c = DC
        DC -= 1
        for r in range(0, row):
            if a[r][c] == 0:
                a[r][c] = l + 1
                l += 1
        direc = "D"
    elif direc == "D":
        r = LR
        LR -= 1
        for c in range(col-1, -1, -1):
            if a[r][c] == 0:
                a[r][c] = l + 1
                l += 1
        direc = "L" ;
    elif direc == "L":
        c = UC
        UC += 1
        for r in range(row-1, -1, -1):
            if a[r][c] == 0:
                a[r][c] = l + 1
                l += 1
        direc = "U"

for i in range(0, row):
    for j in range(0, col):
        print(a[i][j], end = "\t")
    print()

input()
```

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pradyot <pdot.sam@gmail.com> Wed, Jul 19, 2017 at 12:22 AM
To: Varun Gupta <varungupta3009@gmail.com>, CAT_2017_BATCH1 <cat_2017_batch1@googlegroups.com>

Hey..
Tried writing an algorithm, but not sure about it..

#initialize m*n matrix to 0

c = n
d= m

For i=1 to m
For j=1 to n

If a(i,j+1)= 0 do
While j<c do
a(i,j+1)= a(i,j) + 1

Else if a(i+1,j)=0
While i<d-1 do
a(i+1,j+1)=a(i,j+1) + 1

c=c-1
d=d-1

Please feel free to point out if and where I may be going wrong..

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To view this discussion on the web visit https://groups.google.com/d/msgid/cat_2017_batch1/hiql3hkb4ug2ok67p78h185a.1500403933771%40email.android.com.
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pradyot <pdot.sam@gmail.com> Wed, Jul 19, 2017 at 6:44 AM
To: Varun Gupta <varungupta3009@gmail.com>, CAT_2017_BATCH1 <cat_2017_batch1@googlegroups.com>

Spotted a mistake in my algorithm..
The if conditions should be
If a(i,(j+(-1)^(c+1))=0 do
And
Else if a(i+(-1)^(d+1),j)=0
For the while loop, it has to be a(i,j+(-1)^(c+1) = a(i,j) + 1
And
a((i+1)^(d+1),(j+1)^(c+1))=a(i,j+1) + 1

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