



# Big, Fancy Tables

But first, a small table.



Teacher

TeacherID	TName	DeptID
18	Al Beback	2002
20	Sid Down	2002
19	N. E. Body	2003

Department

ID	Name	Office
2002	Business	101
2003	Math	123

What is the primary key in each table?

What is the foreign key that links the tables?

Teacher			Department		
TeacherID	TName	DeptID	ID	Name	Office
18	Al Beback	2002	2002	Business	101
20	Sid Down	2002	2003	Math	123
19	N. E. Body	2003			

PKKey

Foreign  
Key

PKKey



A long, dark wooden dining table is set for a formal dinner in a dimly lit restaurant. The table is covered with a dark cloth and is set with white plates, glassware, and silverware. Several tall, lit candles in glass holders are placed along the table, providing a warm, ambient light. The room is decorated with multiple ornate chandeliers hanging from the ceiling, and framed pictures are visible on the dark walls. The floor is covered with a blue and white patterned carpet. The overall atmosphere is sophisticated and elegant.

Ok, so let's  
go bigger.

# Primary Keys?

Student

StudID	StudName	Age
1	Stan Dupp	15
2	Sarah Soda	16
3	Ida Knowe	15

Course

Code	Credits	CName	PreReq
ICS3U0	1	Grade 11 Computer Programming	None
ICS4U0	1	Grade 12 Computer Programming	ICS3U0
HSB4M7	2	Integrated Technology in a Global Society	ICS208
ICS208	1	MYP Grade 10 Computer Programming	None

Schedule

SchedID	Term	Period	CourseCode	TeacherID	RoomNum
101	S2009	1	ICS208	20	133
102	S2010	2	ICS208	20	133
103	W2009	1	HSB4M7	18	107
104	S2010	3	ICS4U0	18	133
105	W2009	4	ICS3U0	19	105

Registered

StudentID	SchedID
1	101
1	102
2	101
2	104
3	105
3	104
3	101
1	103
2	103
3	103

Student		
StudID	StudName	Age
1	Stan Dupp	15
2	Sarah Soda	16
3	Ida Knowe	15

Course			
Code	Credits	CName	PreReq
ICS3U0	1	Grade 11 Computer Programming	None
ICS4U0	1	Grade 12 Computer Programming	ICS3U0
HSB4M7	2	Integrated Technology in a Global Society	ICS208
ICS208	1	MYP Grade 10 Computer Programming	None

Schedule					
SchedID	Term	Period	CourseCode	TeacherID	RoomNum
101	S2009	1	ICS208	20	133
102	S2010	2	ICS208	20	133
103	W2009	1	HSB4M7	18	107
104	S2010	3	ICS4U0	18	133
105	W2009	4	ICS3U0	19	105

Registered	
StudentID	SchedID
1	101
1	102
2	101
2	104
3	105
3	104
3	101
1	103
2	103
3	103

*About the registered table:*

It has a **composite key**.

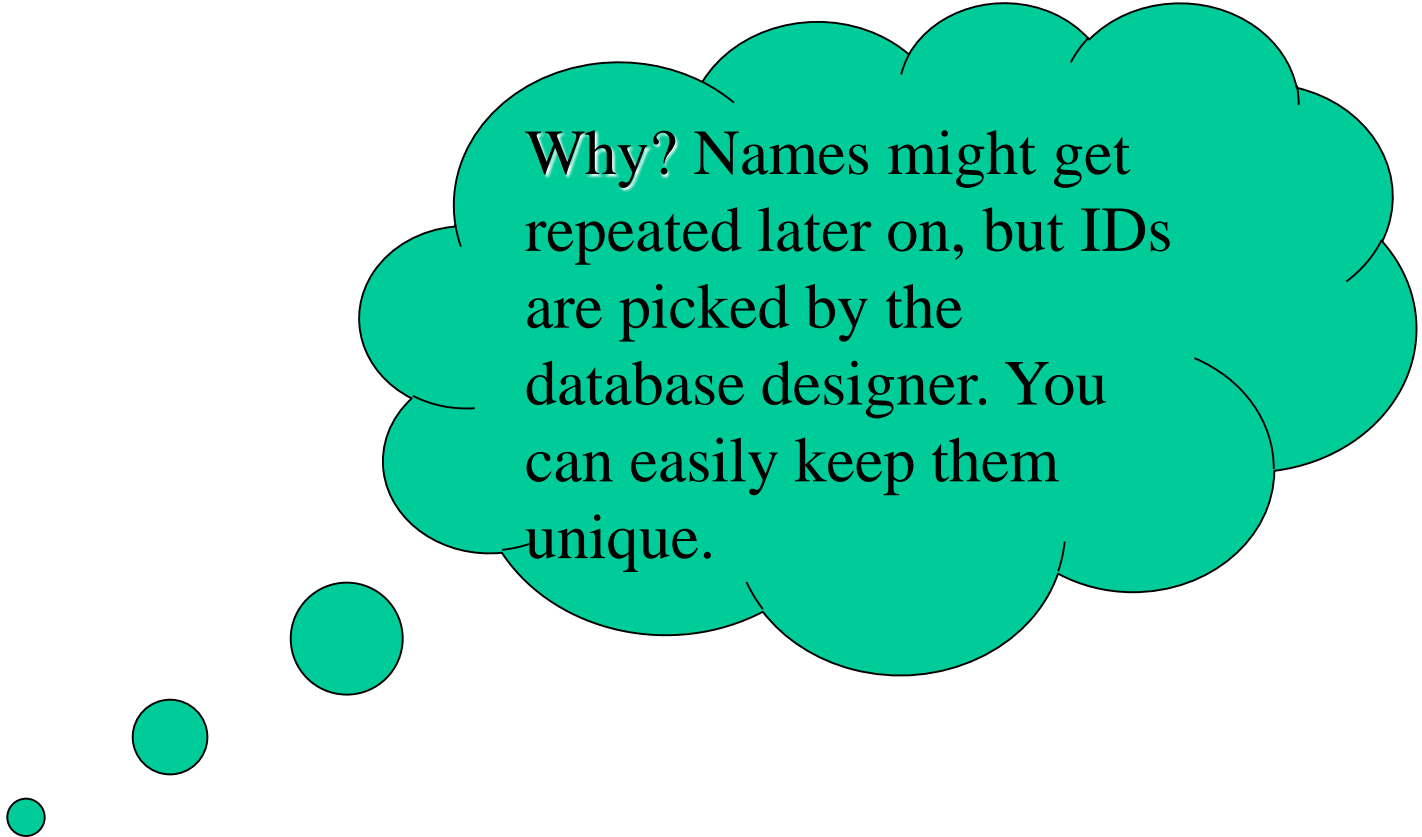
Both fields together uniquely identify the record.

