|  |  |  |
| --- | --- | --- |
| **Function** | **Description** | **Example** |
| dir() | shows all methods you can use with a variable | dir(stringvariablename) would show string methods |
| range() | makes a list of a certain range of numbers | range(0,20) makes a list from 0 to 19, 20 numbers where the first is inclusive and the last is exclusive  range(0,20,2) makes the same list but counts by 2 |
| input() | asks the user for input, stores as variable | x=input("Enter a phrase: ") saves what user inputs as variable x |

**CHEATSHEET PYTHON 2: LOOPS**

|  |  |  |
| --- | --- | --- |
| **Module** | **Description** | **Example** |
| random | random number generator | random.random() picks a value between 0 and 1  random.randint(0,10) randomly picks a value between 0 and 10 |
| time | anything to do with timing | time.asctime( time.localtime(time.time()) ) prints current date and time |

**FOR is for iterating over values in a list, string, file, range, etc**

for item in thing:

do this command #return to for statement and

#move to next item

Example: print 20 numbers (actually prints 0 to 19)

for i in range(20):

print i

**IF is the basic decision making tool**

if logical condition == True:

do this command

sequence='AGGGTGTGTCCTGA'

if 'AGG' in sequence:

print 'I found your sequence'

**IF ELSE is used for decision making in an either or context**

if logical condition == True:

do this command

else:

do this command

seqs=['AUUGACAUCGAUCGA','AGACTGATCGATCTAG']

for seq in seqs:

if 'U' in seq:

print '%s is RNA' %seq

else:

print '%s is DNA' %seq

**IF ELIF is useful when you have more than one condition to check before deciding**

if logical condition == True:

do this command

elif other logical condition == True:

do this command

else:

do this command

seqs=['AUUGACGAUCGA','AGACTGAATCTAG','JIEONONE']

for seq in seqs:

if 'U' in seq:

print '%s is RNA' %seq

elif 'T' in seq:

print '%s is DNA' %seq

else:

print '%s might be a protein' %seq

**WHILE is useful for checking input types, and when your value in the conditional might change within the loop**

while condition == True:

do this command

x=int(input("Type a number from 1 to 10: "))

while x not in range(0,11):

print "That's not a number between 1 and 10"

x=int(input("Type a number from 1 to 10: "))

print "Thanks!"

**COMPREHENSIONS are faster than for loops and good to use when you're sifting through a long list or range**

list1=[] #make empty list

for item in thing:

list1.append(item)

list1 = [item for item in thing]

numbers=range(1000)

l=[x\*\*3 for x in numbers]

**FOR LOOP IN BASH**

for x in list; do command to variable x; done

for i in \*.fasta; cat $i >> newseqs.fasta; done