Teaching Design to Solve Business Problems

If database texts are so good, why do our graduates emerge so poorly prepared for positions in industry? Perhaps the texts are preparing our students to solve the wrong problems. But how could this be? It could happen for a variety of reasons. First, the database field has grown over the years rendering a one-course introduction rather cursory. Second, the technology has gotten increasingly easy to use, which means our students should be using it more. Third, many technologies that are fading in industry importance (such as hierarchical and network databases) are still covered for historical reasons. Fourth, design is often taught and tested as a series of rules and techniques (such as normalization and E-R diagrams) rather than as an art. Fifth, relatively little problem solving teamwork is typically assigned in the course. The solution is to revise the database course to teach design in order to solve business problems.

Poorly prepared graduates

Many alumni arrive on the industry scene incapable of solving real business problems. Often they are assigned to a team, given a problem to solve and then experience more than a passing anxiety. This after all, is not how they were trained. Why not?

Academic training usually involves rather painfully dull lectures to get through the required material. Our textbooks are rather thick and there is a lot of material to cover. Lecture is a very efficient method for covering material. The professor is satisfied that the material has been covered. The students now know what the professor thinks is important and therefore what must be memorized. The test, true to form, covers the lectured material. And so everyone has gotten through the course. And yet the students haven’t done group work and they’ve done very little design. Yet group work and design are what they face first in industry. Something clearly is amiss.

One course is not enough

We have moved over the years from a manufacturing to a service oriented economy. In many service sectors such as banking and insurance, the data is the company. Even the manufacturing sector is data intensive. It would not be possible to have a bank or insurance company today that was not computerized. Data is often the key industry resource. So why not create a multi-course sequence in database design? Some universities have created multi-course telecommunications programs in response to the flood of interest in that field—what not database? The answer would appear to be historical. One textbook has always covered it all—or so we think.

Technology easy to use

Remember the days when you used to teach data manipulation in the hierarchical and network database environments? Quite a chore in a procedural, record oriented environment, with rather crude interfaces. Contrast that with the non-procedural, set-oriented environment and WYSIWYG interfaces of the SQL fourth generation language products. It is a whole lot easier to use. So why not use it more and use it to solve interesting and challenging problems? Why not introduce real world type design problems? As ease of use increases so should the percentage of the course which is dedicated to design—and more specifically business problem solving design.

Historical technologies still covered

Long after C.J. Date moved hierarchical and net-
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