

# IMD0033 - Probabilidade

## Aula 05 - Introdução a Python II

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# Agenda

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- Modules



top100.csv



# Atualizar o repositório

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```
git clone https://github.com/ivanovitchm/imd0033_2018_2.git
```

Ou ....

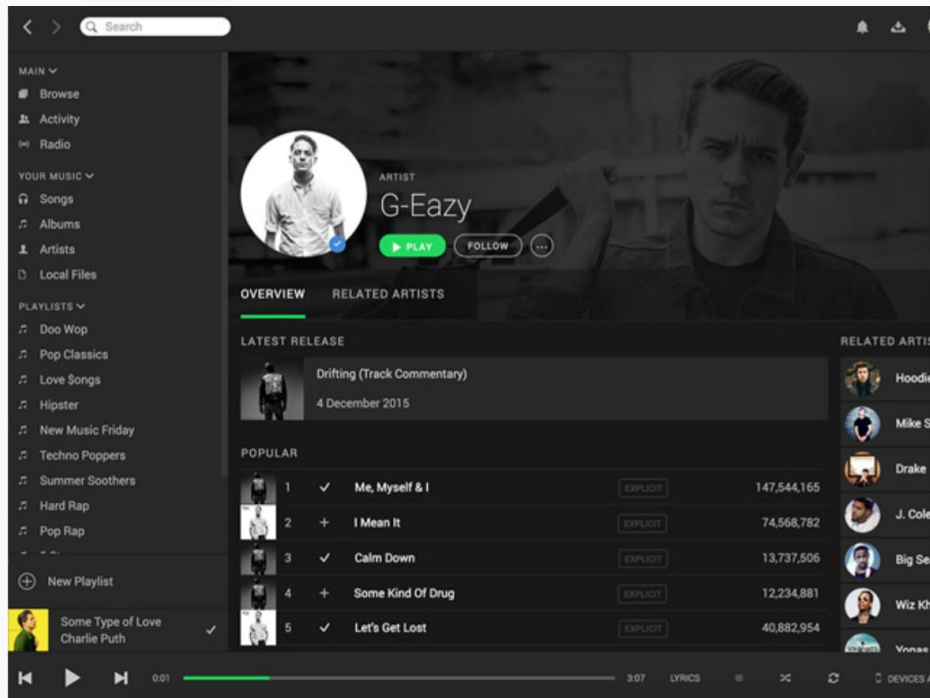
```
git pull
```

# Spotify

As of January 2018, Spotify has over 70 million paying users

What are the average total streams for each song in the top 100?

Which song was the most popular song of 2017?



# Spotify's Worldwide Daily Song Ranking

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kaggle

	Track Name	Artist	Position	Streams
77	Sign of the Times	Harry Styles	756325	503894417
92	Photograph	Ed Sheeran	1525708	441132246
70	Look What You Made Me Do	Taylor Swift	335837	562562226
36	Scared to Be Lonely	Martin Garrix	1074560	866104216
13	Attention	Charlie Puth	560536	1112777364

# Introduction to Modules

## Math

**math.py**

```
def total(input):  
    total = 0  
    for num in input:  
        total += num  
    return total  
  
def exp(input):  
    return 2.718281**input
```

## Script

**script.py**

```
import math  
  
l = [1,2,3]  
print(math.total(l))  
print(math.exp(3))
```

## Output

```
6  
20.085536923187668
```

# Introduction to Modules

## Non-Modularized

test.py

```
l = [1,2,3,4,5,6,7,8,9,10]
total = 0
for num in l:
    total += num

length = 0
for num in l:
    length += 1

print(total)
print(length)
```

## Modularized

test.py

```
l = [1,2,3,4,5,6,7,8,9,10]

def sum(input):
    total = 0
    for num in input:
        total += num
    return total

def length(input):
    count = 0
    for num in input:
        count += 1
    return count

print(sum(l))
print(length(l))
```

## Importing functions

script.py

```
import test
t = [3,4,5,6]

test.sum(t)
test.length(t)
```



# Introduction to Modules

## Sections

### 2.1 - 2.6

```
import csv
f = open("top100.csv", "r")
music = list(csv.reader(f))

stream_numbers = []
track_names = []

for song in music[1:]:
    stream_numbers.append(int(song[3]))
    track_names.append(song[0])
```

music

```
[['Track Name', 'Artist', 'Position', 'Streams'],
 ['Shape of You', 'Ed Sheeran', '301513', '2993988783'],
 ['Despacito - Remix', 'Luis Fonsi', '477232', '1829621841'],
 ['Despacito (Featuring Daddy Yankee)', 'Luis Fonsi', '816152', '1460802540'],
 ['Something Just Like This', 'The Chainsmokers', '725122', '1386258295'],
 ['HUMBLE.', 'Kendrick Lamar', '854060', '1311243745'],
 ['Unforgettable', 'French Montana', '667424', '1289150890'],
 ['rockstar', 'Post Malone', '127973', '1260181617'],
```



# Local and Global Variables

script.py

```
l = [1,2,3,4,5,6,7,8,9,10]
```

```
def sum(input):
```

```
    total = 0
```

```
    for num in input:
```

```
        total += num
```

```
    return total
```

```
def length(input):
```

```
    count = 0
```

```
    for num in input:
```

```
        count += 1
```

```
    return count
```

```
print(sum(l))
```

```
print(length(l))
```



Accessible  
Area

script.py

```
l = [1,2,3,4,5,6,7,8,9,10]
```

```
def sum(input):
```

```
    total = 0
```

```
    for num in input:
```

```
        total += num
```

```
    return total
```

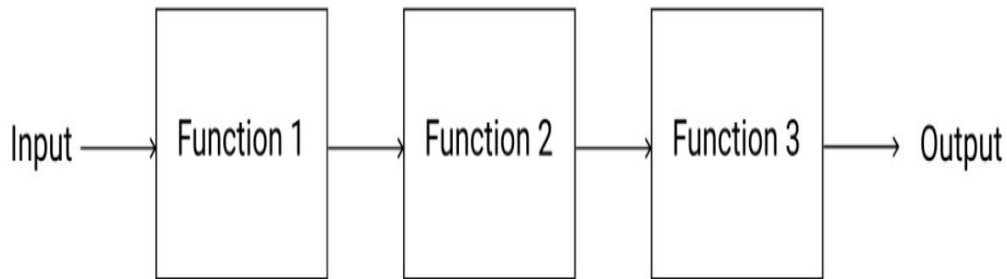
```
print(total)
```

Output

```
NameError: name 'total' is  
not defined
```

# Using programming paradigms (functional)

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```
import math
```

```
x = 7
```

```
def exp(x):  
    return math.exp(x)
```

```
def fraction(x):  
    return 1/x
```

```
x = exp(x)
```

```
x = fraction(x)
```



Sections  
2.7 - 2.10



```
index.js
import React, { useState } from 'react';
import './index.css';

function App() {
  const [contacts, setContacts] = useState([
    { name: 'John Doe', phone: '123-456-7890' },
    { name: 'Jane Smith', phone: '987-654-3210' }
  ]);

  const handleClick = () => {
    // TODO: Implement handleClick logic
  };

  return (
    <div>
      <h1>Contact List</h1>
      <ul>
        {contacts.map(contact => (
          <li>{contact.name}</li>
        ))}
      </ul>
      <button onClick={handleClick}>Add Contact</button>
    </div>
  );
}

export default App;
```

```
index.html
<!DOCTYPE html>
<html>
  <head>
    <script src="index.js"></script>
  </head>
  <body>
    <div></div>
  </body>
</html>
```