The combination of SchedID and StudID will be unique.

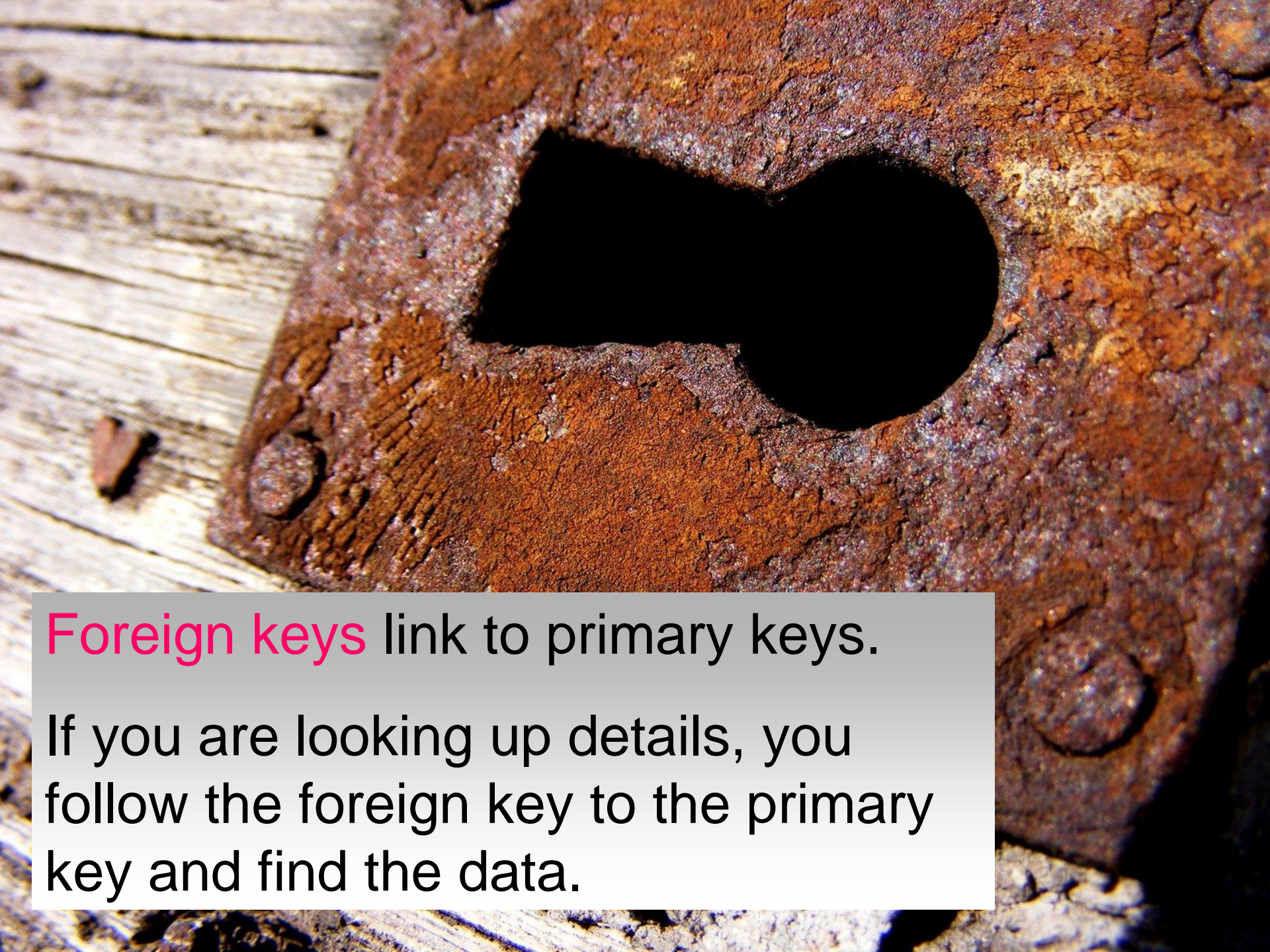


Tips for finding a key field

If there is an ID number and a name and both are unique, pick the ID.



Why? Names might get repeated later on, but IDs are picked by the database designer. You can easily keep them unique.



**Foreign keys** link to primary keys.

If you are looking up details, you follow the foreign key to the primary key and find the data.

