

1. Type in the following in the interactive window (and see what happens):

```
>>> from random import randrange, random
```

```
>>> randrange(1,10)
```

```
>>> randrange(1,10)
```

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>>> randrange(1,10)
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>>> randrange(1,10)
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>>> randrange(1,10)
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>>> randrange(1,10)
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```
>>> randrange(1,10)
```

```
>>>randrange(5,55,6)
```

```
>>> random()
```

```
>>> random()
```

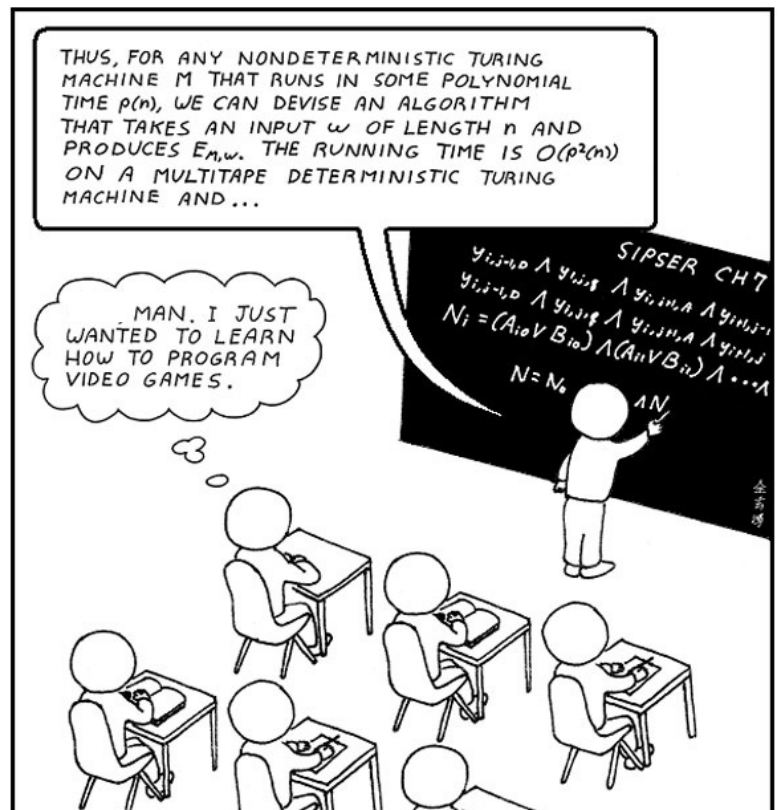
```
>>> random()
```

2. the following code generates a list of 10,000 values from 0 to 9,999

```
m = list(range(10000))
```

Shuffle them please

(I need it to try one of the sorting algorithms...),  
i.e. write the code (one line) that would  
shuffle the list **m**.



**3.** Suppose we want to simulate a craps game.

Craps game is a dice game played at many casinos. A player rolls a pair of normal six-sided dice. If the initial roll is 2, 3, or 12, the player loses. If the roll is 7 or 11, the player wins. Any other initial roll causes the player to “roll for point”. That is, the player keeps rolling the dice until either rolling a 7 or re-rolling the value of the initial roll. If the player re-rolls the initial value before rolling a 7, it’s a win. Rolling a 7 first is a loss.

We want to write a program to simulate multiple games of craps and estimate the probability that the player wins. For example, if the player wins 249 out of 500 games, then the estimated probability is  $249/500 = 0.498$  or 49.8%.

User will be prompt for the number of games.

Before we start coding, we will do top-bottom design. Let’s work on it!

- (a) plan out what functions will you define (with their formal parameters and return values),
- (b) define a main function (it can be a sketch) where all the functions will be called.

