Review of Files

One: Open the file

Step 1: Open the file

- Uses the open() function.
- Always done the same way no matter how the file is organized.

```
file = open("name-of-file.txt", "r")
```

open() returns a "file object," which is a data type like int, float, or string.

Replace this string with the real name of your file (don't forget the quotes!)

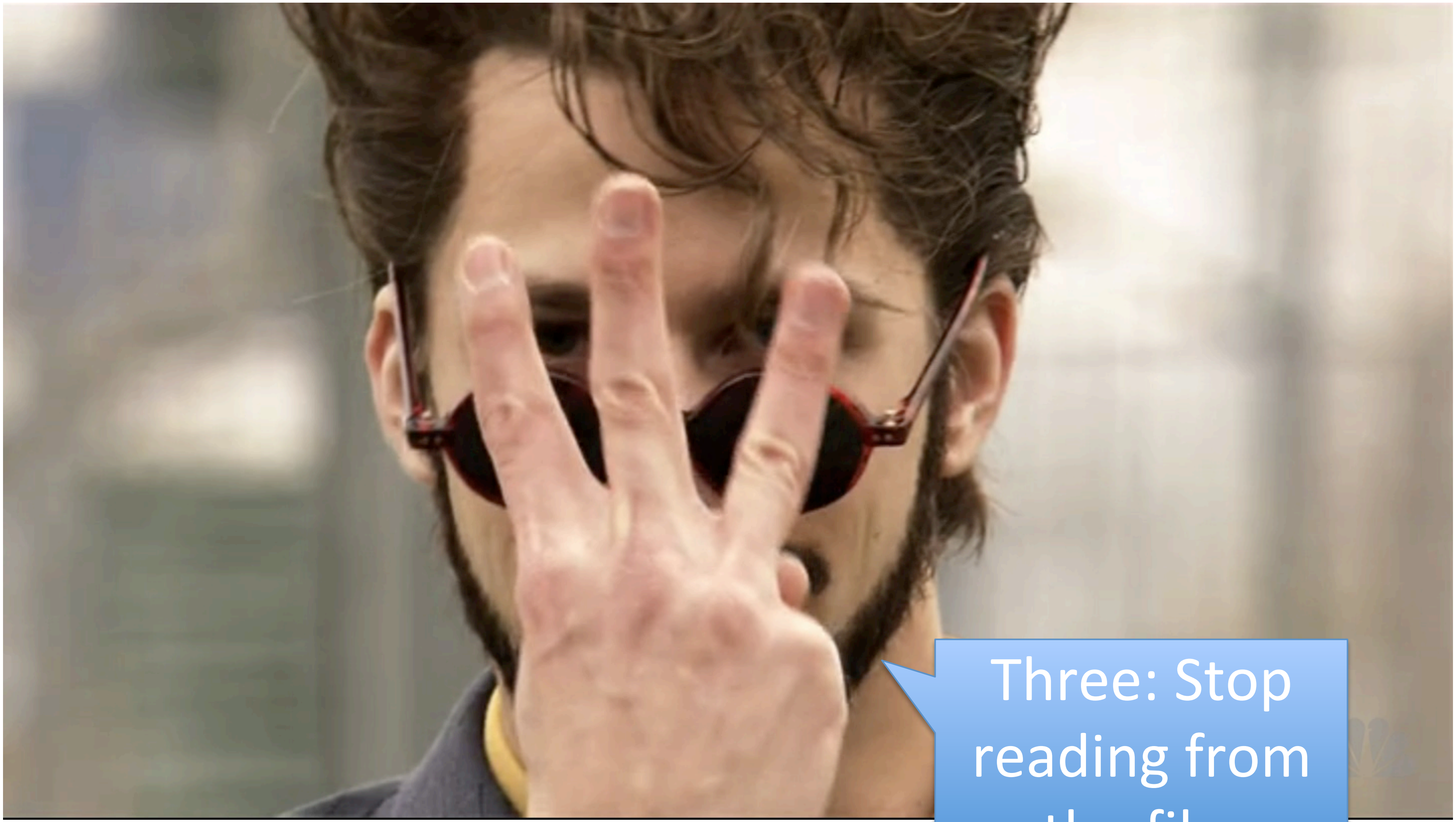
The "r" means open the file for reading.

Two: read from the file.

Step 2: Read from the file

- Usually done with a loop.

```
while True:
  # read a line from the file
  # if we want to stop reading, then stop
  # process the line
```



Three: Stop reading from the file.

Step 3: Stop reading from the file

- How you stop reading depends on how the file is organized.
- Pseudocode:

```
while True:
  # read a line from the file
  # if we want to stop reading,
  #   then stop
  # process the line
```

Step 3: Stop reading from the file

- How you stop reading depends on how the file is organized.
- Stop reading when you find a sentinel value:

```
while True:
  line = file.readline()
  if line == "STOP\n":
    break
  # process the line
```

Step 3: Stop reading from the file

- How you stop reading depends on how the file is organized.
- Stop reading when the file ends:

```
while True:
  line = file.readline()
  if line == "":
    break
  # process the line
```

Reminders

- When first writing code to read from a file, always print the lines from the file as you read them.
  - Incredibly helpful for debugging.

```
while True:
  line = file.readline()
  if line == "":
    break
  # print the line for debugging
  # process the line
```

- Each line comes out of the file with its newline still attached.
  - A "newline" is how files represent the end of a line of text.
  - This extra character can be removed with rstrip().

```
while True:
  line = file.readline()
  if line == "STOP\n":
    break
  line = line.rstrip()
  # process the line
```

The sentinel is "STOP\n" not "STOP" because the line variable still has the newline attached to it.

Examples

```
while True:
  line = file.readline()
  if line == "STOP\n":
    break
  line = line.rstrip()
  print("Name: ", line)
```

```
file contains:
----------------
John Belushi
Dan Aykroyd
Jane Curtin
STOP
```

```
output:
----------------
Name: John Belushi
Name: Dan Aykroyd
Name: Jane Curtin
```

```
total = 0
while True:
  line = file.readline()
  if line == "":
    break
  number = int(line)
  total = total + number
print("Sum is ", total)
```

```
file contains:
----------------
10
20
30
```

```
output:
----------------
Sum is 60
```

1. Write a program to open songs1.txt and print all the songs in it.
   - This file ends with the sentinel END.
2. Write a program to open songs2.txt and print all the songs and artists in it.
   - This file does not have a sentinel.
3. Write a program to open songs3.txt and print all the songs that have been on the Hot 100 list at least 8 weeks.

   - Hint: read three lines each time through the loop
4. Write a program to open songs4.txt and print for each song whether it moved up the chart, down, or stayed at the same position.