Student			Teacher			Department		
StudID	StudName	Age	TeacherID	TName	DeptID	ID	Name	Office
1	Stan Dupp	15	18	Al Beback	2002	2002	Business	101
2	Sarah Soda	16	20	Sid Down	2002	2003	Math	123
3	Ida Knowe	15	19	N. E. Body	2003			

Course				Registered	
Code	Credits	CName	PreReq	StudentID	SchedID
ICS3U0	1	Grade 11 Computer Programming	None	1	101
ICS4U0	1	Grade 12 Computer Programming	ICS3U0	1	102
HSB4M7	2	Integrated Technology in a Global Society	ICS208	2	101
ICS208	1	MYP Grade 10 Computer Programming	None	2	104
				3	105
				3	104
				3	101
				1	103
				2	103
				3	103

Schedule					
SchedID	Term	Period	CourseCode	TeacherID	RoomNum
101	S2009	1	ICS208	20	133
102	S2010	2	ICS208	20	133
103	W2009	1	HSB4M7	18	107
104	S2010	3	ICS4U0	18	133
105	W2009	4	ICS3U0	19	105



# Foreign Keys?

Student			Teacher			Department		
StudID	StudName	Age	TeacherID	TName	DeptID	ID	Name	Office
1	Stan Dupp	15	18	Al Beback	2002	2002	Business	101
2	Sarah Soda	16	20	Sid Down	2002	2003	Math	123
3	Ida Knowe	15	19	N. E. Body	2003			

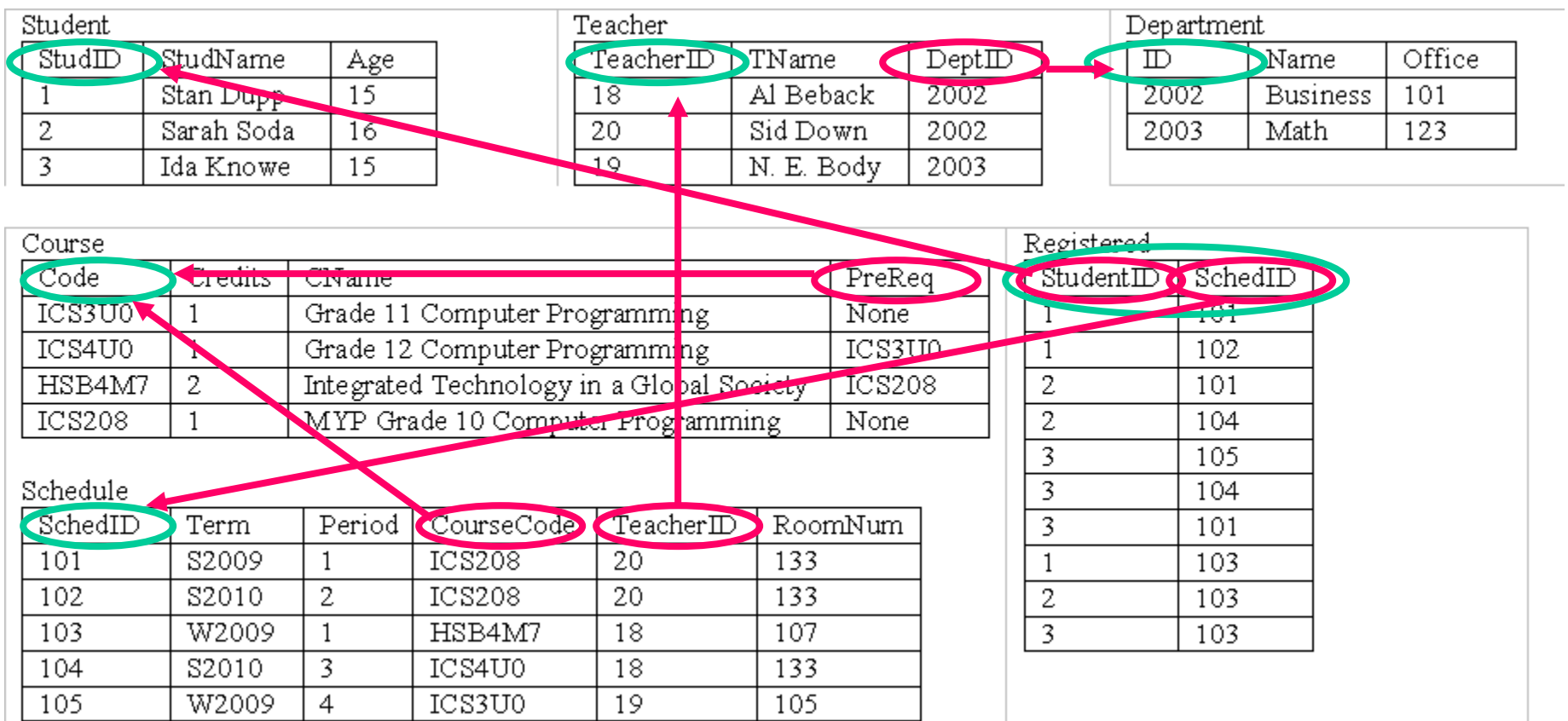
Course				Registered	
Code	Credits	CName	PreReq	StudentID	SchedID
ICS3U0	1	Grade 11 Computer Programming	None	1	101
ICS4U0	1	Grade 12 Computer Programming	ICS3U0	1	102
HSB4M7	2	Integrated Technology in a Global Society	ICS208	2	101
ICS208	1	MYP Grade 10 Computer Programming	None	2	104
				3	105
				3	104
				3	101
				1	103
				2	103
				3	103

