

CS3563 ASSIGNMENT 1

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Output tables pgadmin

Question 1

	dept_name [PK] character varying (20) 	building character varying (15) 	budget numeric (12,2) 
1	Civil Eng.	Chandler	255041.46
2	Biology	Candlestick	647610.55
3	History	Taylor	699140.86
4	Physics	Wrigley	942162.76
5	Marketing	Lambeau	210627.58
6	Pol. Sci.	Whitman	573745.09
7	English	Palmer	611042.66
8	Accounting	Saucon	441840.92
9	Comp. Sci.	Lamberton	106378.69
10	Languages	Linderman	601283.6
11	Finance	Candlestick	866831.75
12	Geology	Palmer	406557.93
13	Cybernetics	Mercer	794541.46
14	Astronomy	Taylor	617253.94
15	Athletics	Bronfman	734550.7
16	Statistics	Taylor	395051.74
17	Psychology	Thompson	848175.04
18	Math	Brodhead	777605.11
19	Elec. Eng.	Main	276527.61
20	Mech. Eng.	Rauch	520350.65

Figure 1: department table.

	course_id [PK] character varying (8)	sec_id [PK] character varying (8)	semester [PK] character varying (6)	year [PK] numeric (4)	building character varying (15)	room_number character varying (7)	time_slot_id character varying (4)
1	313	1	Fall		2010 Chandler	804	N
2	747	1	Spring		2004 Gueve	314	K
3	443	1	Spring		2010 Whitman	434	O
4	893	1	Fall		2007 Fairchild	145	B
5	663	1	Spring		2005 Fairchild	145	D
6	457	1	Spring		2001 Saucon	844	D
7	445	1	Spring		2001 Alumni	547	J
8	559	1	Fall		2002 Lambertson	134	J
9	239	1	Fall		2006 Taylor	183	C
10	802	1	Spring		2003 Saucon	113	J
11	158	1	Fall		2008 Whitman	434	F
12	735	1	Spring		2003 Drown	757	D
13	237	1	Spring		2008 Power	717	D
14	338	1	Spring		2007 Fairchild	145	G
15	376	1	Fall		2006 Power	717	K
16	927	1	Fall		2002 Saucon	180	F
17	592	1	Spring		2010 Taylor	183	I
18	867	1	Fall		2006 Taylor	183	E
19	561	1	Fall		2006 Main	45	L
20	604	1	Spring		2009 Brontfman	700	N

Figure 2: section table.

	id [PK] character varying (5)	course_id [PK] character varying (8)	sec_id [PK] character varying (8)	semester [PK] character varying (6)	year [PK] numeric (4)	grade character varying (2)	grade_point numeric (5,3)
1	68999	169	1	Spring		2007 A+	10
2	81207	239	1	Fall		2006 A+	10
3	68010	972	1	Spring		2009 A+	10
4	15517	489	1	Fall		2007 A+	10
5	89104	352	1	Spring		2006 A+	10
6	5393	791	1	Spring		2006 A+	10
7	64155	421	1	Fall		2004 A+	10
8	43505	867	1	Fall		2006 A+	10
9	20985	304	1	Fall		2009 A+	10
10	55963	581	1	Spring		2005 A+	10
11	17924	867	2	Fall		2010 A+	10
12	94569	960	1	Fall		2009 A+	10
13	79446	808	1	Fall		2003 A+	10
14	83622	408	1	Spring		2007 A+	10
15	28361	338	2	Spring		2006 A+	10
16	72528	476	1	Fall		2010 A+	10
17	99710	169	2	Fall		2002 A+	10
18	56598	192	1	Fall		2002 A+	10
19	27094	304	1	Fall		2009 A+	10
20	18709	362	1	Fall		2005 A+	10

Figure 3: takes table.

