

Random Walks and Simulation Models

Lecturer: John Guttag

```
import random

def walk(f, d, numSteps):
    start = f.getLoc(d)
    for s in range(numSteps):
        f.moveDrunk(d)
    return(start.distFrom(f.getLoc(d)))
```

```
def simWalks(numSteps, numTrials):  
    homer = Drunk('Homer')  
    origin = Location(0, 0)  
    distances = []  
    for t in range(numTrials):  
        f = Field()  
        f.addDrunk(homer, origin)  
        distances.append(walk(f, homer, numSteps, numTrials))  
    return distances
```

```
def drunkTest(numTrials):  
    for numSteps in [10, 100, 1000, 10000, 100000]:  
        distances = simWalks(numSteps, numTrials)  
        print 'Random walk of ' + str(numSteps) + ' steps'  
        print ' Mean =', sum(distances)/len(distances)  
        print ' Max =', max(distances), 'Min =', min(distances)
```



6.00x

Random Walks

