

CREATING TABLES - STUDENT, DEPARTMENT, TEACHERS, COURSES

```
postgres=# CREATE TABLE DEPARTMENT(  
dept_id INT PRIMARY KEY,  
dept_name varchar(20)  
);  
CREATE TABLE  
postgres=# CREATE TABLE COURSES(  
postgres=# course_id INT PRIMARY KEY,  
postgres=# course_name varchar(10),  
postgres=# dept_id INT REFERENCES DEPARTMENT(dept_id));  
CREATE TABLE  
postgres=# CREATE TABLE TEACHERS(  
postgres=# tr_id INT PRIMARY KEY,  
postgres=# tr_name varchar(10),  
postgres=# dept_id INT REFERENCES DEPARTMENT(dept_id));  
CREATE TABLE  
postgres=# CREATE TABLE STUDENTS(  
postgres=# name varchar(10),  
postgres=# roll_no INT PRIMARY KEY,  
postgres=# email_id varchar(20),  
postgres=# address varchar(30),  
postgres=# dept_id INT REFERENCES DEPARTMENT(dept_id));  
CREATE TABLE  
postgres=# ALTER TABLE COURSES  
ADD CONSTRAINT teacherid  
FOREIGN KEY (tr_id)  
REFERENCES TEACHERS (tr_id);  
ERROR: column "tr_id" referenced in foreign key constraint does not exist  
postgres=# ALTER TABLE COURSES ADD COLUMN tr_id;  
ERROR: syntax error at or near ";"  
LINE 1: ALTER TABLE COURSES ADD COLUMN tr_id;  
^  
postgres=# ALTER TABLE COURSES ADD COLUMN tr_id INT;  
ALTER TABLE  
postgres=# ALTER TABLE COURSES  
ADD CONSTRAINT teacherid  
FOREIGN KEY (tr_id)  
REFERENCES TEACHERS (tr_id);  
ALTER TABLE  
postgres=#
```

INSERTING 100 ROWS INTO THE FOUR TABLES

TEACHERS TABLE

Activities  Terminal		
		
tr_id	tr_name	dept_id
1	John	45
2	Emma	21
3	Michael	78
4	Sophia	32
5	William	15
6	Olivia	87
7	James	3
8	Amelia	54
9	Alex	99
10	Charlo	12
11	Ethan	65
12	Isabel	40
13	Daniel	25
14	Ava	88
15	Matthew	11
16	Mia	76
17	Chris	33
18	Harper	92
19	Andrew	19
20	Evelyn	71
21	Anthony	8
22	Abigail	63
23	David	50
24	Emily	96
25	Joseph	17
26	Beth	82
27	Ryan	36
28	Sofia	93
29	Samuel	7
30	Ella	61
31	Benjamin	29
32	Scarlett	84
33	Nicholas	44
34	Madison	77
35	Jacob	18
36	Lily	90
37	Logan	5
38	Grace	69
39	Mason	42
40	Chloe	98
41	Lucas	23
42	Zoe	14
43	Aiden	81
44	Avery	37
45	Michael	68
46	Jackson	2
47	Riley	47
48	Elijah	86
49	Hannah	9
--More--		

Activities			Terminal
			+
57	Brooklyn	40	
58	Caleb	95	
59	Peyton	26	
60	Emma	73	
61	Luke	35	
62	Leah	94	
63	Owen	10	
64	Anna	66	
65	Liam	51	
66	Samantha	28	
67	Jack	91	
68	Nora	38	
69	Tyler	80	
70	Sarah	16	
71	Austin	70	
72	Alyssa	39	
73	Evan	1	
74	Ellie	85	
75	Nicholas	64	
76	Hailey	41	
77	Dylan	97	
78	Claire	83	
79	Luke	57	
80	Julia	24	
81	Brayden	59	
82	Mila	22	
83	Adam	74	
84	Lillian	43	
85	Justin	89	
86	Layla	31	
87	Aaron	49	
88	Audrey	72	
89	Brandon	4	
90	Ellie	67	
91	Cameron	56	
92	Stella	30	
93	Thomas	60	
94	Makayla	34	
95	Cole	62	
96	Alexa	53	
97	Ian	13	
98	Sophie	52	
99	Connor	46	
100	Aubrey	8	
(100 rows)			

