KDB+ q

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KDB+

- Columnar database
- In Memory as well as persistence store
- Streaming , real time and historical data store
- s/w drivers are available for C#,C++, Java, JavaScript , R etc.
- Interfaces – ODBC, JDBC , HTTP & Web sockets

q

- q is a programming language for KDB+ database. [Analogous to sql in SQL Server]
- Very concise and efficient
- Built in support for time-series
- All features of programming language
  - Functions
  - Recursion
  - If .. While..do ... Etc.[NOT RECOMMENDED]

q – Time Series support

q – Data types

char	size	num	literal	null	name	sql	java	.net
b	1	1	0b		boolean		Boolean	boolean
g	16	2		0Ng	guid		UUID	GUID
x	1	4	0x00		byte		Byte	byte
h	2	5	0h	0Nh	short	smallint	Short	int16
i	4	6	0i	0Ni	int	int	Integer	int32
j	8	7	0j / 0	0Nj / 0N	long	bigint	Long	int64
e	4	8	0e	0Ne	real	real	Float	single
f	8	9	0.0 or 0f	0n	float	float	Double	double
c	1	10	" "	" "	char		Character	char
s	.	11	`	`	symbol	varchar	String	string
p	8	12	dateDtimespan	0Np	timestamp		Timestamp	DateTime (r/w)
m	4	13	2000.01m	0Nm	month			
d	4	14	2000.01.01	0Nd	date	date	Date	
z	8	15	dateTtime	0Nz	datetime	timestamp	Timestamp	DateTime*(read only)
n	8	16	00:00:00.000000000	0Nn	timespan		Timespan	TimeSpan
u	4	17	00:00	0Nu	minute			
v	4	18	00:00:00	0Nv	second			
t	4	19	00:00:00.000	0Nt	time	time	Time	TimeSpan

Number   **Name**

Minus (-) :
shown for atomic type

No sign for list type

q – data types

- string vs symbols

String	Symbol
String is array of characters (char is atomic data type)	Symbol is atomic data type. Symbols are stored in unique table and value has given a reference.
Need more memory in KDB	Need less memory in KDB
Select query is relatively slow	Select query is fast
Use for long string	Use for short / repeated string

q – Data Structure

- List
- Dictionary
- Table

qSQL

- Select
- Insert
- Update
- Delete

q - Function

q – System Commands

q – File Support

- Exporting table to csv
  - Save `:trade.csv

- Importing csv to table
  - Table: ("ISI", enlist ",") 0: `trade.csv

Debugging in KDB+

Error Handling in KDB+

Multithreading in KDB+ q

References

- https://code.kx.com/wiki/Cookbook/UsingKdb
- https://code.kx.com/wiki/Cookbook/UsingKdb