Basic information of the paper:

1. Name(s) of the author(s): **Ajit Mathew, Changwoo Min**
2. Title of article: HydraList: **A Scalable In-Memory Index Using Asynchronous Updates and Partial Replication**
3. Title of journal, volume number, date, month and page numbers: **Proceedings of the VLDB Endowment. Vol. 13, No. 9**
4. Statement of the problem or issue discussed: **An index should ideally have time complexity that is independent of the size of the key set-in order to be performant with large data sets. Critical sections should be reduced, and synchronization mechanisms should be carefully designed to decrease cache coherence traffic to ensure scalability. Furthermore, because servers have a complex memory hierarchy, data placement and memory access patterns are critical for high performance across all workload types.**
5. The author’s purpose, approach or method: **HydraList is a new concurrent, scalable, and high-performance in-memory index structure for massive multi-core machines, which they present in this paper. The fundamental insight behind HydraList's design is that an index structure can be split into two components (search and data layers), each of which can be modified separately, resulting in lower synchronization overhead.**
6. Primary (evaluation) result:

The critique:

1. Is the title of the article appropriate and clear? It could be clearer if they said.
2. Is the abstract specific, representative of the article, and in the correct form?
3. Is the purpose of the article made clear in the introduction?
4. Do you find errors of fact and interpretation? (This is a good one! You won’t believe how often authors misinterpret or misrepresent the work of others. You can check on this by looking up for yourself the references the author cites.)
5. Is all of the discussion relevant?
6. Has the author cited the pertinent, and only the pertinent, literature? If the author has included inconsequential references, or references that are not pertinent, suggest deleting them.
7. Have any ideas been overemphasized or underemphasized? Suggest specific revisions.
8. Should some sections of the manuscript be expanded, condensed or omitted?
9. Are the author’s statements clear? Challenge ambiguous statements. Suggest by examples how clarity can be achieved, but do not merely substitute your style for the author’s.
10. What underlying assumptions does the author have?
11. Has the author been objective in his or her discussion of the topic?

In addition, here are some questions that are more specific to empirical/research articles. (Again, use your discretion.)

1. Is the objective of the experiment or of the observations important for the field?
2. Are the experimental methods described adequately?
3. Are the study design and methods appropriate for the purposes of the study?
4. Have the procedures been presented in enough detail to enable a reader to duplicate them? (Another good one! You’d be surprised at the respectable researchers who cut corners in their writing on this point.)
5. Scan and spot-check calculations. Are the statistical methods appropriate?
6. Do you find any content repeated or duplicated? A common fault is repetition in the text of data in tables or figures. Suggest that tabular data be interpreted of summarized, nor merely repeated, in the text.

A word about *your* style: let your presentation be well reasoned and objective. If you passionately disagree (or agree) with the author, let your passion inspire you to new heights of thorough research and reasoned argument.

So your assignment is to critique a journal article. This handout will give you a few guidelines to follow as you go. But wait, what kind of a journal article is it: an empirical/research article, or a review of literature? Some of the guidelines offered here will apply to critiques of all kinds of articles, but each type of article may provoke questions that are especially pertinent to that type and no other. Read on.