DEPARTMENT TABLE

Activities		Terminal
+		
dept_id	dept_name	

1	Comp Sci	
2	Elect Eng	
3	Mech Eng	
4	Civil Eng	
5	Chem Eng	
6	Bio Eng	
7	Aero Eng	
8	Mat Sci	
9	Math	
10	Physics	
11	Chemistry	
12	Biology	
13	Economics	
14	Psychology	
15	Sociology	
16	Anthro	
17	English	
18	History	
19	Geography	
20	Political	
21	Philosophy	
22	Music	
23	Art	
24	Dance	
25	Theatre	
26	Film	
27	Journalism	
28	Law	
29	Business	
30	Marketing	
31	Finance	
32	Accounting	
33	Management	
34	HR	
35	IT	
36	Operations	
37	Supply Chn	
38	Logistics	
39	Procuremnt	
40	Quality	
41	Research	
42	Development	
43	Design	
44	Production	
45	Maintenance	
46	Service	
47	Support	
48	Sales	
49	Customer	
--More--		

Activities

Terminal





51	Technical
52	Non-Tech
53	Training
54	Education
55	Consulting
56	Engineering
57	Architecture
58	Planning
59	Designing
60	Coding
61	Testing
62	Debugging
63	Deployment
64	Networking
65	Security
66	Analysis
67	Development
68	Designing
69	Implementation
70	Maintenance
71	Support
72	Training
73	Education
74	Consulting
75	Engineering
76	Architecture
77	Planning
78	Designing
79	Coding
80	Testing
81	Debugging
82	Deployment
83	Networking
84	Security
85	Analysis
86	Development
87	Designing
88	Implementation
89	Maintenance
90	Support
91	Training
92	Education
93	Consulting
94	Engineering
95	Architecture
96	Planning
97	Designing
98	Coding
99	Testing
100	Debugging

(100 rows)

postgres #

STUDENTS TABLE

Activities Terminal				
+				
name	roll_no	email_id	address	dept_id
+-----+-----+-----+-----+-----+				
Aarav	101	aarav@gmail.com	Palakkad	1
Vihaan	102	vihaan@gmail.com	Palakkad	2
Advik	103	advik@gmail.com	Palakkad	3
Aryan	104	aryan@gmail.com	Palakkad	4
Reyansh	105	reyansh@gmail.com	Palakkad	5
Mohammed	106	mohammed@gmail.com	Palakkad	6
Ranveer	107	ranveer@gmail.com	Palakkad	7
Ishaan	108	ishaan@gmail.com	Palakkad	8
Ayaan	109	ayaan@gmail.com	Palakkad	9
Rehan	110	rehan@gmail.com	Palakkad	10
Krishna	111	krishna@gmail.com	Palakkad	11
Arjun	112	arjun@gmail.com	Palakkad	12
Kabir	113	kabir@gmail.com	Palakkad	13
Yuvan	114	yuvan@gmail.com	Palakkad	14
Arnav	115	arnav@gmail.com	Palakkad	15
Aarush	116	aarush@gmail.com	Palakkad	16
Ritvik	117	ritvik@gmail.com	Palakkad	17
Kian	118	kian@gmail.com	Palakkad	18
Ishan	119	ishan@gmail.com	Palakkad	19
Vihaan	120	vihaan@gmail.com	Palakkad	20
Vivaan	121	vivaan@gmail.com	Palakkad	21
Reyansh	122	reyansh@gmail.com	Palakkad	22
Atharv	123	atharv@gmail.com	Palakkad	23
Vihaan	124	vihaan@gmail.com	Palakkad	24
Anay	125	anay@gmail.com	Palakkad	25
Reyansh	126	reyansh@gmail.com	Palakkad	26
Divit	127	divit@gmail.com	Palakkad	27
Aditya	128	aditya@gmail.com	Palakkad	28
Kabir	129	kabir@gmail.com	Palakkad	29
Shivansh	130	shivansh@gmail.com	Palakkad	30
Aarav	131	aarav@gmail.com	Palakkad	31
Vihaan	132	vihaan@gmail.com	Palakkad	32
Advik	133	advik@gmail.com	Palakkad	33
Aryan	134	aryan@gmail.com	Palakkad	34
Reyansh	135	reyansh@gmail.com	Palakkad	35
Mohammed	136	mohammed@gmail.com	Palakkad	36
Ranveer	137	ranveer@gmail.com	Palakkad	37
Ishaan	138	ishaan@gmail.com	Palakkad	38
Ayaan	139	ayaan@gmail.com	Palakkad	39
Rehan	140	rehan@gmail.com	Palakkad	40
Krishna	141	krishna@gmail.com	Palakkad	41
Arjun	142	arjun@gmail.com	Palakkad	42
Kabir	143	kabir@gmail.com	Palakkad	43
Yuvan	144	yuvan@gmail.com	Palakkad	44
Arnav	145	arnav@gmail.com	Palakkad	45
Aarush	146	aarush@gmail.com	Palakkad	46
Ritvik	147	ritvik@gmail.com	Palakkad	47
Kian	148	kian@gmail.com	Palakkad	48
Ishan	149	ishan@gmail.com	Palakkad	49
--More--				

