

# Finite Functions and Generators in Python

arrays: finite functions from  $\mathbb{N}$  to values  $a[0], a[1]$ , etc.

```
>>> a=[10,20,30]
>>> a[0]
10
>>> a[1]
20
>>> a.append(40)
>>> a
[10, 20, 30, 40]
>>> a.pop()
40
>>> a
[10, 20, 30]
>>>
```

dictionaries: finite functions from (hashable) keys to values

```
>>> d=dict()
>>> d['hello']=10
>>> d['today']=20
>>> d['bye']=30
>>> d
{'hello': 10, 'today': 20, 'bye': 30}
>>> d['today']
20
```

# Generators

a natural generalization of iterators

- built-in
- user defined - built using *yield*
- finite
- infinite

itertools library