

BOOKS

bid	title	Year
1	Ο δούκας κι εκείνη	2000
2	Ο υπότιης που αγάπησε	2000
3	An Offer rom a Gentleman	2001
4	Romancing Mister Bridgerton	2002
5	To Sir Phillip, With Love	2003
6	When he was wicked	2004
7	It's in his kiss	2005
8	On the way to the wedding	2006
9	Harry Potter and the Cursed Child	2016
10	Looking For Alaska	2005
11	The Fault In Our Stars	2012
12	Paper Towns	2008
13	Turtles All The Way Down	2017
14	Clash Of Kings	1998
15	Fire and Blood	2018

HAS

bid	aid
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	2
10	3
11	3
12	3
13	3
14	4
15	4

AUTHORS

aid	Name	Surname	Nationality
1	Julia	Queen	USA
2	J.K.	Rowling	UK
3	John	Green	USA
4	George	RR Martin	USA

$\sigma_{\text{BOOKS.bid} = \text{HAS.bid AND HAS.aid} = \text{AUTHORS.aid}}$ (BOOKS x HAS x AUTHORS)

BOOKS.bid	title	Year	HAS.bid	HAS.aid	AUTHORS.aid	name	surname	nationality
1	Ο δούκας κι εκείνη	2000	1	1	1	Julia	Queen	USA
2	Ο υπότιης που αγάπησε	2000	2	2	1	Julia	Queen	USA
3	An Offer rom a Gentleman	2001	3	3	1	Julia	Queen	USA
4	Romancing Mister Bridgerton	2002	4	4	1	Julia	Queen	USA
5	To Sir Phillip, With Love	2003	5	5	1	Julia	Queen	USA
6	When he was wicked	2004	6	6	1	Julia	Queen	USA
7	It's in his kiss	2005	7	7	1	Julia	Queen	USA
8	On the way to the wedding	2006	8	8	1	Julia	Queen	USA
9	Harry Potter and the Cursed Child	2016	9	9	2	J.K.	Rowling	UK
10	Looking For Alaska	2005	10	10	3	John	Green	USA
11	The Fault In Our Stars	2012	11	11	3	John	Green	USA
12	Paper Towns	2008	12	12	3	John	Green	USA
13	Turtles All The Way Down	2017	13	13	3	John	Green	USA
14	Clash Of Kings	1998	14	14	4	George	RR Martin	USA
15	Fire and Blood	2018	15	15	4	George	RR Martin	USA

(BOOKS \bowtie $\text{BOOKS.bid} = \text{HAS.bid}$ HAS \bowtie $\text{HAS.aid} = \text{AUTHORS.aid}$ AUTHORS)

Βρες όλους τους τίτλους βιβλίων που γράφτηκαν από ~~Αμερικάνους~~ ~~Συγγραφείς~~ αλλά όχι την περίοδο 1998-2004.

bid	title	Year	aid	name	surname	nationality
1	Ο δούκας κι εκείνη	2000	1	Julia	Queen	USA
2	Ο υπότιης που αγάπησε	2000	1	Julia	Queen	USA

$A_2 - A_1$
1 2 3 4

aid	title	year	aid	name	surname	nationality
1	Ο δούκας κι εκείνη	2000	1	Julia	Queen	USA
2	Ο υπιότης που αγάπησε	2000	1	Julia	Queen	USA
3	An Offer from a Gentleman	2001	1	Julia	Queen	USA
4	Romancing Mister Bridgerton	2002	1	Julia	Queen	USA
5	To Sir Phillip, With Love	2003	1	Julia	Queen	USA
6	When he was wicked	2004	1	Julia	Queen	USA
7	It's in his kiss	2005	1	Julia	Queen	USA
8	On the way to the wedding	2006	1	Julia	Queen	USA
9	Harry Potter and the Cursed Child	2016	2	J.K.	Rowling	UK
10	Looking For Alaska	2005	3	John	Green	USA
11	The Fault In Our Stars	2012	3	John	Green	USA
12	Paper Towns	2008	3	John	Green	USA
13	Turtles All The Way Down	2017	3	John	Green	USA
14	Clash Of Kings	1998	4	George	RR Martin	USA
15	Fire and Blood	2018	4	George	RR Martin	USA
aid	title	year	bid	name	surname	nationality

$$A2 - A1$$

$$A2 \leftarrow \sigma$$

$$A1 \leftarrow \sigma_{year \geq 1998 \text{ AND } year \leq 2004} (A)$$

$$A2 \leftarrow \sigma_{nationality = "USA"} (A)$$

$$A2 - A1$$

Query 1

Βρες όλους τους τίτλους βιβλίων που γράφτηκαν από Αμερικάνους Συγγραφείς την περίοδο 1998-2004.

$$A \leftarrow (BOOKS \bowtie_{BOOKS.bid = HAS.bid} HAS \bowtie_{HAS.aid = AUTHORS.aid} AUTHORS)$$

$$A1 \leftarrow \sigma_{year \geq 1998 \text{ AND } year \leq 2004 \text{ AND } nationality = "USA"} (A)$$

$$\pi_{title} (A1)$$

Query 2

Βρες όλους τους τίτλους βιβλίων που γράφτηκαν από Αμερικάνους Συγγραφείς αλλά όχι την περίοδο 1998-2004.

1^{ος} τρόπος

$$A2 \leftarrow \sigma_{(year \geq 1998 \text{ AND } year \leq 2004) \text{ AND } nationality = "USA"} (A)$$

$$\pi_{title} (A2)$$

2^{ος} τρόπος

$$A2 - A1$$

σύνολο - σύνολο 2

σύνολο των βιβλίων από Αμερικανούς συγγραφείς το 98-04

$$A2 \leftarrow \sigma$$

3^{ος} τρόπος

$$A2 \leftarrow \sigma_{(year < 1998 \text{ OR } year > 2004) \text{ AND } nationality = "USA"} (A)$$

$$\pi_{title} (A2)$$

П1	П2	П3	П4
1	1	3	А
1	4	2	А
1	0	0	В
1	5	2	В
1	1	3	В
1	4	2	Г
1	1	3	Г
1	5	2	Г
1	0	0	Δ
1	5	2	Δ
1	1	4	Δ
1	5	2	Е
1	1	3	Е

/

П2	П3
5	2
1	3

)

П1	П4