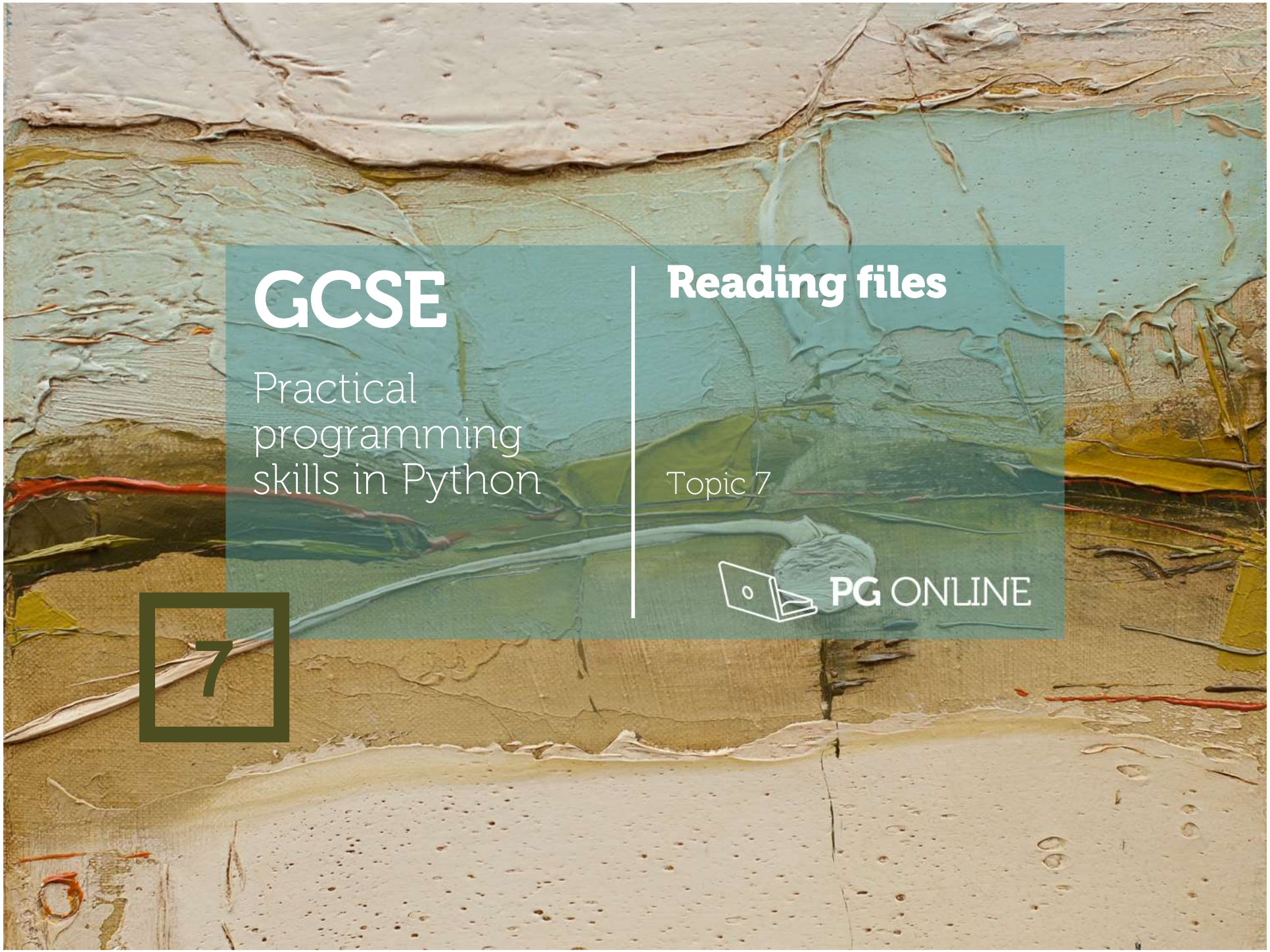
GCSE
Practical programming skills in Python
Reading files
Topic 7
7
PG ONLINE

Objectives

- Understand how to read data from a file
- Be able to read data from a file one line at a time
- Know how to interrogate data

Fill in the blanks:

First Name	*Last Name*	Profession
Miley	Cyrus	
Brad	Pitt	Actor
	Murray	Tennis player
Snoop	Dogg	Musician
Emma	Watson	
David		Footballer
	Sugar	Businessman

Fill in the blanks: *(Answers)*

First Name	*Last Name*	Profession
Miley	Cyrus	***Musician***
Brad	Pitt	Actor
Andy	Murray	Tennis player
Snoop	Dogg	Musician
Emma	Watson	***Actress***
David	***Beckham***	Footballer
Alan	Sugar	Businessman

Reading files

- There are three main ways to get data into a computer program:
  - Ask the user to type in the data
  - Connect a sensor to collect the data
  - Read data from a file

Reading a whole file

- Code, save and run the following program, making sure that people.txt is in the same folder:

```
file = open("people.txt", "r")

contents = file.read()

print(contents)

file.close()
```

Opening a file

- To be opened, the file must be in the same folder as the Python program
- The "`r`" stands for **read** mode. In this mode it isn't possible to accidentally change or delete the data in the file

```
file = open("people.txt", "r")
```

- Note that `file` is just a variable name that we chose here – it could equally well be called `myFile`, `people` or something else

Reading a file

- This will read the entire contents of the file and store them in a variable called ‘contents’

```
contents = file.read()
```

- It’s really important to close the file as soon as possible

```
file.close()
```

Reading a whole file

- Adapt the previous program so that you can read the contents of the file called “albums.txt”

Reading one line at a time

- Type the following lines in your Python editor:

```
file = open("people.txt", "r")
line = file.readline()
print(line)
line = file.readline()
print(line)
file.close()
```

file.readline()

- This code will read just one line from the file and store it in the variable "`line`"
- The program will remember where it was up to, so if you use `file.readline()` again it will read the next line instead

```
line = file.readline()
```

Worksheet 7a

- Complete the questions on **Worksheet 7a**

Splitting data

- Try this code:

```
file = open("people.txt", "r")
line = file.readline()
file.close()
data = line.split(",")
print(data[0])
```

- `data[0]` is the first item in the record
- How do you refer to the second item?

Splitting data

- Once you've read a line from a file you can split it up and store the individual values in a list
- You can choose any separator you like, although a comma is a very common symbol to use

```
data = line.split(",")
```

Splitting data

- Adapt the previous program so that it prints out the surname instead of the first name
- Extension: Use a FOR loop to print out **all** of the surnames

Interrogating data in a file

- Try this code:

```
file = open("people.txt", "r")
for loop in range(9):
    line = file.readline()
    data = line.split(",")
    if data[2] == "Musician":
        print(data[0],data[1])
file.close()
```

Interrogating data

- This code SHOULD print out the first name and last name for any star who is famous for being a musician

```
if data[2] == "Musician":
        print(data[0],data[1])
```

- It doesn't print anything!
- This is because the last field in each record contains a newline character \n so you need to write

```
if data[2] == "Musician\n":
```

The last field…

- Alternatively, add a comma to the end of each record, so that the `\n` newline character is in a field of its own, the fourth field in each record

```
if data[2] == "Musician":
        print(data[0],data[1])
```

- `people2.txt` is a file like this, with records:

```
Miley,Cyrus,Musician,
Brad,Pitt,Actor,
Andy,Murray,Tennis Player,
etc.
```

Worksheet 7b

- Complete Task 1 on **Worksheet 7b**
- To go a bit further, try out the programs in **Task 2**

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