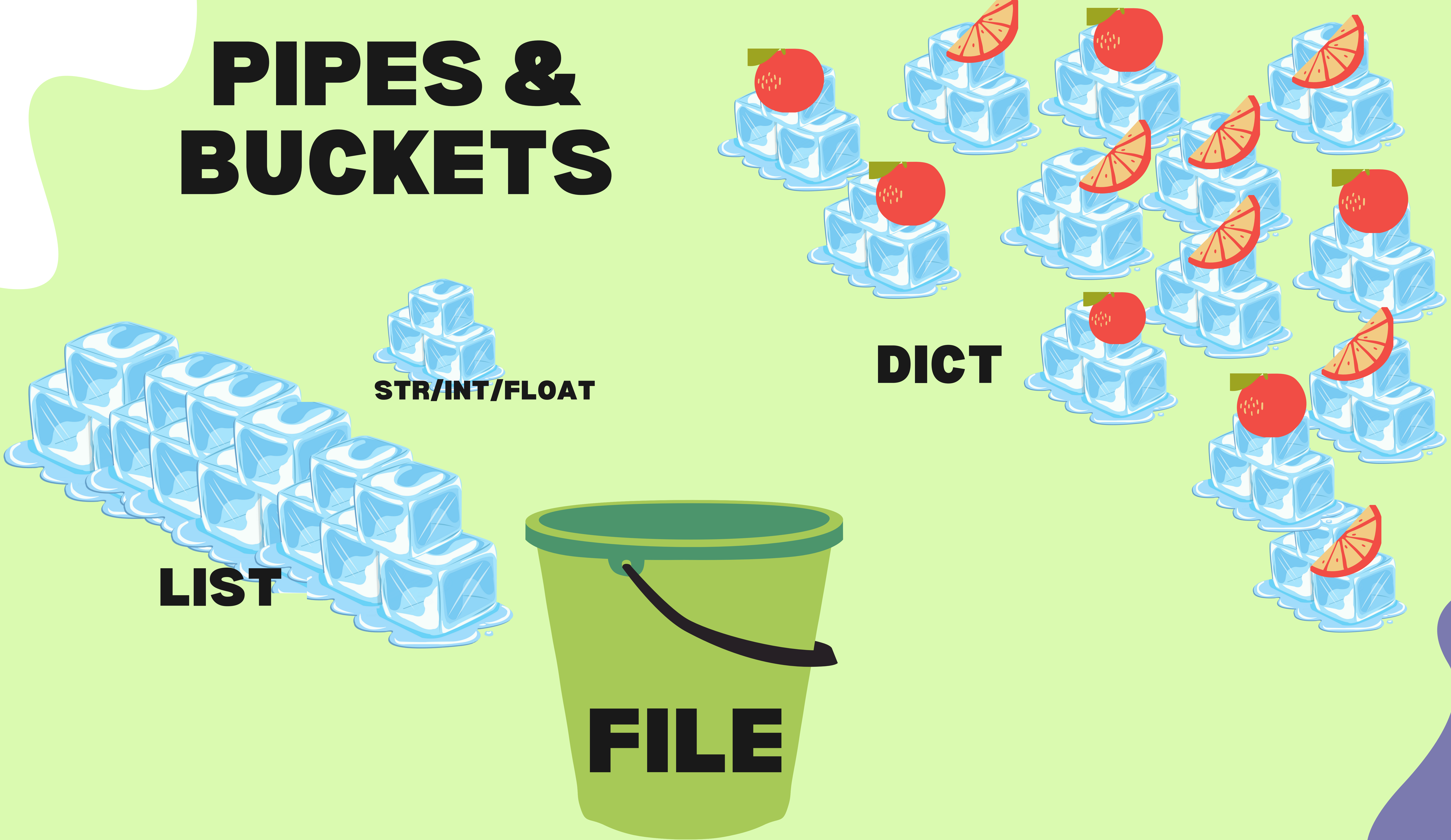
BASICS OF FILES INPUT/OUTPUT

Insight Builder

PIPES & BUCKETS



PROBLEM SOLVED BY FILES I/O

2 WHAT IS THE PROBLEM?

Data has to move into and out of Python script in huge volume, velocity and variety

1 UNDERSTAND FILES

- Files are store data in a "Encoded" format
- Has properties like location, size, num of lines, data so considered as an Object

