



دانشگاه صنعتی اصفهان
دانشکده مهندسی برق و کامپیوتر

عنوان: تکلیف سوم درس پایگاه داده‌ها ۱

نام و نام خانوادگی: علیرضا ابره فروش

شماره دانشجویی: ۹۸۱۶۶۰۳

نیم سال تحصیلی: پاییز ۱۴۰۰

مدرس: دکتر ناصر قدیری مدرس

دستیاران آموزشی: عارف آسمند - بهاره حاجی هاشمی - پردیس مرادیکی

- سیدمهدی موسوی

۱ ۱

a ۱.۱

نام دانشکده‌هایی را برمی‌گرداند که بودجه (مجموع حقوق اساتید)ی آن‌ها از میانگین بودجه‌ی همه دانشکده‌ها بیشتر یا مساوی است.

	dept_name character varying (20)
1	Pol. Sci.
2	Marketing
3	English
4	Cybernetics
5	Physics
6	Athletics
7	Statistics
8	Elec. Eng.

شکل ۱: I-a

b ۲.۱

نام اساتیدی را برمی‌گرداند که تعداد درس‌های ارائه شده توسط آن‌ها در سال ۲۰۰۳ از میانگین تعداد درس‌های ارائه شده در آن سال بیشتر است.

	name character varying (20)	count bigint
1	Ullman	2
2	Dale	3
3	DAgostino	2

شکل ۲: I-b

۲ ۲

a ۱.۲

	stu_id character varying (20)	stu_name character varying (20)	stu_dept_name character varying (20)	year numeric (4)	semester character varying (6)	course_name character varying (50)	score numeric (3)	is_rank numeric (1)

شکل ۳: 2-a

b ۲.۲

	stu_id character varying (20)	stu_name character varying (20)	stu_dept_name character varying (20)	year numeric (4)	semester character varying (6)	course_name character varying (50)	score numeric (3)	is_rank numeric (1)
1	65901	Shishkin	Accounting	2003	Fall	Sanitary Engineering	60	0
2	24932	Segars	Civil Eng.	2003	Spring	African History	75	1
3	61332	Canon	Astronomy	2002	Fall	The Music of the Ramones	90	1
4	61332	Canon	Astronomy	2007	Spring	The Music of the Ramones	90	1
5	73492	Hwang	Mech. Eng.	2004	Spring	How to Groom your Cat	0	0
6	65715	Novak	Mech. Eng.	2010	Fall	Environmental Law	85	1
7	58300	Lum	Mech. Eng.	2003	Spring	Bankruptcy	75	1
8	58300	Lum	Mech. Eng.	2007	Spring	Bankruptcy	75	1
9	760	Liedm	Geology	2004	Spring	Plastics	0	0
10	69730	Peip	English	2010	Fall	International Trade	0	0

شکل ۴: 2-b

c ۲.۲

	stu_id character varying (20)	stu_name character varying (20)	stu_dept_name character varying (20)	year numeric (4)	semester character varying (6)	course_name character varying (50)	score numeric (3)	is_rank numeric (1)
1	3576	Nakanishi	Physics	2006	Spring	Graph Theory	90	1
2	3576	Nakanishi	Physics	2007	Spring	Graph Theory	90	1
3	57242	Chatfield	Physics	2002	Spring	Journalism	70	0
4	57242	Chatfield	Physics	2010	Spring	Journalism	70	0

شکل ۵: 2-c(before running query)

	stu_id character varying (20)	stu_name character varying (20)	stu_dept_name character varying (20)	year numeric (4)	semester character varying (6)	course_name character varying (50)	score numeric (3)	is_rank numeric (1)
1	3576	Nakanishi	Physics	2006	Spring	Graph Theory	105	1
2	3576	Nakanishi	Physics	2007	Spring	Graph Theory	105	1
3	57242	Chatfield	Physics	2002	Spring	Journalism	80	0
4	57242	Chatfield	Physics	2010	Spring	Journalism	80	0

شکل ۶: 2-c(after running query)

d ۴.۲

	stu_id character varying (20)	stu_name character varying (20)	stu_dept_name character varying (20)	year numeric (4)	semester character varying (6)	course_name character varying (50)	score numeric (3)	is_rank numeric (1)
1	65901	Shishkin	Accounting	2003	Fall	Sanitary Engineering	60	0
2	24932	Segars	Civil Eng.	2003	Spring	African History	75	1
3	61332	Canon	Astronomy	2002	Fall	The Music of the Ramones	90	1
4	61332	Canon	Astronomy	2007	Spring	The Music of the Ramones	90	1
5	73492	Hwang	Mech. Eng.	2004	Spring	How to Groom your Cat	0	0
6	65715	Novak	Mech. Eng.	2010	Fall	Environmental Law	85	1
7	58300	Lum	Mech. Eng.	2003	Spring	Bankruptcy	75	1
8	58300	Lum	Mech. Eng.	2007	Spring	Bankruptcy	75	1
9	760	Liedm	Geology	2004	Spring	Plastics	0	0
10	69730	Peip	English	2010	Fall	International Trade	0	0

شکل ۷: 2-d

۳ ۳

	کمترین تعداد خروجی حاصل	بیشترین تعداد خروجی حاصل
users INNER JOIN numbers	۱۰۰	۱۰۰
users LEFT OUTER JOIN numbers	۱۰۰	۱۹۹
users RIGHT OUTER JOIN numbers	۱۰۰	۱۰۰
users FULL OUTER JOIN numbers	۱۰۰	۱۹۹

