

## Project #2

# Assignment #4 – Data Processing with Spark SQL

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## Advanced Infrastructures for Data Science



Pedro Neves, [pedroneves@dei.uc.pt](mailto:pedroneves@dei.uc.pt), 2024/2025

Master in Data Science and Engineering (MDSE) Course

# Task #1 – Minimum Temperature Per Capital

## Assignment #4

**Context:** Daily weather dataset

Today	THU	FRI	SAT	SUN	MON	TUE
						
Sunny	Sunny	More sun than clouds	Passing clouds	More sun than clouds	Scattered clouds	Scattered clouds
66° 43°	69° 39°	72° 44°	78° 47°	78° 53°	77° 52°	75° 55°

**Dataset**



	weather station	year month day	observation type	temperature*10
day 1	ITE00100554	18000101	TMAX	-75,,E,
	ITE00100554	18000101	TMIN	-148,,E,
	GM000010962	18000101	PRCP	0,,E,
day 2	EZE00100082	18000101	TMAX	-86,,E,
	EZE00100082	18000101	TMIN	-135,,E,
	ITE00100554	18000102	TMAX	-60,,I,E,
	ITE00100554	18000102	TMIN	-125,,E,
	GM000010962	18000102	PRCP	0,,E,
	EZE00100082	18000102	TMAX	-44,,E,
	EZE00100082	18000102	TMIN	-130,,E,
	ITE00100554	18000103	TMAX	-23,,E,
	ITE00100554	18000103	TMIN	-46,,I,E,
	GM000010962	18000103	PRCP	4,,E,
	EZE00100082	18000103	TMAX	-10,,E,
	EZE00100082	18000103	TMIN	-73,,E,

