**# Monster vs Mouse vs something else**

1. 导入

from random import random as rand

**注意：**random()是不能直接访问的，需要导入 random 模块，然后通过 random 静态对象调用该方法。

**## Set up the model建立模型**

# (prior) probabilities of monster (M) vs mouse (m) vs something else (e) # 怪物(M)与老鼠(m)与其他东西(e)的（先验）概率

p\_M = 1e-3              # p(M)

p\_m = 0.5               # p(m)

p\_e = 1.0 - p\_M - p\_m   # p(e)

assert p\_e >= 0, "the sum of the M and m options must not be larger than one" M和m选项之和不得大于1

Python assert（断言）用于判断一个表达式，在表达式条件为 false 的时候触发异常。

语法格式如下：

assert expression

assert 后面也可以紧跟参数:

assert expression [, arguments]

等价于：

if not expression:

raise AssertionError(arguments)

# (conditional) probabilities of noise (n) given that there is 条件概率

p\_n\_M = 0.99            # p(n|M)

p\_n\_m = 0.2             # p(n|m)

p\_n\_e = 0.1             # p(n|e)

# Question: why do they not have to sum up to one?

# what is the (joint) probability of having noise and ...

p\_nM = p\_n\_M \* p\_M      # ... a monster,      p(n,M) = p(n|M) p(M)

p\_nm = p\_n\_m \* p\_m      # ... a mouse,        p(n,m) = p(n|m) p(m)

p\_ne = p\_n\_e \* p\_e      # ... something else, p(n,e) = p(n|e) p(e)

print(f"p(n,M) = {p\_nM}")

print(f"p(n,m) = {p\_nm}")

print(f"p(n,e) = {p\_ne}")