3 HOW IT SOLVES THEM

- Concept of Templates in Python allows to modify how a file is read based on Volume, Velocity and Variety

EXAMPLE

FILE OBJECTS

- regular_file = open('file.txt')
- pandas_csv = pd.read_csv('data.csv')

VALUE

- 'I am a file.'
- <Table of rows & cols>

TEMPLATE

- **String**
- **DataFrame**

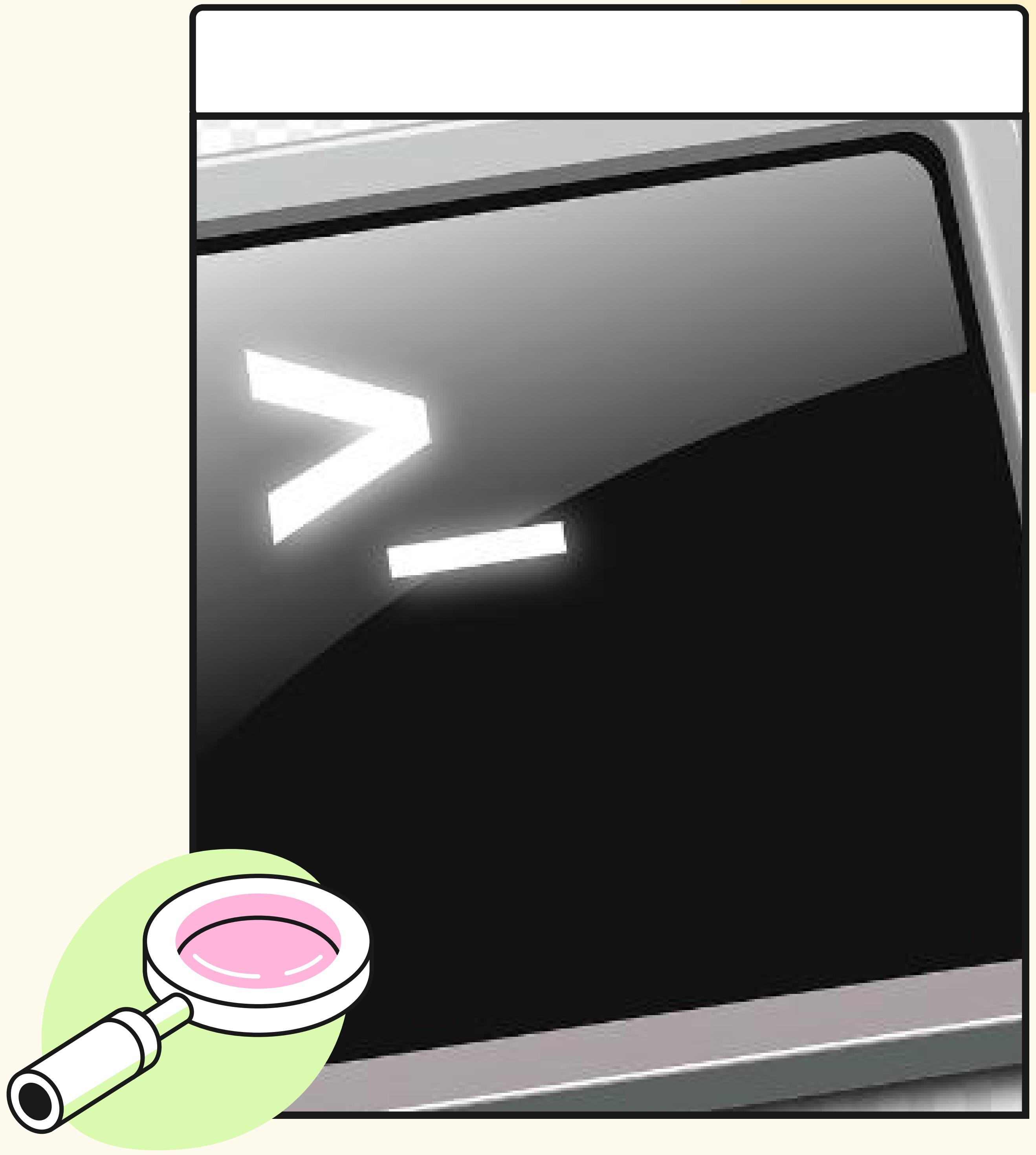
WHAT IT CAN DO?