Question 2

	course_id character varying (8)	prereq_id character varying (8)	title character varying (50)
1	276	403	Immunology
2	276	352	Compiler Design
3	276	345	Race Car Driving

Figure 4: 276 prerequisites

	course_id character varying (8)	prereq_id character varying (8)	title character varying (50)
1	496	489	Journalism
2	496	416	Data Mining
3	496	443	Journalism
4	496	852	World History
5	496	267	Hydraulics
6	496	133	Antidisestablishmentarianism in Modern America

Figure 5: 496 prerequisites

	course_id character varying (8)	prereq_id character varying (8)	title character varying (50)
1	647	792	Image Processing
2	647	814	Compiler Design

Figure 6: 647 prerequisites

Question 4

cgpa
numeric
6.476190476190476
5.361111111111111
5.841269841269841
5.081081081081081

Figure 7: List of cgpa's in order 81258, 4582, 90567, 76672

Question 5

	id [PK] character varying (5)	name character varying (20)	dept_name character varying (20)	cgpa numeric	s_rank bigint
1	19362	Linden	Finance	8.268292682926829	1
2	81207	Masri	Athletics	8.2	2
3	78637	Beeu	Physics	8.17142857142857	3
4	98619	Nagaraj	Civil Eng.	8.033333333333333	4
5	18286	Pang	Finance	8	5

Figure 8: overall toppers

	id [PK] character varying (5)	name character varying (20)	dept_name character varying (20)	cgpa numeric	s_rank bigint
1	17676	Michel	Psychology	7.5641025641025641	1
2	40116	Joshi	Psychology	7.500000000000000	2
3	32886	Damas	Psychology	7.4285714285714286	3
4	26494	Heers	Psychology	7.3684210526315789	4
5	51093	Syng	Psychology	7.150000000000000	5

Figure 9: Toppers from Psychology department

	id [PK] character varying (5)	name character varying (20)	dept_name character varying (20)	cgpa numeric	s_rank bigint
1	29140	Reuver	Elec. Eng.	7.7647058823529412	1
2	64401	Larion	Elec. Eng.	7.6279069767441860	2
3	52057	Garg	Elec. Eng.	7.4909090909090909	3
4	59517	Harrison	Elec. Eng.	7.3823529411764706	4
5	38712	Kreutz	Elec. Eng.	6.8644067796610169	5

Figure 10: Toppers from Electrical department

	id [PK] character varying (5)	name character varying (20)	dept_name character varying (20)	cgpa numeric	s_rank bigint
1	98619	Nagaraj	Civil Eng.	8.033333333333333	1
2	13753	Hoshi	Civil Eng.	7.7352941176470588	2
3	40677	Ponnambalam	Civil Eng.	7.7073170731707317	3
4	99660	OMalley	Civil Eng.	7.6415094339622642	4
5	32419	Sahani	Civil Eng.	7.4615384615384615	5

Figure 11: Toppers from civil department

	id character varying (5)	name character varying (20)	course_id character varying (8)	cgpa numeric	s_rank bigint
1	78637	Beeu	237	8.1714285714285714	1
2	66469	Komori	237	7.9433962264150943	2
3	64196	Riout	237	7.9411764705882353	3
4	77898	Yap	237	7.9111111111111111	4
5	99289	Morales	237	7.8947368421052632	5

Figure 12: Toppers of course 237

	id character varying (5)	name character varying (20)	course_id character varying (8)	cgpa numeric	s_rank bigint
1	23506	Åström	349	7.6585365853658537	1
2	40116	Joshi	349	7.5000000000000000	2
3	16311	Liao	349	7.4883720930232558	3
4	70021	Aydin	349	7.4285714285714286	4
5	14094	Miao	349	7.4000000000000000	5

Figure 13: Toppers of course 349

	id character varying (5)	name character varying (20)	course_id character varying (8)	cgpa numeric	s_rank bigint
1	18286	Pang	735	8.0000000000000000	1
2	77898	Yap	735	7.9111111111111111	2
3	52707	Arena	735	7.8421052631578947	3
4	11441	Betho	735	7.8235294117647059	4
5	39901	Dellwo	735	7.5588235294117647	5

