Introduction to Programming

Amit Kumar Dhar

Office : 306
email : amitkdhar@iitbhilai

Lecture 4

Data

Store a list??

Data

Store a Dynamic list??

Python List

Lists 〉 Create

```
l=[elements]
l = [1,2,56,925,87]
```

Lists 〉 Example

```
l = [“Hi”, “Ready”, “Go”]
nums = [982,856,23767]
fls = [3.46,38.78,2389,0]
all = [“asdbjh”,2376,129.47]
```

`l` : access whole list

`l[i]` : i^{th} element

Lists 〉 Example

```
l = [“Hi”, “Ready”, “Go”]
nums = [982,856,23767]
fls = [3.46,38.78,2389,0]
all = [“asdbjh”,2376,129.47]
print(nums,fls,all)
print(nums[0],fls[1],all[2])
```

Lists 〉 Example

```
l = [“Hi”, “Ready”, “Go”]
nums = [982,856,23767]
fls = [3.46,38.78,2389,0]
all = [“asdbjh”,2376,129.47]
print(nums,fls,all)
print(nums[0],fls[1],all[2])
temp = all[1]
```

Lists 〉 Example

```
l = [“Hi”, “Ready”, “Go”]
nums = [982,856,23767]
fls = [3.46,38.78,2389,0]
all = [“asdbjh”,2376,129.47]
print(nums,fls,all)
print(nums[0],fls[1],all[2])
temp = all[1]
temp = all[0]
```

Lists 〉 Example

```
l = [“Hi”, “Ready”, “Go”]
nums = [982,856,23767]
fls = [3.46,38.78,2389,0]
all = [“asdbjh”,2376,129.47]
print(nums,fls,all)
print(nums[0],fls[1],all[2])
temp = all[1]
temp = all[0]
temp = all[2]
```

Lists 〉 Operations

`+` : concatenate two list

`l * i` : items of `l` repeated `i` times

`l.append(i)` : add `i` to the end of list

`l[i]=a` : change i^{th} element to `a`

`a in l[i]` : check if `a` appears in `l`

Lists 〉 Example

```
l = [“Hi”, “Ready”, “Go”]
l[i] = 982
nums = [982,856,23767]
fls = [3.46,38.78,2389,0]
all = nums+fls
all.append(582)
print(nums*2)
print(856 in nums)
```

Basics 〉 Dictionary Lookup

1. Pick up the Dictionary
2. Open to the middle of the dictionary
3. Look at words
4. If “Debate” is among the words
   See the meaning
5. else if “Debate” is earlier in the book
   Open to the middle of the left half of book
   Go to line 3
6. else if “Debate” is later in the book
   Open to the middle of the right half of the book
   Go to line 3
7. else
   Give up

Basics 〉 Dictionary Lookup

1. Pick up the Dictionary
2. Open to the middle of the dictionary
3. Look at words
4. If “Debate” is among the words
   See the meaning
5. else if “Debate” is earlier in the book
   Open to the middle of the left half of book
   Go to line 3
6. else if “Debate” is later in the book
   Open to the middle of the right half of the book
   Go to line 3
7. else
   Give up

Basics 〉 Dictionary Lookup

1. Pick up the Dictionary
2. Open to the middle of the dictionary
3. Look at words
4. If “Debate” is among the words

   See the meaning
5. else if “Debate” is earlier in the book

   Open to the middle of the left half of book
   Go to line 3
6. else if “Debate” is later in the book

   Open to the middle of the right half of the book
   Go to line 3
7. else

   Give up

Basics 〉 Dictionary Lookup

1. Pick up the Dictionary
2. Open to the middle of the dictionary
3. Look at words
4. If “Debate” is among the words
   See the meaning
5. else if “Debate” is earlier in the book
   Open to the middle of the left half of book
   Go to line 3
6. else if “Debate” is later in the book
   Open to the middle of the right half of the book
   Go to line 3
7. else
   Give up

Repeat a set of instruction

How Many Times?

```
n=4
fact=1
fact=fact*n
n=n-1
fact=fact*n
n=n-1
fact=fact*n
n=n-1
fact=fact*n
print(fact)
```

```
n=int(input())
fact=1
fact=fact*n
n=n-1
fact=fact*n
n=n-1
fact=fact*n
n=n-1
fact=fact*n
print(fact)
```

?

```
while expression:
    statements
```

Basics 〉 While

```
n=1
while n<10:
  print(n)
  n=n+1
```

```
n=int(input())
fact=1
while n>0:
  fact=fact*n
  n=n-1
print(fact)
```

Basics 〉 While

```
n=int(input())
sum=0
m=1
while m<=n:
  sum=sum+m
  m=m+1
print(sum)
```

That's It 〉 Questions?

Thank You

For Your Kind Attention