

Community Input and Engagement for CS202x: Data Management

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ABSTRACT

CS2013, the latest version of the ACM/IEEE Computer Society curricula is approaching its 10th anniversary. The CS202x Task Force, whose charge is to update this important document, began its work in Spring 2021. The aim of this BoF session is to seek feedback from the SIGCSE community on a draft recommendation from the Data Management knowledge area (CS2013 terminology) subcommittee. The area of Data Management has not remained static this past decade as new topics have emerged and previously minor topics have grown in popularity. These include distributed and replicated databases, the expanding role of non-relational databases, the now ubiquitous association between “back-end development” and data management services, and the elephant in any investigation of data management; Big Data. In this light, we seek to gather as many diverse views and voices as possible to help shape the curricular recommendations from the Data Management subcommittee. Additionally, we hope to enlist participants to remain engaged in this process as a guiding community to the Data Management subcommittee.

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1 SIGNIFICANCE AND RELEVANCE OF THE TOPIC

Computer Science Curricula 2013 (CS2013)[3] continued a long history of joint ACM and IEEE efforts to establish international curricular guidelines for undergraduate programs in computing on roughly a ten year cycle, starting with the publication of Curriculum 68[1]. As CS2013 is nearly 10 years old, a task force and steering committee has been formed to complete CS202x¹, the successor to 2013. CS202x is intended to guide the curricula of undergraduate programs until the early 2030s.

Over the 50 year history of ACM/IEEE computer science curricular recommendations, the Data Management domain, previously

¹csed.hosting.acm.org/

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titled as the Information Management Knowledge Area in CS2013, has remained an important and evolving foundational area. For example, while external sorting algorithms remain as classic examples of the divide-n-conquer paradigm, their curricular relevance today is far less than it was 50 years ago.

The CS202x Data Management subcommittee is striving to learn from both past and current practices (i.e. what is getting covered) to recommend the future learning needs of computing students in the Data Management domain.

- Which topics, like external sorting, are decreasing in relevance?
- Which current topics are increasing in relevance?
- Which new topics need to be added to the curricular recommendations?

The more input and feedback the CS202x Data Management subcommittee receives, the better the eventual final recommendations. The relevance of this proposed BoF is to widen the community of those focusing on the Data Management domain.

2 EXPECTED AUDIENCE

In spite of the ubiquity of the database course, past Data Management/Database related BoFs have not drawn huge audiences; say 35 or less. We anticipate a similarly sized audience comprised of educators who focus on the database and big data courses. In particular, we hope for participants with specific Data Management/Database expertise who can share topics and viewpoints that have been overlooked or not yet considered. The community of like-feathered “birds” we seek to gather will extend beyond those colleagues whose interest in this area is derived from being assigned to teach a database course, but also include those with vision to help craft the Data Management/Database curricular recommendations that will serve our community for the next decade or more.

3 DISCUSSION LEADER

Mikey Goldweber is a member of the CS202x Steering Committee and chairs the Data Management subcommittee. He is a past chair of the ACM Special Interest Group on Computers and Society (SIG-CAS) and still serves as a member of its Executive Board. Mikey is one of the founders of the Computing for the Social Good in Education (CSG-Ed) initiative. A past member of the ITiCSE Steering Committee, Mikey is also currently an ACM Inroads Associate Editor. His involvement in CS curricula is extensive and dates back to a 1997 ITiCSE Working Group[2] which he co-led. Finally, after decades of successful bullet dodging, Mikey is now Chair of the Department of Computer Science at Xavier.

Sherif G. Aly is Chair and Professor of Computer Science and Engineering at the American University in Cairo. He is a member of the CS202x Steering Committee and chair the Networking and Communications subcommittee, a commissioner for the Accreditation Board of Engineering and Technology and editor for Communications of the ACM. He served as former Associate Dean of Graduate Studies and Research at the American University in Cairo, Director of the PhD program, and advisor to the Vice President for Information Management. Sherif is a recipient of numerous diverse national and international recognitions for outstanding performance including the President’s Catalyst for Change Award, a National Prize for Scientific Research, and multiple recognitions for outstanding teaching and coaching. He is also a strong believer in diversity, and a solid proponent of effective techniques of high quality education. He has prior work experience at Telcordia Technologies, the National Institute of Standards and Technology, and General Dynamics.

4 PROPOSED ACTIVITY DURING THE BOF

There are three proposed activities for the BoF:

- (1) Present the current draft of the Data Management CS202x subcommittee’s recommendation. At this stage this is essentially an enumeration of domain topics sorted into three categories: Primary, Secondary, and Tertiary. This is what the Computer Science Curricula 2013 labeled: Core I, Core II and Elective. Distribution will be both electronic and hardcopy to accommodate both the in-person and remote attendees. Attendees will be asked to comment on what is missing as well as the assignment of topic to category. (e.g. Are B+ Trees a primary, secondary, or tertiary topic?) Given the anticipated smallish BoF size, polling each attendee should be manageable.
- (2) Engage the assembled in a discussion on where we see Data Management as a focus of one or more CS courses evolving over the next five to ten years. In particular, what competencies should a new CS graduate n years from now be expected to possess?
- (3) Invite the assembled to continue to engage with the Data Management subcommittee both on a formal and informal basis. Each CS202x subcommittee will form a community of Special Advisors. We hope to recruit some Data Management subcommittee Special Advisors from BoF participants. For those interested in a less formal role, we also hope to build an email list (i.e. loosely coupled, distributed community) of those willing to read and comment on periodic subcommittee draft reports.

To aid in accommodating remote attendees, one of the two discussion leaders will be tasked with managing/overseeing the remote attendees inclusion in the discussions. We hope that the assigned space will be equipped with a projector/screen to facilitate the inclusion of the remote attendees in the gathering

5 ACKNOWLEDGMENTS

CS202x is a joint effort of the ACM, IEEE Computer Society, and the Association for the Advancement of Artificial Intelligence. The CS202x website is: csed.hosting.acm.org

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