Activities  Terminal				
				
Atharv	153	atharv@gmail.com	Palakkad	53
Vihaan	154	vihaan@gmail.com	Palakkad	54
Anay	155	anay@gmail.com	Palakkad	55
Reyansh	156	reyansh@gmail.com	Palakkad	56
Divit	157	divit@gmail.com	Palakkad	57
Aditya	158	aditya@gmail.com	Palakkad	58
Kabir	159	kabir@gmail.com	Palakkad	59
Shivansh	160	shivansh@gmail.com	Palakkad	60
Aarav	161	aarav@gmail.com	Palakkad	61
Vihaan	162	vihaan@gmail.com	Palakkad	62
Advik	163	advik@gmail.com	Palakkad	63
Aryan	164	aryan@gmail.com	Palakkad	64
Reyansh	165	reyansh@gmail.com	Palakkad	65
Mohammed	166	mohammed@gmail.com	Palakkad	66
Ranveer	167	ranveer@gmail.com	Palakkad	67
Ishaan	168	ishaan@gmail.com	Palakkad	68
Ayaan	169	ayaan@gmail.com	Palakkad	69
Rehan	170	rehan@gmail.com	Palakkad	70
Krishna	171	krishna@gmail.com	Palakkad	71
Arjun	172	arjun@gmail.com	Palakkad	72
Kabir	173	kabir@gmail.com	Palakkad	73
Yuvan	174	yuvan@gmail.com	Palakkad	74
Arnav	175	arnav@gmail.com	Palakkad	75
Aarush	176	aarush@gmail.com	Palakkad	76
Ritvik	177	ritvik@gmail.com	Palakkad	77
Kian	178	kian@gmail.com	Palakkad	78
Ishan	179	ishan@gmail.com	Palakkad	79
Vihaan	180	vihaan@gmail.com	Palakkad	80
Vivaan	181	vivaan@gmail.com	Palakkad	81
Reyansh	182	reyansh@gmail.com	Palakkad	82
Atharv	183	atharv@gmail.com	Palakkad	83
Vihaan	184	vihaan@gmail.com	Palakkad	84
Anay	185	anay@gmail.com	Palakkad	85
Reyansh	186	reyansh@gmail.com	Palakkad	86
Divit	187	divit@gmail.com	Palakkad	87
Aditya	188	aditya@gmail.com	Palakkad	88
Kabir	189	kabir@gmail.com	Palakkad	89
Shivansh	190	shivansh@gmail.com	Palakkad	90
Aarav	191	aarav@gmail.com	Palakkad	91
Vihaan	192	vihaan@gmail.com	Palakkad	92
Advik	193	advik@gmail.com	Palakkad	93
Aryan	194	aryan@gmail.com	Palakkad	94
Reyansh	195	reyansh@gmail.com	Palakkad	95
Mohammed	196	mohammed@gmail.com	Palakkad	96
Ranveer	197	ranveer@gmail.com	Palakkad	97
Ishaan	198	ishaan@gmail.com	Palakkad	98
Ayaan	199	ayaan@gmail.com	Palakkad	99
Rehan	200	rehan@gmail.com	Palakkad	100
(100 rows)				
postgres=#				
postgres=#				
--				