Figure 14: Toppers of course 735

Terminal Outputs

Question 1

```
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/C33563/ASSIGNMENT_1/Assignments/src$ ./usr/bin/env ./usr/lib/jvm/java-11-openjdk-and64/bin/java B/tnp/cp_wi
vuelovs7czt8wjoJcUa.org/file_ext
Enter number of test cases: 1

Enter table name: department
Row num rows? 28
dept_name      building      budget
Civil Eng.     Chandler     255841.46
Biology        Candestick   647618.55
History        Taylor       699148.86
Physics        Wrigley      942162.76
Marketing       Lambeau     238627.58
Pol. Sci.      Whitman     573745.89
English        Palmer       611842.66
Accounting      Seaton      481848.92
Comp. Sci.      Lambertson  186378.69
Languages       Linderman   681283.68
Finance         Candestick   866831.75
Geology         Palmer       486557.33
Cybernetics     Mercer       794541.46
Astronomy       Taylor       617253.94
Athletics       Brenfran    734559.79
Statistics      Taylor       395851.74
Psychology      Thompson    848175.84
Math            Brodhead    777685.11
Elec. Eng.      Hahn        216527.61
Mech. Eng.      Rauch       528359.65
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/C33563/ASSIGNMENT_1/Assignments/src$ |
```

Figure 15: department table.

```

tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$
Enter table name: section
How many rows? 40

```

course_id	sec_id	semester	year	building	room_number	time_slot_id
313	1	Fall	2010	Chandler	884	N
747	1	Spring	2004	Gates	314	K
443	1	Spring	2010	Whitman	434	O
893	1	Fall	2007	Fairchild	145	B
663	1	Spring	2005	Fairchild	145	D
457	1	Spring	2001	Saucon	844	D
445	1	Spring	2001	Alumni	547	J
559	1	Fall	2002	Lamberton	134	J
239	1	Fall	2006	Taylor	183	C
802	1	Spring	2003	Saucon	113	J
158	1	Fall	2008	Whitman	434	F
735	1	Spring	2003	Drown	757	D
237	1	Spring	2008	Power	717	D
338	1	Spring	2007	Fairchild	145	G
376	1	Fall	2006	Power	717	K
927	1	Fall	2002	Saucon	188	F
692	1	Spring	2010	Taylor	183	I
867	1	Fall	2006	Taylor	183	E
561	1	Fall	2006	Main	45	L
604	1	Spring	2009	Bronfman	708	N
974	1	Fall	2003	Polya	888	H
959	1	Spring	2006	Saucon	188	H
702	1	Spring	2001	Saucon	113	O
631	1	Spring	2007	Taylor	183	E
334	1	Fall	2009	Taylor	812	O
274	1	Fall	2002	Main	425	N
366	1	Fall	2005	Saucon	844	O
545	1	Fall	2001	Saucon	188	P
486	1	Fall	2009	Whitman	134	K
426	1	Spring	2006	Lamberton	134	G
230	1	Fall	2007	Main	45	K
972	1	Spring	2009	Taylor	183	J
349	1	Spring	2008	Saucon	113	K
415	1	Fall	2010	Lamberton	134	K
137	1	Spring	2002	Fairchild	145	I
304	1	Fall	2009	Lamberton	143	H
468	1	Fall	2005	Lambeau	348	L
748	1	Fall	2003	Saucon	188	L
694	1	Fall	2002	Alumni	143	O
345	1	Spring	2008	Taylor	183	A

```

tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$

```

Figure 16: section table.

```

tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$
Enter table name: takes
How many rows? 40