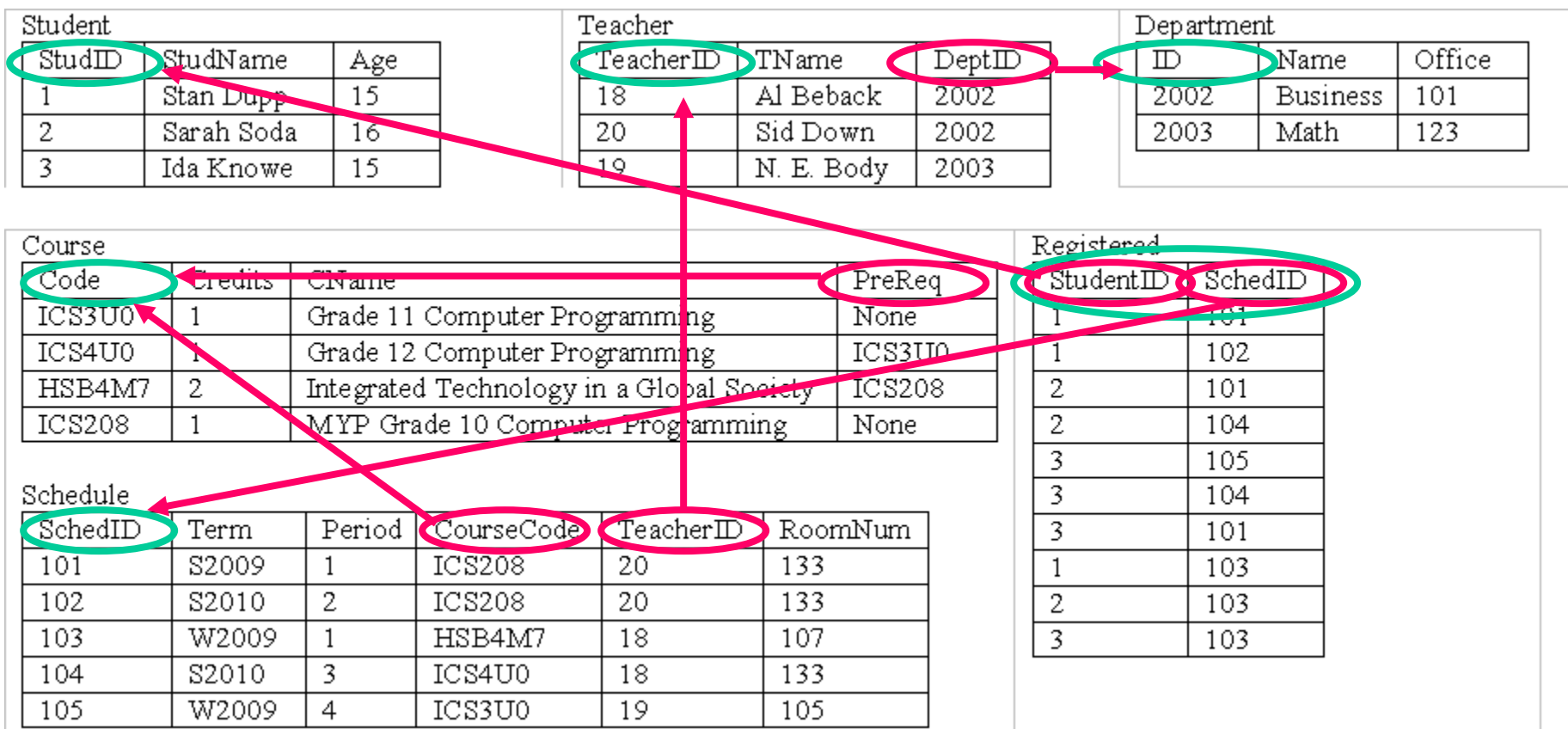
Schedule					
SchedID	Term	Period	CourseCode	TeacherID	RoomNum
101	S2009	1	ICS208	20	133
102	S2010	2	ICS208	20	133
103	W2009	1	HSB4M7	18	107
104	S2010	3	ICS4U0	18	133
105	W2009	4	ICS3U0	19	105

To what does each key refer?

