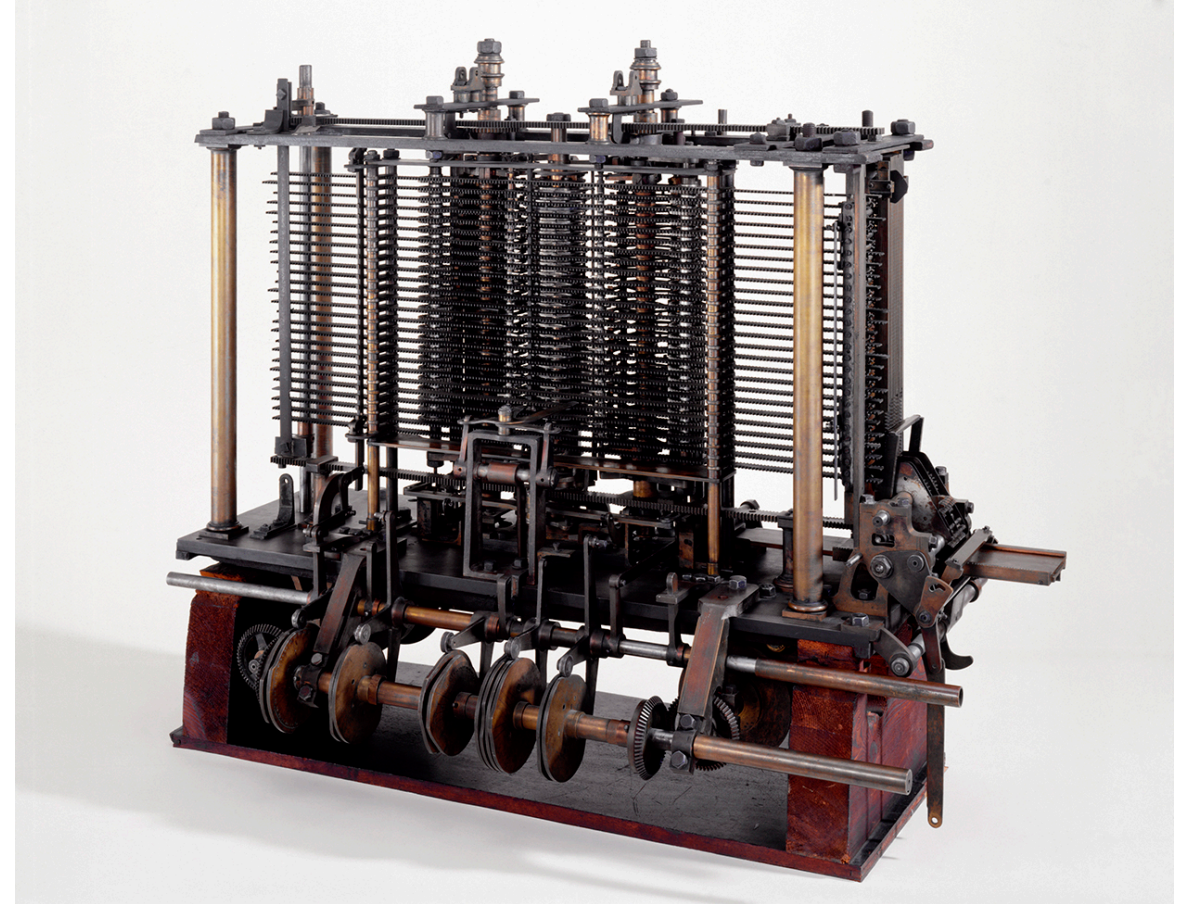# Ada Lovelace



The Analytical Engine incorporated an arithmetic logic unit, control flow in the form of conditional branching and loops.

Ada wrote the first algorithm in this machine to compute Bernoulli Numbers, making her the first programmer.

# Getting Input from the User

**input()**
- Build-in function in Python.
- One argument: string that will be printed when the input function is run
- Aways returns a string
- Use type conversion functions for other types of input

```python
def greeting():
    name = input("What is your name? ")
    print("Nice to meet you, ", name)
>>> greeting()
What is your name? Mary
Nice to meet you, Mary
```

```python
def plus42():
    numAsString = input("Enter a number: ")
    num = float(numAsString)
    print("The answer is ", num + 42.0)
>>> plus42()
Enter a number: 15
The answer is 57.0
```

# File I/O

```python
def read_file():
    filename = input("Enter the name of a file: ")
    myfile = open(filename, "r")   # "r" means "read"
    contents = myfile.read()
    myfile.close()
    return contents

def write_file(string):
    filename = input("Enter the name of a file: ")
    myfile = open(filename, "w")   # "w" means "write"
    myfile.write(string)
    myfile.close()

write_file("Hello, world!")
data = read_file()
print(data)
```

What about line breaks in the file?

# Python String Methods

**strip()**: Remove spaces at the beginning and at the end of the string

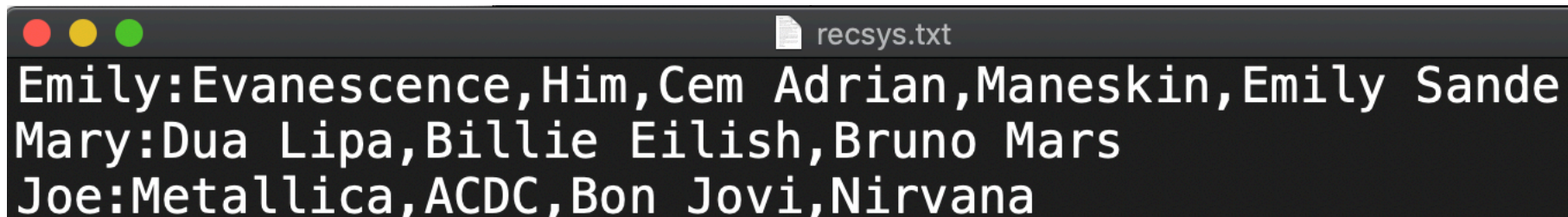**split()**: Splits the string at the specified separator, and returns a list

**join()**: Converts the elements of an iterable into a string

**capitalize()**: Converts the first character to upper case

**More on:** https://www.w3schools.com/python/python_ref_string.asp

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Exercise: Create this dictionary from the following file:
```
preferences = {
"Emily": ["Evanescence", "Him", "Cem Adrian", "Maneskin",
"Emily Sande"],
"Mary": ["Dua Lipa", "Billie Eilish", "Bruno Mars"],
"Joe": ["Metallica", "ACDC", "Bon Jovi", "Nirvana"]
}
```

```
recsys.txt
Emily:Evanescence,Him,Cem Adrian,Maneskin,Emily Sande
Mary:Dua Lipa,Billie Eilish,Bruno Mars
Joe:Metallica,ACDC,Bon Jovi,Nirvana
```