# An Introduction to Python

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# Keyboard Input

- The input() function reads a line from sys.stdin and returns it with the trailing newline stripped.

```
name = input("Enter your input: ")
print("Received input is : ", name)
```

# File IO

- The open Function
- The file Object
- The close() Method
- The write() Method
- The read() Method
- See here for more details and functions.

# The open Function

- Before you can read or write a file,
  you have to open it using Python's built-in open() function.
- This function creates a file object, which would be utilized
  to call other support methods associated with it.

```
file object = open(file_name [, access_mode][, buffering])
```

```
fo = open("foo.txt", "w")
```

# The write() Method

- The write() method writes any string to an open file.

```
fileObject.write(string)
```

```
# Open a file
fo = open("foo.txt", "wb")
fo.write( "Python is a great language.\nYeah its great!!\n")

# Close opend file
fo.close()
```

# The read() Method

- The read() method reads a string from an open file.

```
fileObject.read([count])
```

```
# Open a file
fo = open("foo.txt", "r+")
str = fo.read(10);
print "Read String is : ", str
# Close opend file
fo.close()
```

# The readline() Method

- Read one entire line from the file.
- A trailing newline character is kept in the string.
- If the size argument is present and non-negative,
  it is a maximum byte count (including the trailing newline)
  and an incomplete line may be returned.

```
fileObject.readline([size])
```

# The readlines() Method

- Read until EOF using readline() and return a list containing the lines thus read.

```
fileObject.readlines([sizehint])
```

# Iterators & Generators

- There are many types of objects which can be used with a for loop. These are called iterable objects.
- The built-in function iter takes an iterable object and returns an iterator.

```
>>> x = iter([1, 2, 3])
>>> x
<listiterator object at 0x1004ca850>
>>> next(x)
1
>>> next(x)
2
>>> next(x)
3
```

# Iterators & Generators

- Iterators are implemented as classes.

```
class yrange:
    def __init__(self, n):
        self.i = 0
        self.n = n

    def __iter__(self):
        return self

    def __next__(self):
        if self.i < self.n:
            i = self.i
            self.i += 1
            return i
        else:
            raise StopIteration()
```

# Iterators & Generators

- In the above case, both the iterable and iterator are the same object. Noti

```
class zrange:
    def __init__(self, n):
        self.n = n

    def __iter__(self):
        return zrange_iter(self.n)
```

# Iterators & Generators

```
class zrange_iter:
    def __init__(self, n):
        self.i = 0
        self.n = n

      def __iter__(self):
        # Iterators are iterables too.
        # Adding this functions to make them so.
        return self

    def __next__(self):
        if self.i < self.n:
            i = self.i
            self.i += 1
            return i
        else:
            raise StopIteration()
```

If both iteratable and iterator are the same object, it is consumed in a single iteration.

# Modules

- A module allows you to logically organize your Python code.
- Grouping related code into a module makes the code easier to understand

# Modules

```
def print_func( par ):
    print "Hello : ", par
    return
```

```
# Import module support
import support

# Now you can call defined function that module as follows
support.print_func("Zara")
```

# Modules

- Python's from statement lets you import specific attributes from a module into the current namespace.
- Locating Modules
  - The current directory.
  - Python then searches each directory in the shell variable PYTHONPATH.
  - If all else fails, Python checks the default path.
    On UNIX, this default path is normally /usr/local/lib/python/.

# Questions?