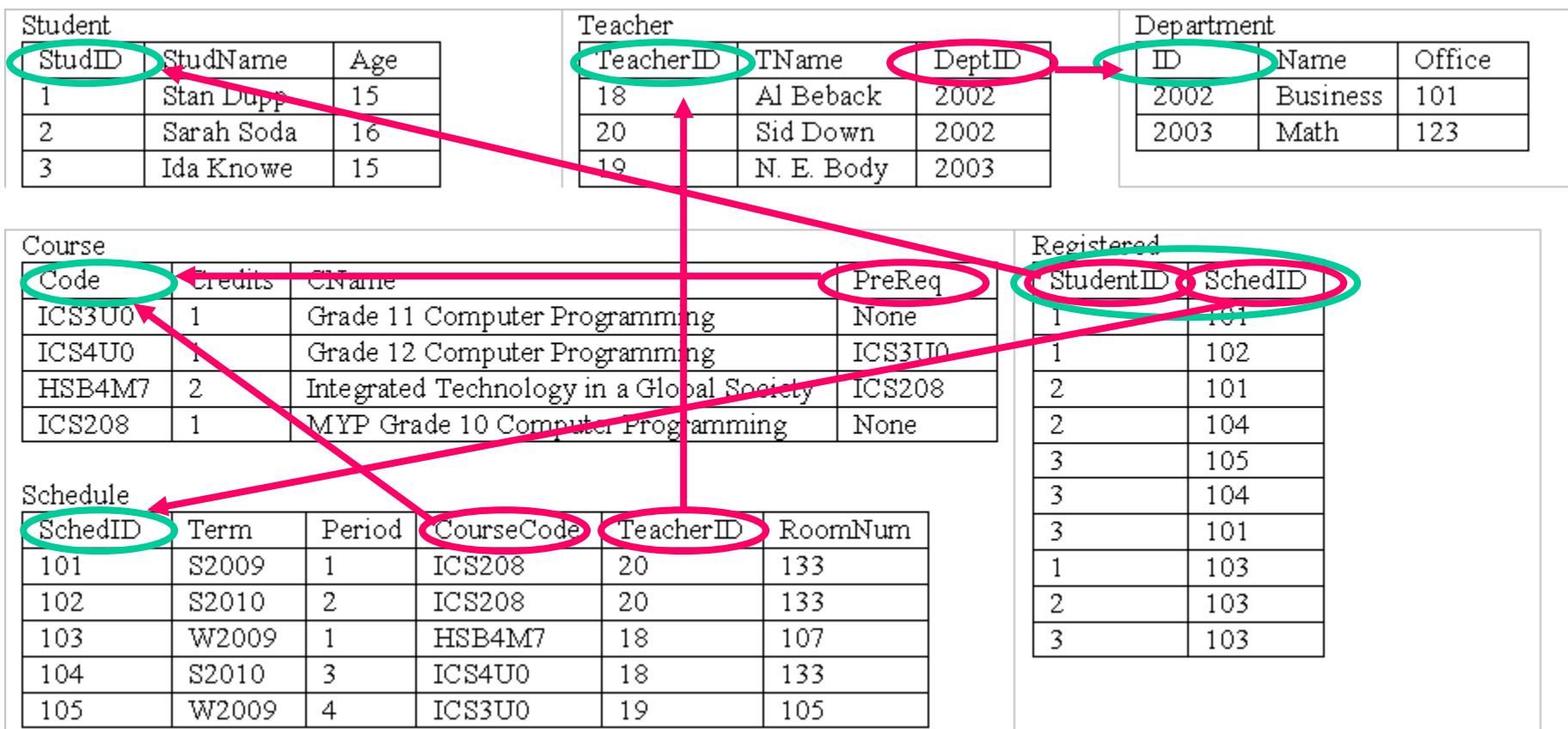




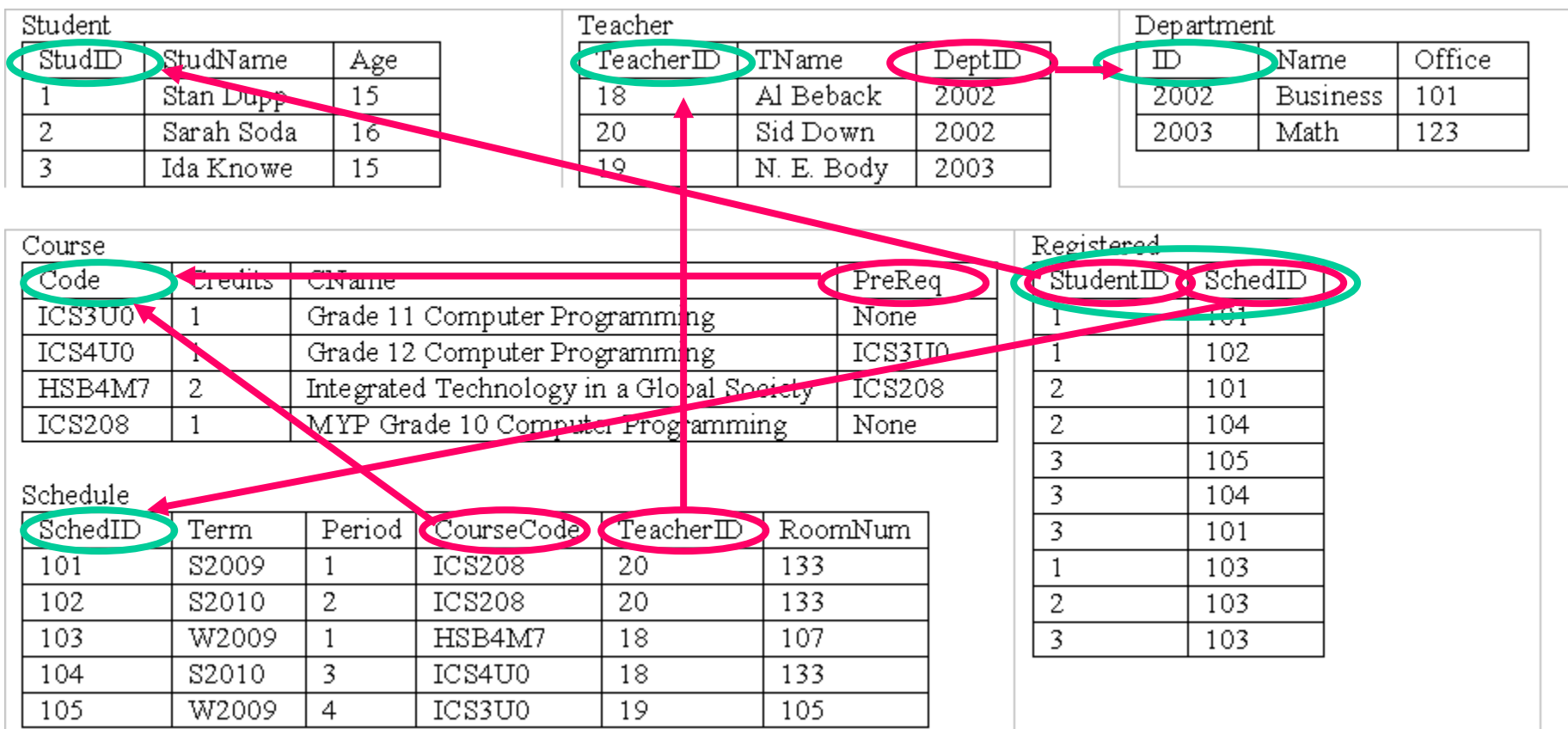




How do you go from the Student table to the course table?



How do you go from the Department table to the course table?



