SSS Tutorial Development Guide book

This is a guide to developing a user centered guide book for Systems Research

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AIM

The overarching goal of the tutorial we are developing is to basically beyond teaching concepts in systems but to awaken the desire and interest of young researchers in systems research. To achieve this it is imperative we draw out the nexus between what we do in systems research, how it impacts the real world and the approaches we take in delivering the systems we build.

This guide book outlines the steps you should take in organizing the content of your tutorial. It is not cast on stone, so feel free to twerk the ideas as you deem fit.

ORGANIZATION

I have outlined the organizational structure to be followed in laying out the content of the tutorial being developed. Please feel free to revert if you need better clarification. The sections include:

Section 1: Why do we Care; A sneak peak into a real real life application of the ……(please put in the idea your tutorial is propagating).

A good motivation to read this tutorial is by narrating a real life application of the idea taught by your tutorial. For instance in the case of programming using a GPU… it may help the readers to see a description of the real world application first before his mind is triggered to understand how the solution works. This is the part of the tutorial where you try to explain the code you built for the real life application. Be generous about adding screenshots from your code and explanations to these sections. Whether or not readers are intrigued enough to ask for more while interacting with this tutorial is dependent on how well this section is written and presented. In concluding this section, highlight the goal of your tutorial.

Section 2: The Tutorial

- ### The problem

We have all picked a problem to solve using our tutorial, this is the section where you outline the problem to solve, like matrix multiplication.. Etc.. State the problem in as much detail as possible.

- ### Definition of operational terms

This subsection is very vital, explaining all ground truths, terms, acronyms that you will use in explaining the problem and the solutions you are bringing to the readers in the coming sections. It is important to be as clear as possible here and define terms in the most relatable way.

- ### Learning objectives

Identify the objectives of the tutorial, this includes what the readers should be able to

accomplish at the end of the tutorial, and how following through with the hands-on labs will aid the users in understanding and internalizing the idea propagated by this tutorial.

- The Generic solution

For every problem we identified and sought to solve with our novel research idea, there was a generic way of solving the problem. For example sequentially solving the problem, or using a CPU as opposed to using a GPU, this is the section where you give a generic solution of the problem. The beauty of this is that when your Novel idea to solve the problem is introduced in the coming subsection, the reader will appreciate the work done, and would be able to see the role of research in birthing the new idea. This is a set induction technique to demystify what systems researchers do.

- The Novel improvement

This is your playground, where you present the new solution to the problem following the novel approach your tutorial is propagating. Sapre no thoughts in letting your users see how your research built up to this new approach. This is a selling point, take advantage of this subsection to awaken readers' interest in the work you are doing.

- Comparison of the generic solution to the novel

A clear presentation of simple evaluation results from the generic solution and the novel solution should be presented here. This is to make the readers see clearly what your research has achieved and why you do what you do.

- Summary

Draw a summary of the lesson taught by this tutorial by highlighting the strengths of your improvements and how they build upon the generic solutions and promote efficiency.

Section 3: Review Questions/Hands-on projects

Please add a few review questions and hands-on labs to enable users to assess their understanding of the research idea taught in the tutorial.

Section 4: How and Why We Do what we Do

This is where you talk briefly about the research you are doing, and how you leverage on the idea you are sharing in this tutorial to solve some of the research questions you are tackling. It would be noteworthy to share in this section any research you have completed, and/or published and the methods used.

Section 5: Appendix

This is the right place to put in screenshots and video links, pseudo codes, codes and any other resource you may wish to share (this is totally up to you to decide what goes here.

Section 6: References

Please provide references to the materials you leveraged upon to develop this tutorial in this section.

Section 7: External Resources

This section is reserved for you to share links to papers that leverage the generic approach, or aspects of your new approach to solve problems. Industry tools that leverage on the idea you are propagating are welcome to be shared here.

Keep in mind:

It is imperative to keep in mind that the goal of the tutorial is to draw attention and increase engagement with the type of research you do as a systems researcher, hence the tutorial should be delivered in clear language, devoid of technical jargons and in the most relatable way. That said I would remind us to always ensure that:

1. At all stages of development of these tutorials we bear the requirements and needs of the target audience in mind. The target audience are not entirely novices

to computing, yet they are not experts in systems research. Be cautious not to assume too much or too little.

2. It is imperative that we explain ideas in depth, always clearly stating the What, why, How, and Where of the idea we seek to propagate. The What defines the idea, the Why defines the purpose the idea serves, the How defines your approach and methods of using the idea to solve a problem, and the Where identifies the implementation areas for the idea and solution.
3. It is vital to incorporate feedback and improve on presentation of the tutorials to suit the needs of the users. There will be testing and reviews, and results will inform incremental improvements.
4. It is important that we try not to cover too much ground at a time, rather we should gain good depth rather than breadth. The more the users know about why and how you do your research, the more interested they will become.
5. It is important to use rapid e-learning authoring tools in developing the study guide. These tools permit screen recording, capturing and editing, and will be vital in ensuring we deliver multimedia based content to our users. (this is all up to you)
6. It is important to include supplementary links that would help the users to pursue further self guided learning and exploration of the idea you have introduced.
7. It is important that the tutorials foster project based learning, as such, we should incorporate small projects, review questions and tasks at the end of each section.
8. Where possible incorporate social learning activities, to promote engagement.
9. It is important that training videos, snippets from the sections of the codes, presentation slides are made available through links on the tutorial documentation.
10. Possibly use annotations and sketches to show steps. (Amanda introduced me to an awesome tool that renders stuff like hand drawn sketches, http://excalidraw.com/)
11. Never forget to put out **CAVEATS and DISCLAIMERS** for ideas that are still in the works or that have not passed tests and standardized validations.

Cheers and Good Luck as We Design our User Centered Tutorials !