An Assignment Template

ruiqi hua

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This is the abstract for the assignment. Here you state what the assignment is and provide any additional introduction or commentary that you care to.

Command Line Stuff

"The Game of Life, also known simply as Life, is a cellular automaton devised by the British mathematician John Horton Conway in 1970.The "game" is a zero-player game, meaning that its evolution is determined by its initial state, requiring no further input. One interacts with the Game of Life by creating an initial configuration and observing how it evolves or, for advanced players, by creating patterns with particular

```
This code is pretty precise.The rules are these.
"Any live cell with fewer than two live neighbours dies,
 as if caused by under-population.
"Any live cell with two or three live
 neighbours lives on to the next generation.
Any live cell with more than three live neighbours dies,
 as if by over-population.
 Any dead cell with exactly three live neighbours
 becomes a live cell, as if by
```

This is a margin note you can use to comment on what you are doing in the command line.

Representing Python Code in Your Assignment

```
import random
from graphics import *

#this function creates an NxN array filled with zeros
def empty(N):
```

Here you can comment on your python code.

```
a=[]
for i in range(N):
b=[]
for j in range(N):
b=b+[0]
a=a+[b]
return a

#this function fills the array a with a portion p of live
cells
def fill(a,p):
N=len(a)
for i in range(N):
for j in range(N):
if random.uniform(0,1)<p:
a[i][j]=1

def update(A,B):
N=len(A)
for i in range(N):
for j in range(N):
neigh=A[(i-1)%N][(j-1)%N]+A[(i-1)%N][j]+A[(i-1)%N][(j+1)%N]
+A[i][(j-1)%N]+A[i][(j+1)%N]+A[(i+1)%N][(j-1)%N]+
A[(i+1)%N][j]+
A[(i+1)%N][(j+1)%N]
if A[i][j]==0:
if neigh==3:
B[i][j]=1
else:
B[i][j]=0
else:
if neigh==2 or neigh==3:
B[i][j]=1
else:
B[i][j]=0


def gen2Dgraphic(N):
a=[]
for i in range(N):
b=[]
for j in range(N):
```

```
b=b+[Circle(Point(i,j),.49)]
a=a+[b]
return a

def push(B,A):
N=len(A)
for i in range(N):
for j in range(N):
A[i][j]=B[i][j]

def drawArray(A,a,window):
#A is the array of 0,1 values representing the state of the
game
#a is an array of Circle objects
#window is the GraphWin in which we will draw the circles
N=len(A)
for i in range(N):
for j in range(N):
if A[i][j]==1:
a[i][j].undraw()
a[i][j].draw(window)
if A[i][j]==0:
a[i][j].undraw()

N=50
win = GraphWin("Title",600,600)
win.setCoords(-1,-1,N+1,N+1)
grid=empty(N)
grid2=empty(N)
circles=gen2Dgraphic(N)
fill(grid,0.1)

while True:
drawArray(grid,circles,win)
update(grid,grid2)
push(grid2,grid)
```