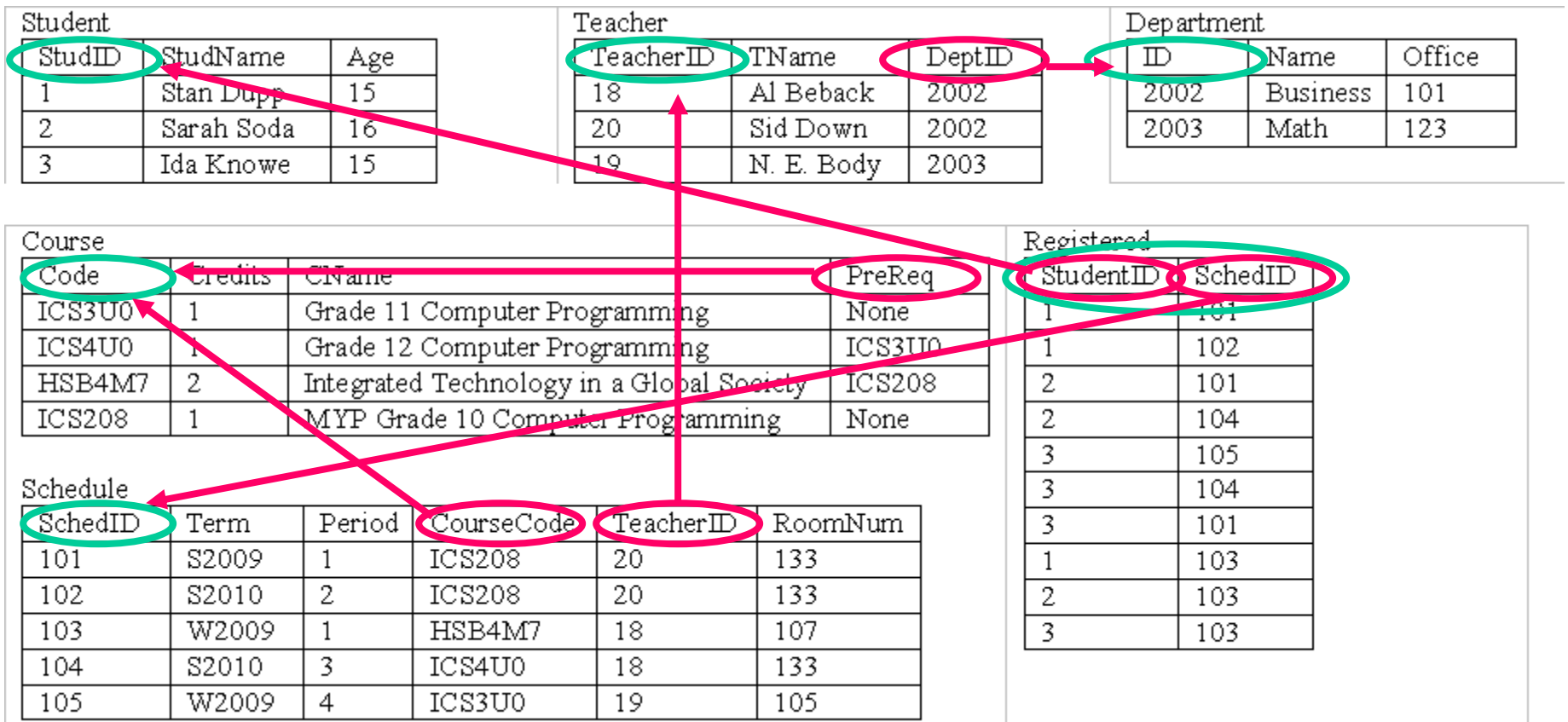
Print the teacher names and the course name of each course.

**Select** – what fields do I need?

**From** – what tables do I need?  
Include tables to link them!

**Where** – what joins do I need?  
What restrictions do I need?

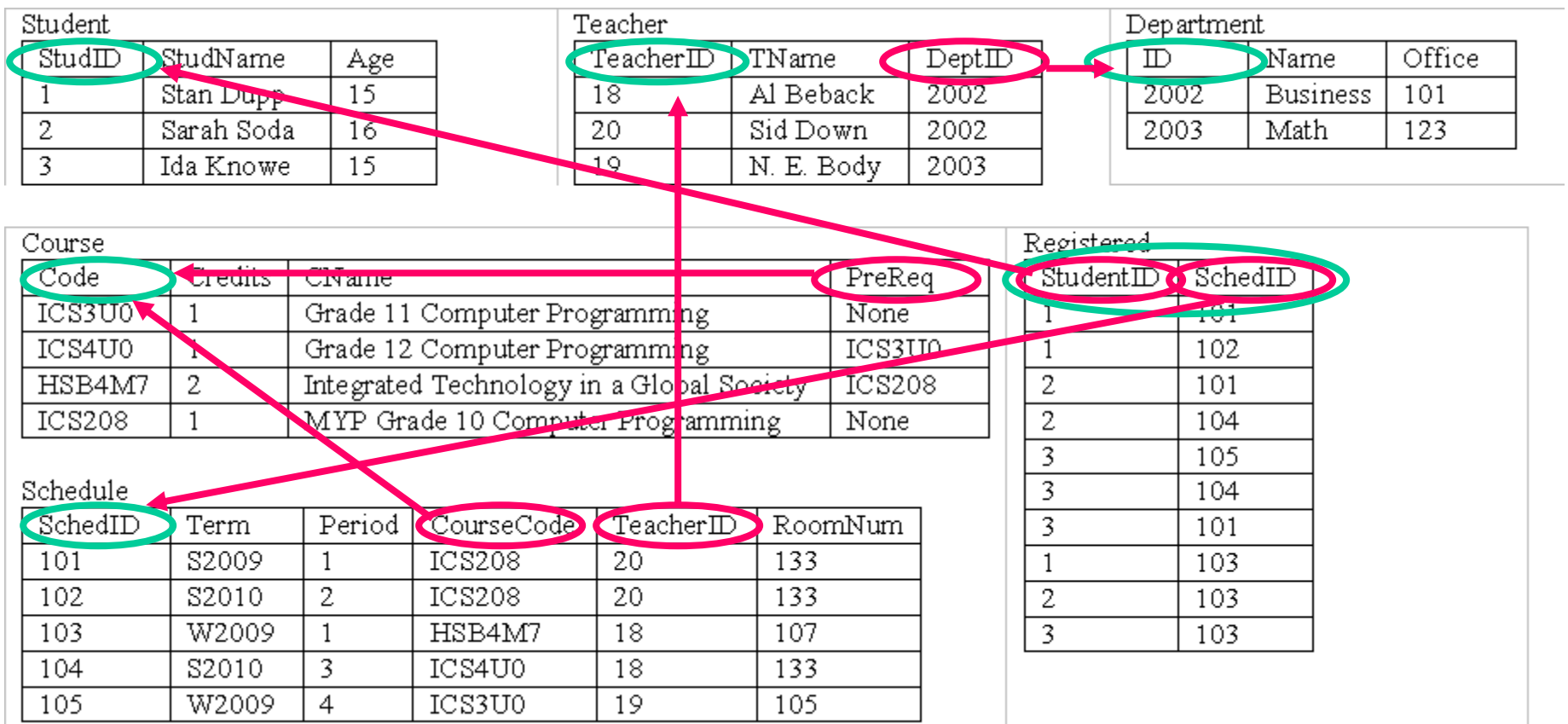




Print the teacher names and the course name of each course.

