Task5

June 20, 2020

0.1 Task 5

```python
[4]: import random
     import numpy as np
     import matplotlib.pyplot as plt
     import math
```

```python
[5]: def task5(steps,x,y):
         theta_vals = [0]
         r_vals = [0, 0.5, 1]
         theta_val = 0
         x_vals, y_vals = [], []
         x,y = 0,0

         for i in range(steps):
             step = random.uniform(0,1)
             theta_step = random.uniform(0, 2*math.pi)
             x += step*math.cos(theta_step)
             y += step*math.sin(theta_step)
             x_vals.append(x)
             y_vals.append(y)
             if math.sqrt(x**2+y**2) > 100:
                 x = -x
                 y = -y

         return x_vals, y_vals
```
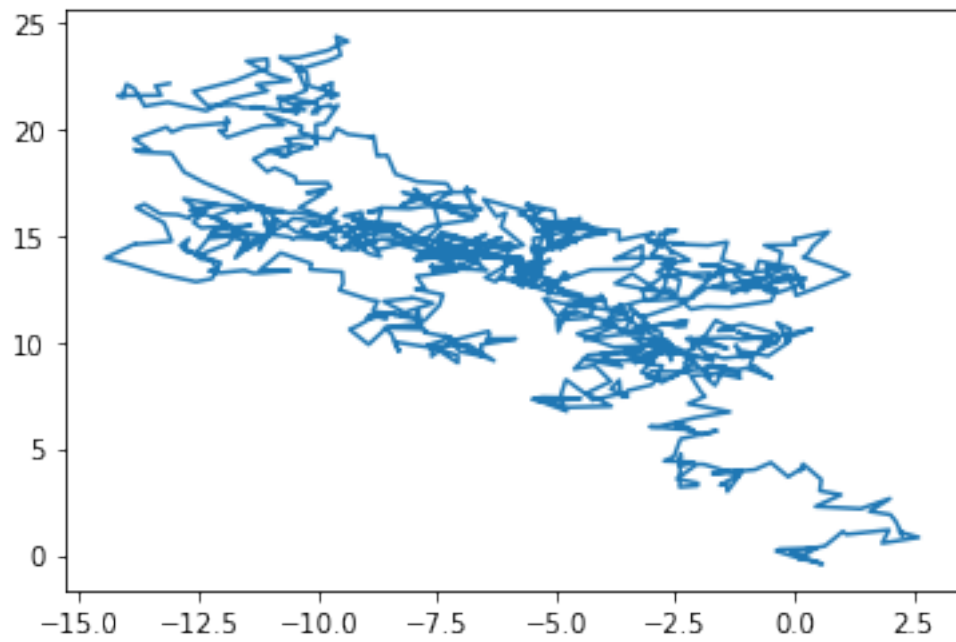
```python
[6]: steps = 1000
     stepnum = [i for i in range(steps)]
     x_vals, y_vals = task5(steps, 0, 0)
```

```python
[7]: plt.plot(x_vals, y_vals)
     plt.show
```

```
[7]: <function matplotlib.pyplot.show(*args, **kw)>
```