PROBLEM 4 - PART A

In lecture, we explored the concept of a random walk, using a set of different models of drunks. Here is the code (randomWalks-segment2.py) that we used in lecture for `Locations`, `Fields`, and the base class of `Drunk` – you should not have to study this code in detail, since you have seen it in lecture.

Rather than assuming the drunk is walking in a large field, we can assume that the field is enclosed with a fence. When the drunk reaches the fence different things may happen:

1. **SW** (Solid Walls): The drunk cannot go through the fence. If the drunk sees that his move will make him run into the fence, the drunk will hesitate and not move from the spot.
2. **SP** (Small Planet): The rightmost edge is connected to the leftmost edge, and the top edge is connected to the bottom edge.
3. **WW** (Warped World): If the drunk moves past the right-most edge, he ends up on the top edge and vice versa. If the drunk moves past the left edge, he ends up on the bottom edge and vice versa.
4. **BH** (Back to Home): Whenever the drunk reaches any edge, the drunk is transported back to the center of the world.

Here are several routines, where `leftEdge` is always less than `rightEdge`, and `topEdge` is always greater than `bottomEdge`. dx and dy can be positive or negative numbers. You can assume the drunk will not land directly on an edge (for example, the case x + dx == leftEdge will not happen).

For each of the following code segments, select the type of wall (SW, SP, WW, or BH) that is being implemented. Choose option **NA** (None of the Above) to indicate that the code segment does not correctly implement any of the given types of wall.

PROBLEM 4-1 (1/1 point)

```
if x+dx > leftEdge and x+dx < rightEdge:
    x += dx
if  y+dy > bottomEdge and y+dy < topEdge:
    y += dy
```

- (•) SW ✔
- ( ) SP
- ( ) WW
- ( ) BH
- ( ) NA

You have used 1 of 1 submissions

PROBLEM 4-2 (1/1 point)

```
if x+dx < rightEdge and x+dx > leftEdge:
    x += dx
elif x+dx > rightEdge:
    x = leftEdge
elif x+dx < leftEdge:
    x =rightEdge
if y+dy < topEdge and  y+dy > bottomEdge:
    y += dy
elif y+dy > topEdge:
    y = topEdge
elif y+dy < bottomEdge:
    y = bottomEdge
```

- SW
- SP
- WW
- BH
- NA ✔

You have used 1 of 1 submissions

PROBLEM 4-3 (1/1 point)

```
if x+dx > leftEdge and x+dx < rightEdge:
    x += dx
elif x+dx > rightEdge:
    x = leftEdge + (x+dx - rightEdge)
elif x+dx < leftEdge:
    x = rightEdge - (leftEdge - (x+dx))

if  y+dy > bottomEdge and y+dy < topEdge:
    y += dy
elif y+dy > topEdge:
    y = bottomEdge + (y+dy - topEdge)
elif y+dy < bottomEdge:
    y = topEdge - (bottomEdge - (y+dy))
```

- SW
- SP ✔
- WW
- BH
- NA

You have used 1 of 1 submissions

PROBLEM 4-4 (1/1 point)

```
if x+dx < rightEdge and x+dx > leftEdge:
    x += dx
elif x+dx > rightEdge:
    x = bottomEdge
elif x+dx < leftEdge:
    x = topEdge
if y+dy < topEdge and  y+dy > bottomEdge:
    y += dy
elif y+dy > topEdge:
    y = leftEdge
elif y+dy < bottomEdge:
    y = rightEdge
```

- SW
- SP
- WW
- BH
- NA ✔

You have used 1 of 1 submissions

PROBLEM 4-5 (1/1 point)

```
if x+dx > rightEdge:
    x = y
if x+dx < leftEdge:
    x = y
if x+dx < rightEdge and x+dx > leftEdge:
    x += dx
if y+dy > topEdge:
    y = x
if y+dy < bottomEdge:
    y = x
if y+dy < topEdge and  y+dy > bottomEdge:
    y += dy
```

- SW
- SP
- WW
- BH
- NA ✔

You have used 1 of 1 submissions

PROBLEM 4-6 (1/1 point)

```
if x+dx > rightEdge:
    x,y = (rightEdge-leftEdge)/2
if x+dx < leftEdge:
    x,y = (rightEdge-leftEdge)/2
if x+dx < rightEdge and x+dx > leftEdge:
    x += dx
if y+dy > topEdge:
    x,y = (rightEdge-leftEdge)/2
if y+dy < bottomEdge:
    x,y = (rightEdge-leftEdge)/2
if y+dy < topEdge and  y+dy > bottomEdge:
    y += dy
```

- SW
- SP
- WW
- BH
- NA ✔

You have used 1 of 1 submissions

PROBLEM 4-7 (1/1 point)

```
if x+dx < rightEdge and x+dx > leftEdge and y+dy < topEdge and y+dy > bottomEdge:
    x += dx
    y += dy
else:
    x = leftEdge + (rightEdge-leftEdge)/2
    y = bottomEdge + (topEdge-bottomEdge)/2
```

- ○ SW
- ○ SP
- ○ WW
- ◉ BH ✔
- ○ NA

You have used 1 of 1 submissions