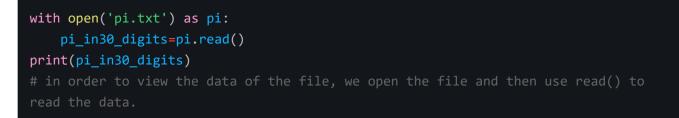
# **10\_files and exceptions**

- reading from a file
  - reading a n entire file
  - line by line
  - file path
    - relative
    - absolute
  - store each line as a list
  - work with files' content
- writing to a file
  - to an empty file
  - append to a file
- Exception
  - ZeroDivisionError
  - FileNotFoundError
  - fails silently
- storing data
  - store
  - load
  - combine it with input
  - name remembering machine

## reading from a file

## reading a n entire file

in the first step, i created a file named "pie.txt" containing the first 30 digits of pie.



## line by line

file\_path = "C:/Users/Marco/Downloads/transcript.txt"

```
with open(file_path) as file_object:
    for line in file_object:
        print(line)
```

file\_path="C:/Users/Marco/Downloads/transcript.txt"
file=open(file\_path)
 for line in file
 print(line)

#### file path

#### relative

if you don't provide the full file path of your targeted file, python will only look at its own directory. to solve this issue, one may can provide your program with a file path that is relative to the current directory. For example, if the txt file we are looking for is stored in a folder, text\_files, which is stored in the directory python\_work:

with open('text\_files/pi.txt') as fileobject

By specifying the relative file path, python is now able to go into the text\_files folder and find our targeted file.

#### absolute

With an absolute file path, we can locate any file in any position.

#### store each line as a list

#### work with files' content

```
file_path="C:/python_work/pi.txt"
with open(file_path) as pi:
    lines=pi.readlines()
real_pi=''
for line in lines:
    real_pi+=line.strip()
print(real_pi)
print(len(real_pi))
```

## writing to a file

#### to an empty file

```
newfile="i_feel_marvelous_today"
with open(newfile,'w') as marvelous_edit:
    marvelous_edit.write('what a marvelous day')
with open(newfile) as marvelous_edit:
    lines=marvelous_edit.read()
print(lines)
# if the file you are written does exist, it will erase all the content it H
rewrite as you instructed, if the file does not exist, a new file will be content it H
```

rewrite as you instructed, if the file does not exist, a new file will be created automatically.

#'w' means writing mode.'r':reading mode,'a':append mode,'r+':read and write mode.

#### append to a file

```
# there are circumstances when we want to add lines to an existing files instead of
rewriting it.
newfile="i_feel_marvelous_today"
with open(newfile,'a') as marvelous_add_new:
    marvelous_add_new.write('\ntomorrow is gonna be marvelous too!')
with open(newfile) as marvelous_add_new:
    lines=marvelous_add_new.read()
print(lines)
# what a marvelous day
# tomorrow is gonna be marvelous too!
```

## Exception

python may stop running when it encounters something unexpected. However, it can be directed to a series of other instruction if we create an exception block.

## ZeroDivisionError

python will report an error when we try to divide something by zero. when this happens, we can use try-except block to handle.

```
print('type your 2 numbers and i will divide them')
while True:
    first_number=input("type your first number")
    if first_number=q:
        break
    second_number=input("type your second number here")
    if second_number=q
        break
    try:
        answer=int(first_number)/int(second_number)
    except ZeroDivisionError:
        print("bro, you can't divide zero")
    else:
        print(answer)
```

#### **FileNotFoundError**

```
file_name=input('type your file name here')
try:
    with open(file_name) as f:
        content=f.read()
except FileNotFoundError:
    print(f'sorry,the file {file_name} does not exist')
```

#### fails silently

```
#to pretend nothing happened
file_name=input('type your file name here')
try:
    with open(file_name) as f:
        content=f.read()
except FileNotFoundError:
    pass
```

## storing data

json module allows us to store the data user input and load it when it is required.

#### store

#### load

import json
with open(user\_file) as u:
 numbers=json.load(u)
 print(numbers)

#### combine it with input

```
import json
username=input('type your username below')
file_name='name_collection'
with open(file_name,'w')as f:
            json.dump(username,f)
print(f'your username {username} has been saved!')
```

#### name remembering machine

```
import json
file_name='users_firstname.json'
try:
    with open(file_name) as f:
        username=json.load(f)
except FileNotFoundError:
    username=input('hi waht is your name?')
    with open(file_name,'w') as f:
        json.dump(username,f)
        print(f'ok {username},your name is remembered')
else:
    print(f'hi {username}')
```