- Read and print lines
- Do analysis and make charts

PSEUDO CODE

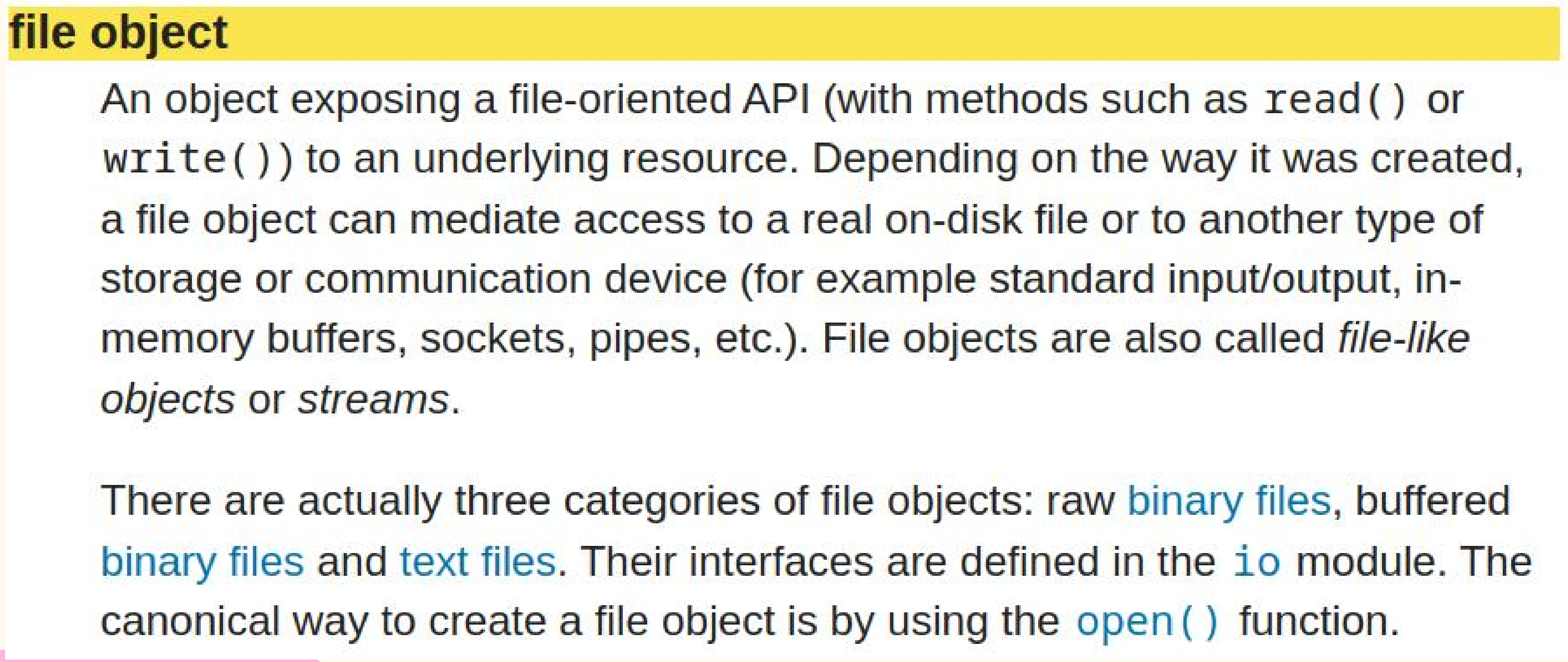
Objective : Write a script that reads a file in a specific location and prints 1st & last line

```
1. Find command for reading the file
2. Find the command to print the lines
3. Test comman on the CLI
4. Create a script, which can read your "printing_variable" script
```



1: FINDING COMMAND

Objective : Read a file into Python variable.