جدول ۱: جدول شماره ۱

۴ ۴

a ۱.۴

	course_id character varying (8)	title character varying (50)	dept_name character varying (20)	credits numeric (2)	sec_id character varying	semester character varying	year numeric	building character varying	room char
1	324	Ponzi Schemes	Civil Eng.		3 [null]	[null]		[null] [null]	[nu
2	781	Compiler Design	Finance		4 [null]	[null]		[null] [null]	[nu
3	209	International Trade	Cybernetics		4 [null]	[null]		[null] [null]	[nu
4	237	Surfing	Cybernetics		3 1	Spring	2008	Power	71
5	415	Numerical Methods	Biology		3 1	Fall		2010 Lamberton	13
6	857	UNIX System Programming	Geology		4 [null]	[null]		[null] [null]	[nu

شکل ۸: 4-a

b ۲.۴

	course_id character varying	title character varying	dept_name character varying	credits numeric	sec_id character varying (8)	semester character varying (6)	year numeric (4)	building character varying (15)	room_number character varying (7)
96	376	Cost Accounting	Physics	4	1	Fall	2006	Power	717
97	962	Animal Behavior	Psychology	3	1	Spring	2008	Nassau	45
98	338	Graph Theory	Psychology	3	2	Spring	2006	Stabler	105
99	949	Japanese	Comp. Sci.	3	1	Fall	2007	Saucon	180
100	486	Accounting	Geology	3	1	Fall	2009	Whitman	134

شکل ۹: 4-b

c ۳.۴

	course_id	title	dept_name	credits	sec_id	semester	year	building	room_number
	character varying (5)	character varying (50)	character varying (10)	numeric (3)	character varying (1)	character varying (1)	numeric (4)	character varying (10)	character varying (10)
210	376	Cost Accounting	Physics	4	1	Fall	2006	Power	717
211	962	Animal Behavior	Psychology	3	1	Spring	2008	Nassau	45
212	318	Geology	Cybernetics	3	[null]	[null]	[null]	[null]	[null]
213	338	Graph Theory	Psychology	3	2	Spring	2006	Stabler	105
214	949	Japanese	Comp. Sci.	3	1	Fall	2007	Saucon	180
215	123	Differential Equations	Mech. Eng.	3	[null]	[null]	[null]	[null]	[null]

شکل ۱۰: 4-c

۵ ۵

a ۱.۵

	name	salesorderid
	character varying (50)	integer
1	Mountain-100 Black, 42	43659
2	Mountain-100 Black, 44	43659
3	Mountain-100 Black, 48	43659
4	Mountain-100 Silver, 38	43659
5	Mountain-100 Silver, 42	43659
6	Mountain-100 Silver, 44	43659

شکل ۱۱: 5-a

b ۲.۵

	name character varying (50)	salesorderid integer
1	Headset Ball Bearings	[null]
2	Blade	[null]
3	LL Crankarm	[null]
4	HL Crankarm	[null]
5	Chainring Bolts	[null]
6	Chainring Nut	[null]

شکل ۱۲: 5-b

c ۳.۵

	customerid integer	name character varying (50)
1	29825	Mountain-100 Black, 42
2	29825	Mountain-100 Black, 44
3	29825	Mountain-100 Black, 48
4	29825	Mountain-100 Silver, 38
5	29825	Mountain-100 Silver, 42
6	29825	Mountain-100 Silver, 44

شکل ۱۳: 5-c

c ۴.۵

	customerid integer	salesorderid integer	name character varying (50)
1	29825	43659	Southeast
2	29672	43660	Southeast
3	29734	43661	Canada
4	29994	43662	Canada
5	29565	43663	Southwest
6	29898	43664	Northwest

شکل ۱۴: 5-d

۶ ۶

	productsubcategoryid [PK] integer	name character varying (50)	count bigint
1	4	Handlebars	225
2	17	Wheels	134
3	12	Mountain Frames	120
4	10	Forks	72
5	8	Cranksets	36
6	9	Derailleurs	36
7	5	Bottom Brackets	36
8	11	Headsets	34
9	14	Road Frames	25

شکل ۱۵: 6

	id character varying (5)	name character varying (20)	dept_type text	person_type text
45	54296	Osinski	Engineer	STU
46	42843	Lin	Engineer	STU
47	8022	Heng	Scientist	STU
48	63860	Bayn	Engineer	STU
49	32464	Kinney	Scientist	STU
50	8603	Piedrah	Scientist	STU
51	73394	Blasbe	Scientist	STU
52	3199	Gustafsson	Engineer	INS
53	69225	Mejia	Scientist	STU
54	6673	Bernhart	Scientist	STU
55	5843	Deng	Scientist	STU
56	96178	Hay	Engineer	STU
57	63886	Kuo	Scientist	STU
58	64642	Murdock	Engineer	STU
59	86981	Hansch	Scientist	STU
60	13217	Liu	Scientist	STU
61	16250	Uhrig	Engineer	STU
62	41091	Maillet	Scientist	STU
63	62716	Bocchi	Scientist	STU
64	64169	Lucas	Engineer	STU

شکل ۱۶: ۷

	name character varying (20) 🔒	person_type text 🔒	expense numeric 🔒
221	Finance	STU	2821.7103061224489796
222	Lenhart	STU	8545.1110989010989011
223	Sciore	STU	4647.6675294117647059
224	Crick	STU	984.9878703703703704
225	Levine	INS	32.47626159282973588100
226	Mohamed	STU	4955.7204761904761905
227	Dalton	STU	6476.1055000000000000

شکل ۱۷: 8

منابع

[1] <https://searchoracle.techtarget.com/answer/LEFT-OUTER-JOIN-without-using-LEFT-OUTER-JOIN>