

Relational Algebra, Query Form-on for Outputs

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1. Create a list of active fighters, not retired fighters, showing their country, weight class, and fighting style(s):

π LastName, Country, WeightClassName, FightStyle (σ Status = ' Active ' (FIGHTERS))

LastName	Country	WeightClassName	FightStyle
Johnson	USA	Featherweight	Kickboxing
Silva	Brazil	Lightweight	Brazilian Jiu Jistu

2. Create a list of champions from the last 3 years by weight class:

π FighterId, WeightClassName, Year (σ ChampionStatus = ' Champion ' \wedge CURRENT_YEAR \geq - 3 (MATCHES \bowtie MATCH_STATISTICS)

FighterId	WeightClassName	Year
F101	Featherweight	2022
F203	Lightweight	2023

3. A summary of fight styles and how many wins and takedowns each fight style has produced over all time in your database:

γ WeightClassName (γ FightStyle, COUNT (Wins), COUNT (Takedowns) (MATCH_STATISTICS))

WeightClassName	FightStyle	Wins	Takedowns
Featherweight	Brazilian Jiu Jistu	50	30
Lightweight	Kickboxing	40	10

4.A list of matches from 2023 showing how they were won (by points or takedowns), and the winning fighter's last name, and rank on fight date:

π MatchDate, WinType, LastName, CurrentRank (σ Year = 2023 (MATCHES \bowtie MATCHES.MatchNumber = MATCH_STATISTICS.MatchNumber (MATCH_STATISTICS)

MatchDate	WinType	LastName	CurrentRank
2023-01-15	Points	Johnson	1
2023-03-22	Takedowns	Silva	2

5.A list of fighters who missed their weight class at check in. The list shows the date, the fighter's name, the fighter's weight class, the amount of weight missed, whether or not the match was held, , and the fine they paid if any:

π MatchDate, LastName, WeightclassName, WeightDeviation, MatchOption, Finepaid (σ WeightDeviation \neq 0 (FIGHTERS \bowtie MATCH_STATISTICS \bowtie MATCHES)

MatchDate	LastName	WeightClassName	WeightDeviation(lbs)	MatchOption	FinePaid
2023-06-01	Lee	Lightweight	2	Continue	1000
2023-09-10	Jones	Welterweight	-1	Not Continue	0

6.A schedule of all future matches with date, time,opponents, and location. Some may not have opponents assigned yet:

π MatchDate, Time, Opponent1, Opponent2, VenueName (σ MatchDate > CURRENT_YEAR (FIGHTERS \bowtie MATCH_STATISTICS \bowtie MATCHES)

MatchDate	Time	Opponent1	Opponent2	VenueName
2024-01-10	19:00	F101	F203	MGM Arena
2024-02-05	21:00	F150	F230	T-Mobile Arena

7. Count the number of matches held at each venue in Las Vegas in the last 10 years

γ VenueName, COUNT (Matches) (σ VAddress = "Las Vegas " \wedge Year \geq CURRENT_YEAR - 10 (MATCHES)

VenueName	MatchesHeld
MGM Arena	35
T_Mobile Arena	25