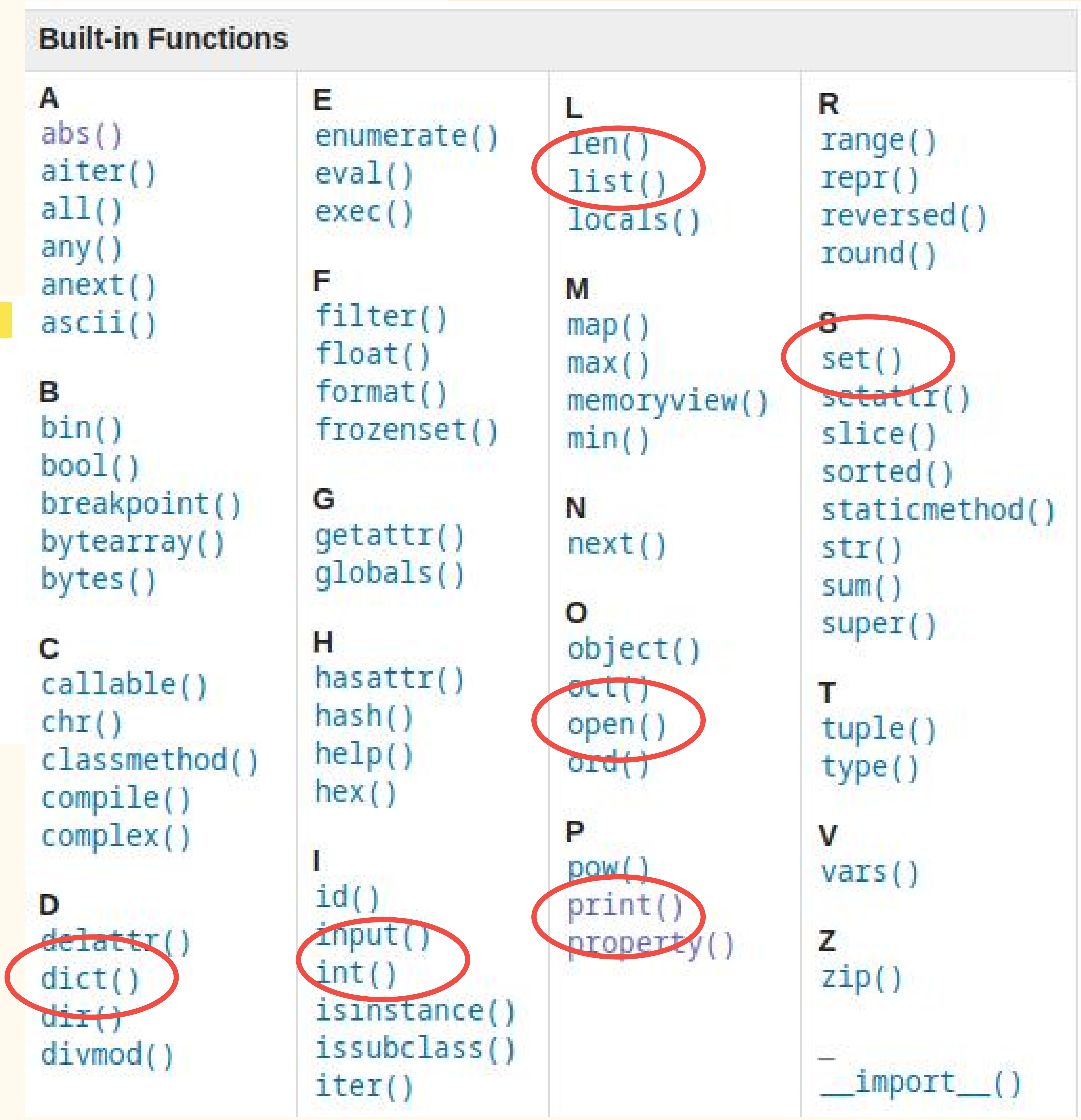


file object

An object exposing a file-oriented API (with methods such as `read()` or `write()`) to an underlying resource. Depending on the way it was created, a file object can mediate access to a real on-disk file or to another type of storage or communication device (for example standard input/output, in-memory buffers, sockets, pipes, etc.). File objects are also called *file-like objects* or *streams*.

There are actually three categories of file objects: raw binary files, buffered binary files and text files. Their interfaces are defined in the `io` module. The canonical way to create a file object is by using the `open()` function.