COURSES TABLE

Activities Terminal			
+			
course_id	course_name	dept_id	tr_id
1	Mechanical	1	1
2	Electrical	2	2
3	Civil	3	3
4	Computer Science	4	4
5	Chemical	5	5
6	Aerospace	6	6
7	Biomedical	7	7
8	Environmental	8	8
9	Materials	9	9
10	Industrial	10	10
11	Automotive	11	11
12	Petroleum	12	12
13	Software	13	13
14	Mechatronics	14	14
15	Nuclear	15	15
16	Robotics	16	16
17	Marine	17	17
18	Electronics	18	18
19	Telecommunications	19	19
20	Systems	20	20
21	Geotechnical	21	21
22	Structural	22	22
23	Water Resources	23	23
24	Renewable Energy	24	24
25	Computer Engineering	25	25
26	Biomechanical	26	26
27	Cybersecurity	27	27
28	Networks	28	28
29	Embedded Systems	29	29
30	Wireless Communications	30	30
31	Control Systems	31	31
32	Power Systems	32	32
33	Renewable Energy Systems	33	33
34	Computer Vision	34	34
35	Machine Learning	35	35
36	Artificial Intelligence	36	36
37	Data Science	37	37
38	Information Technology	38	38
39	Biotechnology	39	39
40	Genetic Engineering	40	40
41	Nanoengineering	41	41
42	Systems Engineering	42	42
43	Human Factors Engineering	43	43
44	Quality Engineering	44	44
45	Reliability Engineering	45	45
46	Safety Engineering	46	46
47	Software Engineering	47	47
48	Computer Systems Engineering	48	48
49	Information Systems Engineering	49	49
--More--			

Activities

Terminal

52	Cloud Computing	52	52
53	Internet of Things (IoT)	53	53
54	Network Security	54	54
55	Information Security	55	55
56	Software Testing	56	56
57	Mobile Application Development	57	57
58	Game Development	58	58
59	Virtual Reality	59	59
60	Augmented Reality	60	60
61	Cyber-Physical Systems	61	61
62	Big Data Analytics	62	62
63	Cloud Security	63	63
64	Cyber Forensics	64	64
65	Digital Signal Processing	65	65
66	Image Processing	66	66
67	Computer Graphics	67	67
68	Human-Computer Interaction	68	68
69	Information Retrieval	69	69
70	Semantic Web	70	70
71	Natural Language Processing	71	71
72	Computational Linguistics	72	72
73	Speech Recognition	73	73
74	Robotics Engineering	74	74
75	Computer Animation	75	75
76	Computer Vision and Robotics	76	76
77	Computer Engineering Technology	77	77
78	Computer Information Systems	78	78
79	Information Technology Management	79	79
80	Software Development	80	80
81	Web Development	81	81
82	Mobile Development	82	82
83	Software Engineering Management	83	83
84	Computer Programming	84	84
85	Computer Networking	85	85
86	Network Engineering	86	86
87	Computer Systems Technology	87	87
88	Computer and Network Security	88	88
89	Information Security Management	89	89
90	Information Systems Management	90	90
91	Database Management	91	91
92	Computer Forensics	92	92
93	Web Design	93	93
94	User Interface Design	94	94
95	User Experience Design	95	95
96	Information Architecture	96	96
97	Digital Design	97	97
98	Multimedia Design	98	98
99	Interaction Design	99	99
100	Computer Hardware Engineering	100	100

(100 rows)

postgres=#

INSERTING, DELETING AND SHOWING FROM TABLE

```
postgres=#
postgres=# SELECT * FROM STUDENTS WHERE dept_id=12;
 name | roll_no | email_id | address | dept_id
-----+-----+-----+-----+-----
 Arjun |    112 | arjun@gmail.com | Palakkad |    12
(1 row)
```

```
postgres=# INSERT INTO STUDENTS VALUES('Jancy',201,'jancy@gmail.com','Palakkad',13);
INSERT 0 1
postgres=# INSERT INTO STUDENTS VALUES(101,'Reena',25);
ERROR:  invalid input syntax for type integer: "Reena"
LINE 1: INSERT INTO STUDENTS VALUES(101,'Reena',25);
      ^
postgres=# INSERT INTO TEACHERS VALUES(101,'Reena',25);
INSERT 0 1
postgres=# INSERT INTO COURSES VALUES(101,'English',25,25);
INSERT 0 1
postgres=# INSERT INTO DEPARTMENT VALUES(101,'Human Sciences');
INSERT 0 1
postgres=# DELETE FROM STUDENT WHERE roll_no=12;
ERROR:  relation "student" does not exist
LINE 1: DELETE FROM STUDENT WHERE roll_no=12;
      ^
postgres=# DELETE FROM STUDENTS WHERE roll_no=12;
DELETE 0
postgres=# DELETE FROM TEACHERS WHERE roll_no=101;
```

```
DETAIL:  Key (dept_id)=(10) is still referenced by other tables.
postgres=# UPDATE STUDENTS
SET address = 'Kochi'
WHERE name='Ishaan';
UPDATE 4
postgres=#
```