```

id	course_id	sec_id	semester	year	grade	grade_point
68999	169	1	Spring	2007	A+	10.000
81207	239	1	Fall	2006	A+	10.000
68810	972	1	Spring	2009	A+	10.000
15517	489	1	Fall	2007	A+	10.000
89184	552	1	Spring	2006	A+	10.000
5393	791	1	Spring	2006	A+	10.000
64152	421	1	Fall	2004	A+	10.000
43585	867	1	Fall	2006	A+	10.000
29985	384	1	Fall	2009	A+	10.000
85963	581	1	Spring	2005	A+	10.000
17924	867	2	Fall	2018	A+	10.000
94569	960	1	Fall	2009	A+	10.000
79446	888	1	Fall	2003	A+	10.000
83622	488	1	Spring	2007	A+	10.000
28361	338	2	Spring	2006	A+	10.000
72528	476	1	Fall	2018	A+	10.000
99710	169	2	Fall	2002	A+	10.000
54598	192	1	Fall	2002	A+	10.000
27694	384	1	Fall	2009	A+	10.000
18789	362	1	Fall	2005	A+	10.000
41880	599	1	Spring	2003	A+	10.000
72186	443	1	Spring	2018	A+	10.000
97694	748	1	Fall	2003	A+	10.000
32376	192	1	Fall	2002	A+	10.000
1232	384	1	Fall	2009	A+	10.000
9933	457	1	Spring	2001	A+	10.000
63582	349	1	Spring	2008	A+	10.000
58085	488	1	Spring	2007	A+	10.000
99348	158	2	Spring	2008	A+	10.000
67793	258	1	Fall	2007	A+	10.000
13826	991	1	Spring	2008	A+	10.000
66813	461	1	Fall	2002	A+	10.000
85234	366	1	Fall	2005	A+	10.000
16528	195	1	Fall	2009	A+	10.000
65190	488	1	Spring	2007	A+	10.000
32483	591	1	Spring	2005	A+	10.000
1153	338	2	Spring	2006	A+	10.000
58846	626	1	Fall	2006	A+	10.000
38962	684	1	Spring	2009	A+	10.000
19293	527	1	Fall	2004	A+	10.000

```

tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$

```

Figure 17: takes table.

Question 2

```

tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$
xvalxxv7c7j8wJoc0ia.argfile ex2
Number of test cases: 3
Enter the course ID: 276
403 Immunology
352 Compiler Design
345 Race Car Driving
Enter the course ID: 647
792 Image Processing
814 Compiler Design
Enter the course ID: 496
489 Journalism
416 Data Mining
443 Journalism
852 World History
267 Hydraulics
133 AntiEstablishmentarianism in Modern America
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$

```

Figure 18: Prerequisites of the given courses

Question 4

```
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$ ./src/bin/env ./usr/lib/jvm/java-11-openjdk-and64/bin/java @/tmp/cp_wl
xvaLxvsf2cjt8wJoc8la,argfile ex4
Enter number of test cases: 4
Roll Number of the student: 76672
CGPA is 5.4918818818818811
Roll Number of the student: 90567
CGPA is 5.8412698412698413
Roll Number of the student: 4582
CGPA is 5.3611111111111111
Roll Number of the student: 81258
CGPA is 6.4761984761984762
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$ |
```

Figure 19: cgpa's of the given id's

Question 5

```
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$ ./src/bin/env ./usr/lib/jvm/java-11-openjdk-and64/bin/java @/tmp/cp_wl
xvaLxvsf2cjt8wJoc8la,argfile ex5
Number of test cases: 1
Which Information do you want?
(1) Top-k students with highest CGPA
(2) Top-k students with highest CGPA in a given department
(3) Top-k students with highest CGPA in a given course
Your choice: 1
Number of students: 5
Rank 1: 19362 London Finance 8.2682926829268293
Rank 2: 81207 Masrl Athletics 8.2800000000000000
Rank 3: 78637 Beni Physics 8.274205714285714
Rank 4: 98619 Nagara Civil Eng. 8.033333333333333
Rank 5: 18286 Pang Finance 8.0000000000000000
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$ |
```