- https://docs.python.org/3/tutorial/inputoutput.html
- There are 3 different file objects,
    - raw binary
    - binary
    - text



Built-in Functions

A
abs()
aiter()
all()
any()
anext()
ascii()

B
bin()
bool()
breakpoint()
bytearray()
bytes()

C
callable()
chr()
classmethod()
compile()
complex()

D
delattr()
dict()
dir()
divmod()

E
enumerate()
eval()
exec()

F
filter()
float()
format()
frozenset()

G
getattr()
globals()

H
hasattr()
hash()
help()
hex()

I
id()
input()
int()
isinstance()
issubclass()
iter()

L
len()
list()
locals()

M
map()
max()
memoryview()
min()

N
next()

O
object()
oct()
open()
ord()

P
pow()
print()
property()

R
range()
repr()
reversed()
round()

S
set()
setattr()
slice()
sorted()
staticmethod()
str()
sum()
super()

T
tuple()
type()

V
vars()

Z
zip()

_
__import__()

COMMAND USAGE

2 ways to use Open() function

Bad !!!

fileObj1 = open('file1.txt',mode='r')

Good ???

with open('dat2.py', '+w) as fileObj2:

COMMAND USAGE

How to print the content?
Find how to read, first

Surprised !!!
print(fileObj1)

Objects can be printed too.

Good ???

data = fileObj2.read()
print(data)

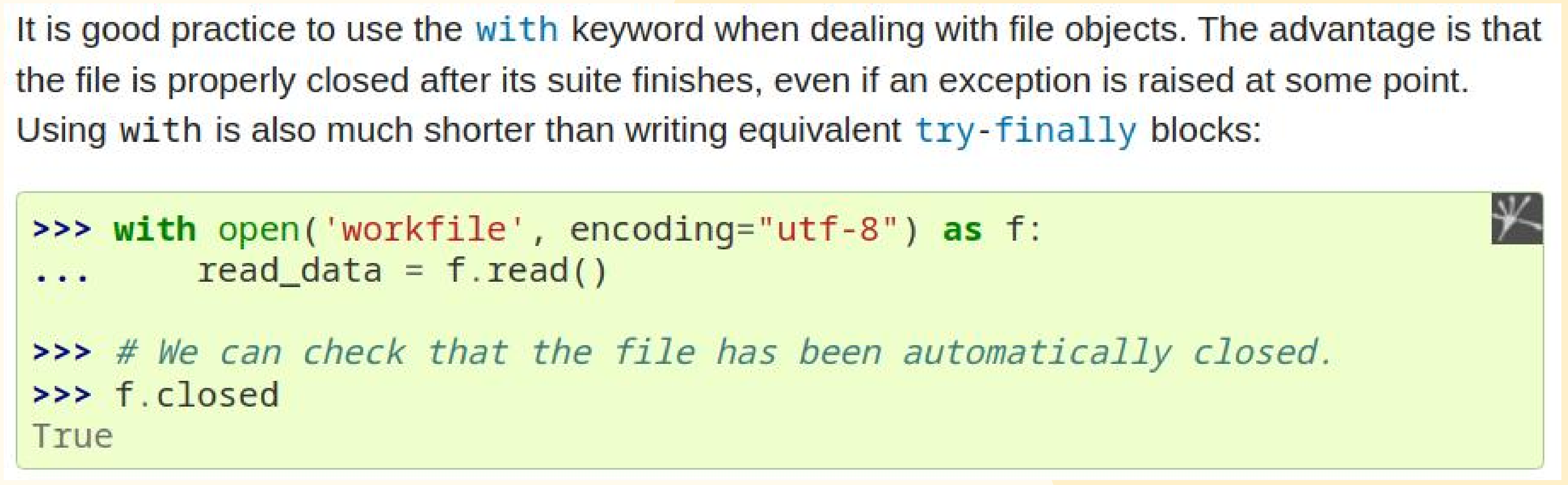
METHODS COMMAND

Objective : Use the methods to access the file object

- fileObj.read()
- fileObj.readline()
- fileObj.readlines()
- fileObj.write()

How to read all the lines?

```
for line in f:
    print(line, end = '\n')
```



It is good practice to use the `with` keyword when dealing with file objects. The advantage is that the file is properly closed after its suite finishes, even if an exception is raised at some point. Using `with` is also much shorter than writing equivalent `try`-`finally` blocks:

```
>>> with open('workfile', encoding="utf-8") as f:
...     read_data = f.read()

>>> # We can check that the file has been automatically closed.
>>> f.closed
True
```

Lets go to the Terminal

file_rw.py

```
#!/usr/bin/env python
#As shown in the video use the
#commands and create your script and
#execute
```

COMMAND LINE

```
python file_rw.py
```

WE HAVE FILES,
LETS LEARN TO CONTROL FLOW!!!!

Any Questions...