Tools and Evaluation

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Agenda

Synthesis Competition
- **SynthLib**: Mukund Raghothaman (7 minutes)
- **future features**: Armando Solar-Lezama (7)

User Studies
- **CodeHint**: Joel Galenson (5)
- **Quicksilver**: Ras Bodik (5)
- **Automata Tutor**: Loris D'Antoni (5)
- discussion: Bjoern Hartmann (10)

Tool Infrastructure
- **what tool support do we want**: Abhishek Udupa (5)
- **What’s new in Sketch**: Rishabh or Armando (5)
Quicksilver (Edward Lu)

**What:** Synthesis of relational queries from examples

**Motivation:** work with data on phones, tablets.

**Keywords:** end users, mobile.
Motivating example: advising meetings

I have two relations. First, my 20 undergrad advisees:

<table>
<thead>
<tr>
<th>Student</th>
<th>E-mail</th>
<th>Class</th>
<th>GPA</th>
<th>Advising Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Doe</td>
<td><a href="mailto:p@berkeley.edu">p@berkeley.edu</a></td>
<td>Senior</td>
<td>4</td>
<td>6269</td>
</tr>
<tr>
<td>Anne Foe</td>
<td><a href="mailto:asa@berkeley.edu">asa@berkeley.edu</a></td>
<td>Sophomore</td>
<td>4</td>
<td>8112</td>
</tr>
<tr>
<td>Lue Goe</td>
<td><a href="mailto:bcd@berkeley.edu">bcd@berkeley.edu</a></td>
<td>Senior</td>
<td>3.2</td>
<td>1513</td>
</tr>
<tr>
<td>Jimmy Toe</td>
<td><a href="mailto:abc@berkeley.edu">abc@berkeley.edu</a></td>
<td>Senior</td>
<td>2.575</td>
<td>7395</td>
</tr>
</tbody>
</table>

Second, a world-writable signup google doc. I create times slots and students sign up their names. A sample:

1:00 PM    John Doe
1:10 PM    Jimmy NotMyAdvisee
Four questions I had to (painfully) answer

Place advisor code next to students who signed up.
  This will annotate the schedule with advisor codes.

Which signed-up students are not my advisee?
  I need to redirect them to their advisor asap.

Which of my advisees have not signed up yet?
  I will email them a reminder.

Which of my advisees (who signed up) do not have an advisor code in table 1?
  I need to immediately investigate with staff.
Evaluation

The Hypotheses

1) Given the choice of using our tool or using anything else that comes to the user’s mind, the user would prefer using our tool to perform table transformations.

2) Most users will not be able to efficiently (i.e. not manually copying and pasting cells) complete common table transformations without using our tool.
Methodology

5 minute tutorial on the Quicksilver tool.
Two data transformation tasks.

Experimental condition:

Participants used Quicksilver to perform one task.
Questions not answered after the tutorial.

Control condition:

Use any other method the other task.
Data provided in Google Spreadsheets; can download.
Questions answered.

Ordering of conditions was randomized
to account for learning effects.
Results