Paris

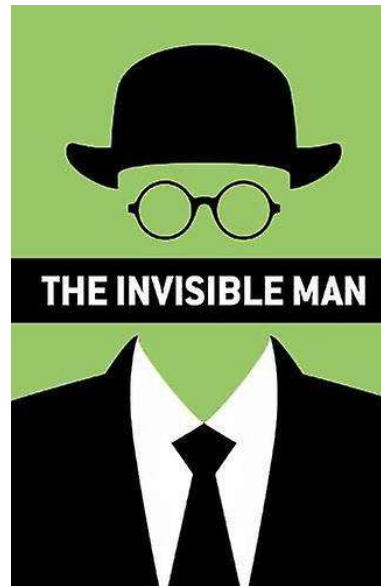
Prague

**Objective:** What is the minimum temperature for each capital?

# Task #2 – Obtain the Word Frequency in a Book

## Assignment #4

**Context:** Book dataset

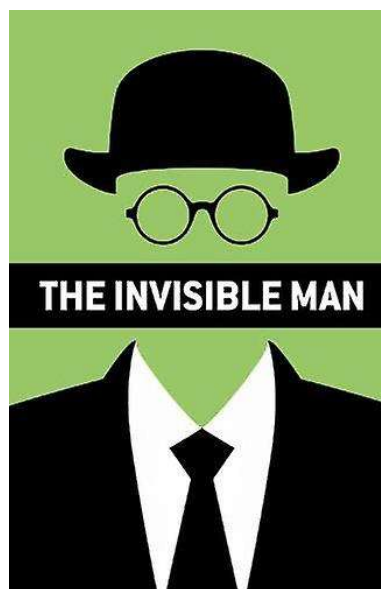


**Objective:** What is the word frequency in the book?

# Task #3 – Sort the Word Frequency in a Book

## Assignment #4

**Context:** Book dataset



**Objective:** What is the (sorted) word frequency in the book?

# Task #4 – Obtain the Total Amount Spent by Customer

## Assignment #4

**Context:** Shopping Store Dataset



**Dataset**



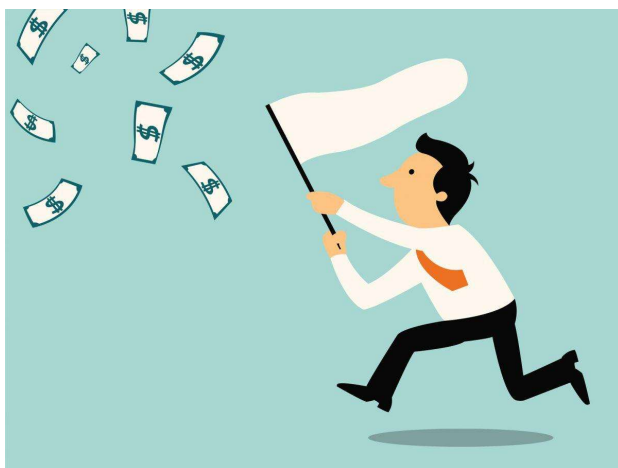
Customer_ID	Product_ID	Amount
344	983	45.1
99	574	7.08
344	24	102.2
43	241	37.08
99	230	61.89

**Objective:** What is the total amount spent by each customer?

# Task #5 – Sort the Total Amount Spent by Customer

## Assignment #4

**Context:** Shopping Store Dataset



**Dataset**



Customer_ID	Product_ID	Amount
344	983	45.1
99	574	7.08
344	24	102.2
43	241	37.08
99	230	61.89

**Objective:** What is the (sorted) total amount spent by each customer?

# Task #6 – Most Popular Superhero

## Assignment #4

**Context:** Superheroes dataset



**Dataset**



```
C: > Users > 10050509 > Downloads > $ Marvel+Names (1)
1 1 "24-HOUR MAN/EMMANUEL"
2 2 "3-D MAN/CHARLES CHAN"
3 3 "4-D MAN/MERCURIO"
4 4 "8-BALL/"
5 5 "A"
6 6 "A'YIN"
7 7 "ABBOTT, JACK"
8 8 "ABCISSA"
9 9 "ABEL"
10 10 "ABOMINATION/EMIL BLU"
```

```
C: > Users > 10050509 > Downloads > $ Marvel+Graph (1)
1 5988 748 1722 3752 4655 5743 1872 3413 5527 6368
2 5989 4080 4264 4446 3779 2430 2297 6169 3530 327
3 5982 217 595 1194 3308 2940 1815 794 1503 5197 8
4 5983 1165 3836 4361 1282 716 4289 4646 6300 5084
5 5980 2731 3712 1587 6084 2472 2546 6313 875 859
6 5981 3569 5353 4087 2653 2058 2218 5354 5306 313
7 5986 2658 3712 2650 1265 133 4024 6313 3120 6066
8 5987 2614 5716 1765 1818 2909 6436 1587 6451 566
```

**Objective:** Find the most popular superhero?

# Task #7 – Least Popular Superhero

## Assignment #4

**Context:** Superheroes dataset



**Dataset**



```
C: > Users > 10050509 > Downloads > $ Marvel+Names (1)
1 1 "24-HOUR MAN/EMMANUEL"
2 2 "3-D MAN/CHARLES CHAN"
3 3 "4-D MAN/MERCURIO"
4 4 "8-BALL/"
5 5 "A"
6 6 "A'YIN"
7 7 "ABBOTT, JACK"
8 8 "ABCISSA"
9 9 "ABEL"
10 10 "ABOMINATION/EMIL BLU"
```

```
C: > Users > 10050509 > Downloads > $ Marvel+Graph (1)
1 5988 748 1722 3752 4655 5743 1872 3413 5527 6368
2 5989 4080 4264 4446 3779 2430 2297 6169 3530 327
3 5982 217 595 1194 3308 2940 1815 794 1503 5197 8
4 5983 1165 3836 4361 1282 716 4289 4646 6300 5084
5 5980 2731 3712 1587 6084 2472 2546 6313 875 859
6 5981 3569 5353 4087 2653 2058 2218 5354 5306 313
7 5986 2658 3712 2650 1265 133 4024 6313 3120 6066
8 5987 2614 5716 1765 1818 2909 6436 1587 6451 566
```

**Objective:** Find the least popular superhero?





**Good  
Work**