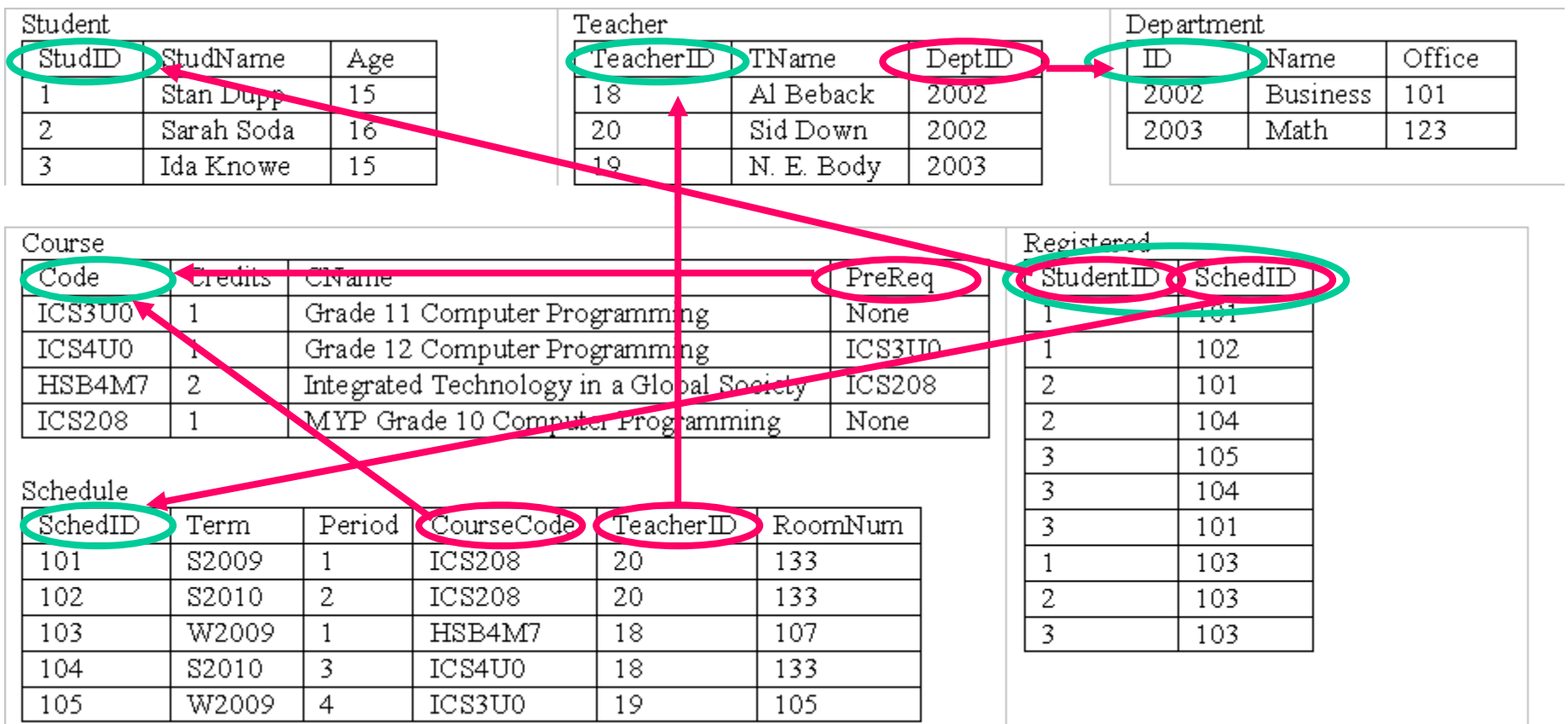
Select what fields?





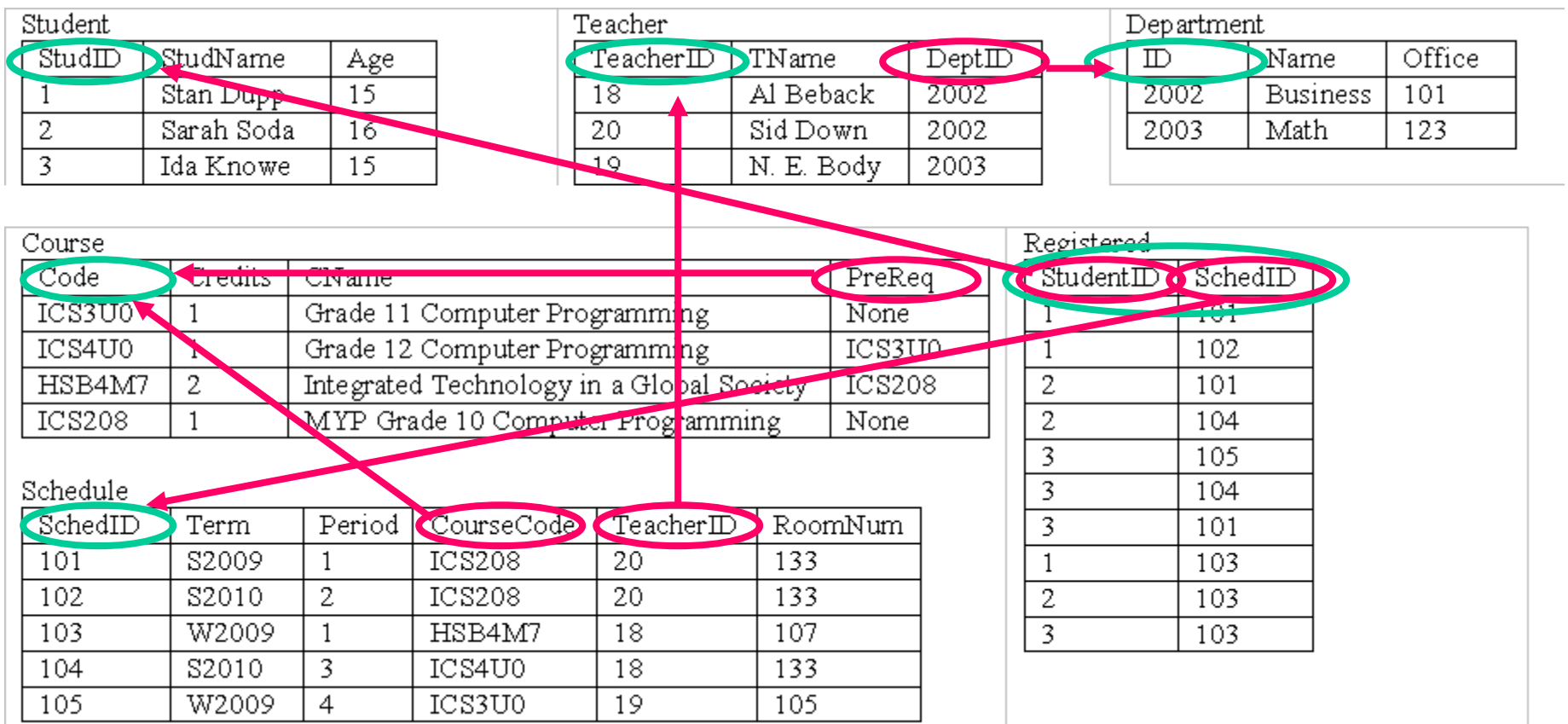
Print the teacher names and the course name of each course.