Figure 20: Overall Toppers

```
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$ ./src/bin/env ./usr/lib/jvm/java-11-openjdk-and64/bin/java @/tmp/cp_wl
xvaLxvsf2cjt8wJoc8la,argfile ex5
Number of test cases: 3
Which Information do you want?
(1) Top-k students with highest CGPA
(2) Top-k students with highest CGPA in a given department
(3) Top-k students with highest CGPA in a given course
Your choice: 2
Number of students: 5
Department name: Psychology
Rank 1: 17676 Michel 7.5641825641825641 Psychology
Rank 2: 48116 Joshl 7.5800000000000000 Psychology
Rank 3: 33286 Dunes 7.4285714285714286 Psychology
Rank 4: 26494 Heers 7.3684218526315789 Psychology
Rank 5: 51093 Syng 7.1500000000000000 Psychology
Which Information do you want?
(1) Top-k students with highest CGPA
(2) Top-k students with highest CGPA in a given department
(3) Top-k students with highest CGPA in a given course
Your choice: 2
Number of students: 5
Department name: Elec. Eng.
Rank 1: 29148 Reuver 7.7647858823529412 Elec. Eng.
Rank 2: 64481 Larlon 7.6279867676767676 Elec. Eng.
Rank 3: 52857 Garg 7.4909090909090909 Elec. Eng.
Rank 4: 59317 Harrison 7.382323611764796 Elec. Eng.
Rank 5: 38712 Kreutz 6.8644867796610169 Elec. Eng.
Which Information do you want?
(1) Top-k students with highest CGPA
(2) Top-k students with highest CGPA in a given department
(3) Top-k students with highest CGPA in a given course
Your choice: 2
Number of students: 5
Department name: Civil Eng.
Rank 1: 98619 Nagara 8.033333333333333 Civil Eng.
Rank 2: 13753 Hoshl 7.73294176470588 Civil Eng.
Rank 3: 48677 Ponnambalan 7.7073170731707317 Civil Eng.
Rank 4: 99668 OMalley 7.6415094339622642 Civil Eng.
Rank 5: 12419 Sabani 7.4615384615384615 Civil Eng.
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$ |
```

Figure 21: department wise toppers

```
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$ ./src/bin/rev ./usr/lib/jvm/java-11-openjdk-amd64/bin/java @/tmp/cp_w1
xvallevs2c1t8wjoJcJla.argfile exs
Number of test cases: 3

Which Information do you want?
(1) Top-k students with highest CGPA
(2) Top-k students with highest CGPA in a given department
(3) Top-k students with highest CGPA in a given course
Your choice: 3
Number of students: 5
Course ID: 237
Rank 1: 237 78637 Beu 8.1714285714285714
Rank 2: 237 66469 KonorL 7.9433962264189943
Rank 3: 237 64196 Rioult 7.9411764705882353
Rank 4: 237 77898 Yap 7.9111111111111111
Rank 5: 237 99289 Morales 7.8947368421052632

Which Information do you want?
(1) Top-k students with highest CGPA
(2) Top-k students with highest CGPA in a given department
(3) Top-k students with highest CGPA in a given course
Your choice: 3
Number of students: 5
Course ID: 349
Rank 1: 349 23586 Astrón 7.6585365853658537
Rank 2: 349 40116 Joshi 7.5080808080808080
Rank 3: 349 16311 Liao 7.4883729930232558
Rank 4: 349 70821 Aydin 7.4285714285714286
Rank 5: 349 14894 Miao 7.4080808080808080

Which Information do you want?
(1) Top-k students with highest CGPA
(2) Top-k students with highest CGPA in a given department
(3) Top-k students with highest CGPA in a given course
Your choice: 3
Number of students: 5
Course ID: 735
Rank 1: 735 18286 Pang 8.0000000000000000
Rank 2: 735 77898 Yap 7.9111111111111111
Rank 3: 735 52787 Arena 7.8421052631578947
Rank 4: 735 11441 Bertho 7.8235294117647059
Rank 5: 735 39981 Deliao 7.5588235294117647
tushita@tushita-XPS-15-9510:~/IITH_ACAD/SEM_4/CS3563/ASSIGNMENT_1/Assignment1/src$
```

Figure 22: course wise toppers

Note:

In the takes table, the output table has an extra column called `grade_point`. It is a column I created for convenient aggregation of grades to find cgpa of each student.