

# Sampling and Monte Carlo Simulations

Lecturer: John Guttag

# Nondeterminism

## **Causal nondeterminism:**

Not every event is caused by previous events

## **Predictive nondeterminism:**

Lack of knowledge about the world makes it impossible make accurate predications about future states

# Stochastic Processes

An ongoing process where the next state might depend on both the previous states **and some random element**.

# Rolling a Die

```
def rollDie():  
    """returns an int between 1 and 6"""
```

```
def rollDie():  
    """returns a random int between 1 and 6"""
```



# Hash Tables

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6.00x



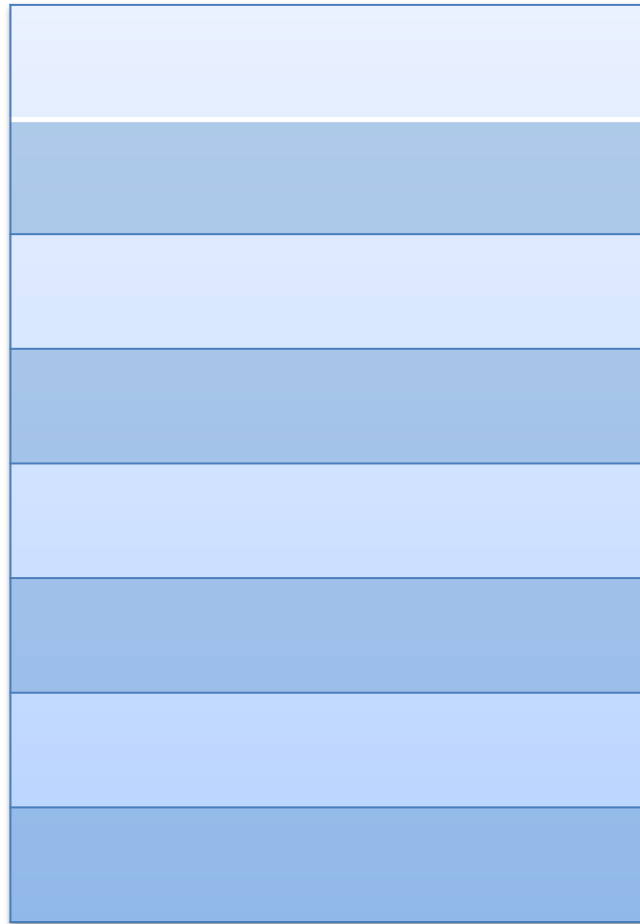
Hash Tables

```
def strToInt(s):  
    number = ''  
    for c in s:  
        number = number + str(ord(c))  
    index = int(number)  
    return index
```

```
def hashStr(s, tableSize = 101):  
    number = ''  
    for c in s:  
        number = number + str(ord(c))  
    index = int(number)%tableSize  
    return index
```



6.00x



Hash Tables



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Hash Tables