Select Tname, Cname  
From what tables?



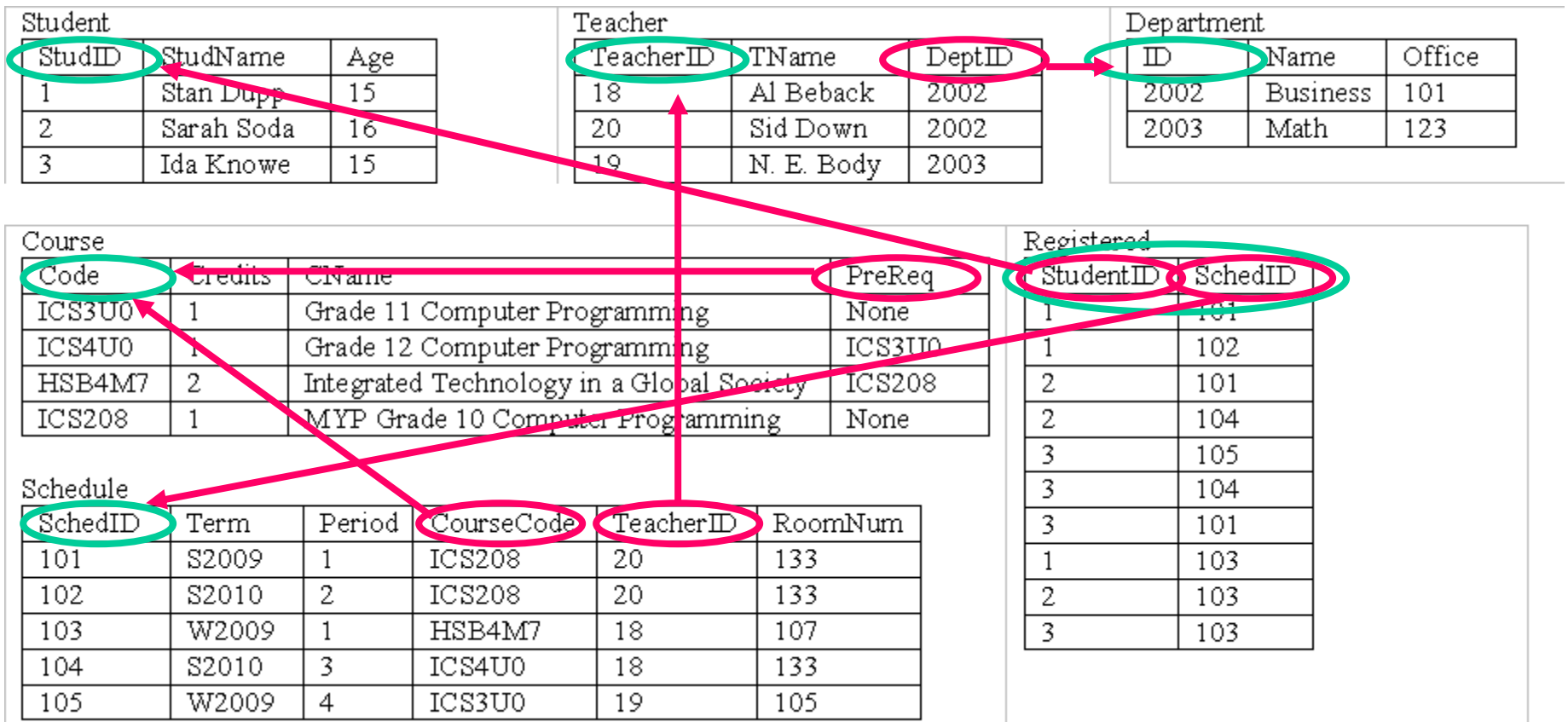
Print the teacher names and the course name of each course.

Select Tname, Cname  
From Teacher, Course..... And what?



Print the teacher names and the course name of each course.

Select Tname, Cname  
 From Teacher, Course, Schedule  
 Where... link PK to FK...



Print the teacher names and the course name of each course.

Select Tname, Cname

From Teacher, Course, Schedule

Where Teacher.TeacherID = Schedule.Teacher ID  
and CourseCode = Code