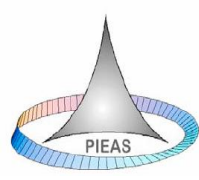


Allah says

عَلَّمَهُ الْبَيَانَ ٥

He has taught him speech (and intelligence).

Al-Qur'an, 055.004 (Ar-Rahman)



Lecture-3

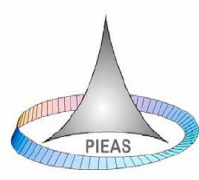
Python data

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fayyazafsar@gmail.com

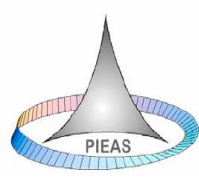
**Department of Computer and Information Sciences
Pakistan Institute of Engineering and Applied Sciences
(PIEAS)
P.O. Nilore, Islamabad.**

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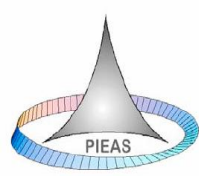
Previous Quiz Scores and Today's Quiz

- <http://goo.gl/forms/Ccw7w13PbZ>



New Python(x,y) feature

- **Ipython Notebooks!!!**



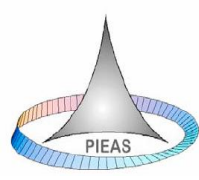
Control flow statements

- The range function
- Returns a 'list'
 - More on lists later
- The 'for' loop iterates over a 'list': any list
 - And some other stuff

```
print range(10)
```

```
for a in range(10):  
    print a
```

```
for a in ['Mary', 'had', 10, 'little', 'lambs']:  
    print a
```



Python Data Model

`None`

`numbers.Numbers`

`numbers.Complex`

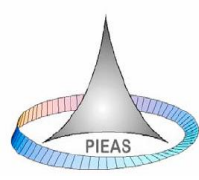
`numbers.Real`

`numbers.Integral`

`int`

`long`

`boolean`



Focus of this class

Sequences

Immutable

Strings: `a='hello'`

Unicode

Tuples: `a=(1,2)`

Mutable

Lists: `a=[1,2]`

Byte Array

```
str(arg)
list(arg)
tuple(arg)
len(arg)
Seq[i]
Seq[i:j]
Seq[i:]
Seq[:j]
Seq[i:j:step]
Seq[-i]
```

Set types

Set: `a={1,2}`

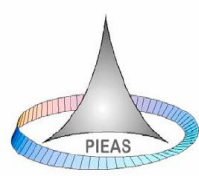
Frozen Set

```
set(arg)
```

Mapping

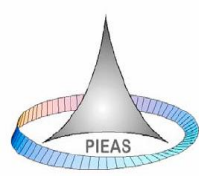
Dictionary: `a={1: 2, 2: 4}`

```
dict(arg)
```



Demonstration of string operations

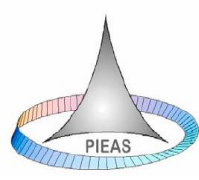
- Indexing
- Immutability
- Sequencing Operations
- <https://docs.python.org/2/library/string.html>
- <http://www.pythonforbeginners.com/basics/string-manipulation-in-python>



Assignment

- Caesar's Cipher
- Reading Files

```
with open(fname, 'r') as ofile:  
    text=ofile.read()
```



End of Lecture-3