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We pledge our honor that we have abided by the Stevens Honor System

CS443 Homework 4

SCHEMA

REQUIREMENTS(course_prefix, course_number, course_name, credits, prereqs, coreqs)

Each row of the Requirements table will contain

- course_prefix: a two or three character string which represents the department of the course
 - e.g. MA, CS, PEP, CH
- course_number: a three digit integer which represents the number of the course
- course_name: the name assigned to the course by the department or program that offers it
- credits: a single digit integer which represents the number of credits for the course
- prereqs: a FKR which represents course(s) which must be taken before enrollment in the course
 - NULL if the course has no prerequisites
- coreqs: a FKR which represents courses(s) which must be taken at the same time as the course
 - NULL if the course has no corequisites
- Note: These are all required courses for us to take.

Foreign Key References

REQUIREMENTS(course_prefix, course_number, course_name, credits, prereqs, coreqs)

1. REQUIREMENTS.prereqs -> REQUISITE_NODE.req_id
2. REQUIREMENTS.coreqs -> REQUISITE_NODE.req_id

REQUISITE_NODE (req_id, leaf_course_prefix, leaf_course_num, operator, left_node, right_node)

1. (REQUISITE_NODE.leaf_course_prefix, REQUISITE_NODE.leaf_course_num) -> (REQUIREMENTS.course_prefix, REQUIREMENTS.course_number)
2. REQUISITE_NODE.left_node -> REQUISITE_NODE.req_id
3. REQUISITE_NODE.right_node -> REQUISITE_NODE.req_id

SCHEMA INSTANCES

MATH_REQUIREMENTS

<u>course_prefix</u>	<u>course_number</u>	<u>course_name</u>	<u>credits</u>	<u>prereqs</u>	<u>coreqs</u>
MA	121	Differential Calculus	2	NULL	NULL
MA	122	Integral Calculus	2	7	NULL
MA	123	Series, Vectors, Functions, and Surfaces	2	8	NULL
MA	124	Calculus for Functions of Two Variables	2	9	NULL
MA	222	Probability and Statistics	3	10	NULL
MA	331	Intermediate Statistics	3	11	NULL

MANAGEMENT_REQUIREMENT

<u>course_prefix</u>	<u>course_number</u>	<u>course_name</u>	<u>credits</u>	<u>prereqs</u>	<u>coreqs</u>
BT	353	Project Management	3	NULL	NULL

CS_REQUIREMENT

<u>course_prefix</u>	<u>course_number</u>	<u>course_name</u>	<u>credits</u>	<u>prereqs</u>	<u>coreqs</u>
CS	146	Intro to Web Programming	3	NULL	NULL
CS	135	Discrete Structures	4	NULL	NULL
CS	334	Automata & Computation	3	2	NULL

CS	383	Comp Org & Programming	3	16	18
CS	347	Software Dev.	3	5	NULL
CS	392	Systems Programming	3	15	NULL
CS	496	Principle of Programming Languages	3	3	15
CS	442	Database Management Systems	3	15	NULL
CS	443	Database Practicum	3	NULL	19
CS	511	Concurrent Programming	3	24	NULL
CS	492	Operating Systems	3	25	NULL
CS	306	Intro to IT Security	4	27	NULL
CS	423	Senior Design I	3	31	NULL
CS	485	Societal Impact of Information Technologies	1	NULL	NULL
CS	424	Senior Design II	3	32	NULL
CS	522/546/548	Mobile Systems and Applications/Web Programming/Enterprise Software Architecture and Design	3	NULL	36

SCIENCE REQUIREMENT

<u>num</u>	<u>Track</u>	<u>course1_prefix</u>	<u>course1_num</u>	<u>course1_name</u>	<u>course2_prefix</u>	<u>course2_num</u>	<u>course2_name</u>	<u>lab_prefix</u>	<u>lab_num</u>
1	Physics	PEP	111	Mechanics	PEP	112	E & M	PEP	221
2	Chem	CH	115	Gen.Chem I	CH	116	Gen.Chem II	CH	117
3	Chem & Bio	CH	115	Gen.Chem I	CH	281	Bio & BioTech	CH	117
4	Chem & Bio	CH	115	Gen.Chem I	CH	281	Bio & BioTech	CH	282
5	Physics & Bio	PEP	111	Mechanics	CH	281	Bio & BioTech	CH	282
6	Physics & Bio	PEP	111	Mechanics	CH	281	Bio & BioTech	PEP	221
7	Physics & Chem	PEP	111	Mechanics	CH	115	Gen.Chem I	CH	117
8	Physics & Chem	PEP	111	Mechanics	CH	115	Gen.Chem I	PEP	221

SOFTWARE_DEVELOPMENT_REQUIREMENT

<u>course_prefix</u>	<u>course_number</u>	<u>course_name</u>	<u>credits</u>	<u>prereqs</u>	<u>coreqs</u>
CS	516/521/522/526/537/541/546/548/549/558	Compiler Programming/TCP-IP Networking/Mobile Systems and Applications/Interactive Computer Graphics/Artificial Intelligence/Web Programming/Enterprise Software Architecture and Design/Distribut	3	NULL	33

		ed Systems and Cloud Computing/Com puter Vision			
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Requisite_Node

req_id	leaf_course_prefix	leaf_course_num	operator	left_node	right_node
1	CS	146	NULL	NULL	NULL
2	CS	135	NULL	NULL	NULL
3	CS	334	NULL	NULL	NULL
4	CS	284	NULL	NULL	NULL
5	NULL	NULL	OR	17	6
6	NULL	NULL	AND	4	2
7	MA	121	NULL	NULL	NULL
8	MA	122	NULL	NULL	NULL
9	MA	123	NULL	NULL	NULL
10	MA	124	NULL	NULL	NULL
11	MA	222	NULL	NULL	NULL
12	MA	331	NULL	NULL	NULL
13	CS	182	NULL	NULL	NULL
14	CS	385	NULL	NULL	NULL
15	NULL	NULL	OR	13	14
16	CS	115	NULL	NULL	NULL
17	CS	181	NULL	NULL	NULL
18	NULL	NULL	OR	4	17
19	CS	442	NULL	NULL	NULL
20	CS	443	NULL	NULL	NULL
21	CS	520	NULL	NULL	NULL
22	CS	382	NULL	NULL	NULL
23	CS	392	NULL	NULL	NULL
24	NULL	NULL	OR	21	23
25	NULL	NULL	AND	14	22
26	MA	134	NULL	NULL	NULL
27	NULL	NULL	OR	2	26
28	CS	182	NULL	NULL	NULL
29	NULL	NULL	OR	28	14
30	CS	347	NULL	NULL	NULL
31	NULL	NULL	AND	29	30
32	CS	423	NULL	NULL	NULL
33	NULL	NULL	OR	34	35
34	NULL	NULL	OR	36	37

35	NULL	NULL	OR	38	39
36	NULL	NULL	OR	40	41
37	NULL	NULL	OR	42	43
38	NULL	NULL	OR	44	45
39	NULL	NULL	OR	46	47
40	NULL	NULL	OR	48	49
41	CS	548	NULL	NULL	NULL
42	CS	516	NULL	NULL	NULL
43	CS	521	NULL	NULL	NULL
44	CS	526	NULL	NULL	NULL
45	CS	537	NULL	NULL	NULL
46	CS	541	NULL	NULL	NULL
47	NULL	NULL	OR	50	51
48	CS	522	NULL	NULL	NULL
49	CS	546	NULL	NULL	NULL
50	CS	549	NULL	NULL	NULL
51	CS	558	NULL	NULL	NULL