MSBA7001 Exercises II

Module 1, 2023-24
HKU Business School

Contents

3. NumPy and pandas

Exercise – moving average

Use the csv file "hk_covid_stats.csv". Calculate the moving average of daily new cases at an interval of three days. Write the result to a csv file named "moving_ave.csv".

	A	B
1	new cases	3-day moving average
2	2	nan
3	0	nan
4	3	1.7
5	3	2
6	0	2

Exercise – game sales

Use the csv file "game_sales.csv". Process the data as follows:

1. Show all PS4 games whose names include years, e.g., Just Dance 2016.
2. Show total sales in Japan and EU for each game genre after the year 2015.

Genre	JP_Sales	EU_Sales
Action	5.80	6.36
Adventure	0.97	0.39

3. Show action games whose global sales exceed 10.
4. Create a sample based on #3. Keep Global_Sales in the sample.

	Name	Platform	Genre	Publisher	Global_Sales
0	Grand Theft Auto V	PS3	Action	Take-Two Interactive	21.40
1	Grand Theft Auto: San Andreas	PS2	Action	Take-Two Interactive	20.81
2	Grand Theft Auto V	X360	Action	Take-Two Interactive	16.38
3	Grand Theft Auto: Vice City	PS2	Action	Take-Two Interactive	16.15

5. Create a pivot table to show the sum of global sales by platform (row dimension) and by genre (column dimension).

Genre	Action	Adventure	Fighting	Misc
Platform				
2600	29.34	1.70	1.24	3.58
3DO	0.00	0.06	0.00	0.00
3DS	57.02	4.81	10.46	10.48

Exercise – university ranking

Extract university ranking from the following page:

https://www.litzusa.com/en-US/StudyusaRecords/detail/Times-Higher-Education-World-University-Ranking-THE

Create a DataFrame based on this ranking and process the data as follows:

1. Show universities with student-to-staff ratio < 10 and internalization rate > 0.3.
2. Show the number of universities in each region.
3. Show the average number of student-per-staff and average percentage of international students in each region.
4. Write the full ranking to a csv file named "univ_ranking.csv".

	A	B	C	D	E	F	G
1	rank	name	size_ft	sps	size_intl	region	
2	1	University of Oxford	20800	10.7	0.42	United Kingdom	
3	2	California Institute of Techno	2200	6.3	0.34	United States	
4	2	Harvard University	21500	9.5	0.24	United States	
5	4	Stanford University	16300	7.3	0.23	United States	
6	5	Massachusetts Institute of Te	11400	8.4	0.33	United States	
7	5	University of Cambridge	19600	11.1	0.39	United Kingdom	