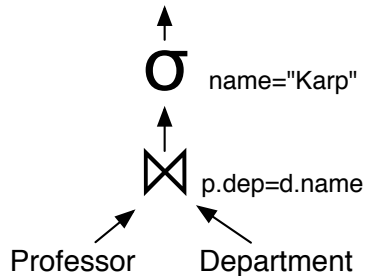
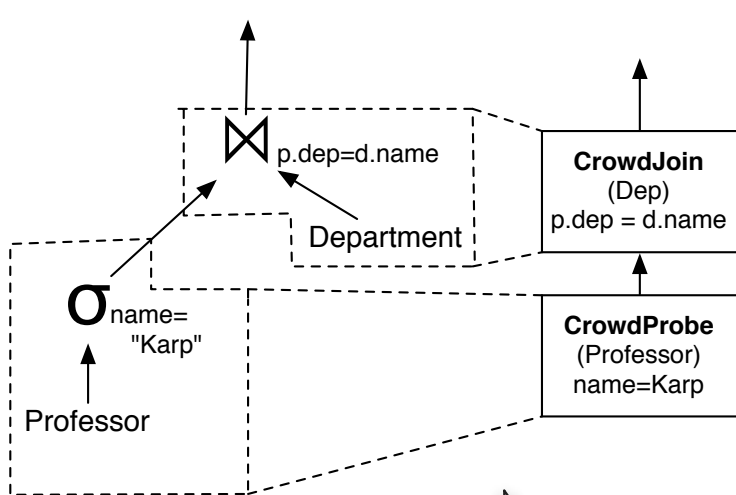


```
SELECT *  
FROM professor p,  
     department d  
WHERE p.department = d.name  
      AND p.university = d.university  
      AND p.name = "Karp"
```



(a) PeopleSQL query

(b) Logical plan
before optimization



(c) Logical plan
after optimization

Diagram (d) shows a physical plan. It consists of two forms: 'CrowdProbe (Professor) name=Karp' and 'CrowdJoin (Dep) p.dep = d.name'. The 'CrowdProbe' form has fields for 'Name' (filled with 'Karp'), 'Email', 'University', and 'Department', and a 'Submit' button. The 'CrowdJoin' form has fields for 'University', 'Name', 'URL', and 'Phone', and a 'Submit' button. Arrows indicate the flow from the 'CrowdProbe' form to the 'CrowdJoin' form.

Please fill out the missing **department** data

University	<input type="text"/>
Name	<input type="text"/>
URL	<input type="text"/>
Phone	<input type="text"/>
<input type="button" value="Submit"/>	

Please fill out the **professor** data

Name	<input type="text" value="Karp"/>
Email	<input type="text"/>
University	<input type="text"/>
Department	<input type="text"/>
<input type="button" value="Submit"/>	

(d) Physical plan