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# ShowPointClass.py
""" Illustrate the class  Point
"""

from ThePointClass import *
from SimpleGraphics import *

def ShowPoint(P,c):
   DrawDisk(P.x,P.y,.1,FillColor=c)

def Midpoint(P1,P2):
   """ Returns a point that is the midpoint of
   a line segment that connects P1 and P2.

   PreC: P1 and P2 are points.
   """
   xm = (P1.x+P2.x)/2.0
   ym = (P1.y+P2.y)/2.0
   Q = Point(xm,ym)
   return Q

def RandomPoint(Lx,Rx,Ly,Ry):
   """ Returns a point that is randomly chosen
   randomly from the square Lx<=x<=Rx, Ly<=y<=Ry.

   PreC: L and R are floats with L<R
   """
   x = randu(Lx,Rx)
   y = randu(Ly,Ry)
   P = Point(x,y)
   return P

if __name__ == '__main__':
   """ demonstrates all the methods in the Point class
   and some functions that manipulate Point objects.
   """

   n = 3
   MakeWindow(n)
   for z in range(-n+1,n):
      DrawLineSeg(z,-n,z,n)
      DrawLineSeg(-n,z,n,z)

   # Create and display two points...
   P = Point(1,2)
   ShowPoint(P,RED)
   Q = Point(-2,-2)
   ShowPoint(Q,BLUE)

   # Indicate the distance between them...
   d = P.Dist(Q)
   Title('The Red-to-Blue distance is %5.2f' % d)

   # Compute and display the midpoint
   M = Midpoint(P,Q)
   ShowPoint(M,GREEN)

   # Reflect the red point...
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S = P.Reflect()
ShowPoint(S,PINK)

# Rotate the blue point 30 degrees about the origib...
T = Q.Rotate(30)
ShowPoint(T,CYAN)

# Display ten random points...
for k in range(10):
    P = RandomPoint(1,2,-2,-1)
    ShowPoint(P,MAGENTA)


ShowWindow()
```