CSC 560 Modern DBMS Architectures Alexander Dekhtyar

Assignment 1: Database Research Directions Critique

Due date: Thursday, October 2, in-class

Assignment

This is a team assignment. Each team will work on putting together one set of deliverables.

State of Database Research Documents. The course web page contains links to a number of documents written by groups of prominent database researchers over the years. Each document details the state of database research for a specific moment in time, and projects the future directions of database research. In addition to the two documents we study in class (the 2009 Claremont Report and the 2012 white paper on Big Data), there are five more documents representing the state of research and the authors' thoughts about the emerging problems and directions in 1988, 1995, 1996, 1998 and 2005.

There exist additional reports (cited in some of the documents) that you may want to consider finding and using for this assignment, but these five should be enough to give you a solid footing.

What this is about. The main goal of this exercise is to put the contents of the 2009 Claremont Report and the 2012 Big Data white paper into perspective. Each of the five earlier reports can be read and analyzed with an eye on these developments. You can therefore understand, which parts of these documents wound up being prophetic, which wound up not quite so, and which are still active work in progress.

What to do. Each team is expected to read (jointly, or separately - you can break the reading assignments among the team members as you see fit) the five documents provided to you. The team shall then discuss the contents of the documents and determine the answers to the following questions:

- What achievements have database researchers claimed over the past 20 years? What significant problems in the area of data management have been solved completely, or to a significant degree?
- Do you agree with the claims of achievements made by the authors? If no, identify which claims you disagree with and why.
- Which problems did the authors of the documents see as significant, overarching challenges to the database community at each point in time?
- Based on your knowledge of the progress made in technology in the past 20 years, d o you agree with the authours' assessments of the significance of the problems? If no, explain on which problems and why you are in disagreement.
- Have the authors, at any point during the last 20 years missed a significant research or technological challenge to the data management community? If yes, what has been missed (or undervalued in favor of other problems)
- How do you overall view the database community's ability to correctly identify:
  - its major achievements?
  - its significant short-term challenges?
  - major long-term problems facing it?
- Through the prism of your answers to the questions above, how do you feel about the challenges identified in the Claremont report and the Big Data white paper? Which challenges from these two papers do you believe are truly relevant, and which may be over-hyped?

Once you have figured out your opinions on these matters, put your opinions on paper as specified below.

Deliverable. Each team shall prepare a paper, which discusses the development of database research in the past 20 years (and beyond, if you find it necessary/useful), and analyzes and critiques the "state-of-the-art" documents. When preparing the paper, please consider the following:

- The paper shall be written as an academic paper (imagine you are submitting a position paper to a conference). It shall have a proper title, list the names of all team members (usually, in Computer Science publications, alphabetical order is used), have an abstract, an introduction, sections devoted to your analysis and critique, a conclusion and bibliography of the work cited in the paper. Use of LaTeX is encouraged, although not required for this assignment.

- There is no specific upper or lower limit on the size of the paper, but be reasonable. The paper should be of the size that allows you to fully present your analysis and critique in a reasoned, supported way.
- All team members are expected to contribute to the discussion and to the writing effort.

Submission. The papers are due at classtime on Thursday, October 2, 2014. Bring a hard copy of the paper to class (one copy per team) and submit it there. Additionally, send the PDF of the paper to dekhtyar@calpoly.edu by 8pm, Thursday, October 2.

Further thoughts. Depending on how things go in the class this quarter, I may ask each of you to read other teams' papers, and compare and contrast them with yours (either as a formal graded assignment, or as an informal, "let's discuss it in class", assignment). This means that your submitted papers will, most likely, be posted on the course web page.

Good Luck!