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idea?

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Writing

Building a  
Map

# Introduction to Database Systems: CS580 Preparation for Senior Projects

Oliver BONHAM-CARTER

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# Your Senior Comp Research Subject

*Many comping students may ask...*

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- Senior Thesis CS600 class proposal
- *How to come up with a good (achievable) idea?*



# Your Senior Comp Research Subject

*Many comping students ask...*

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## How can I be successful in completing my comps in CS?

- I have an idea, how to start implementing it?
  - Could I program well enough?
  - Could I implement an algorithm?
  - Will I collect the correct data?
  - Will I understand my results?
  - Could I write the final proposal?
  - Could I write the final document?
  - Will I find relevant literature to read
  - Will do I need to know about my area?

## Getting started

- I may need some help getting started
- Let's see what's out there ...

# Navigation in Research

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- Cool; But how do I use this?!

# Research Flowcharts ...

How to start my project?

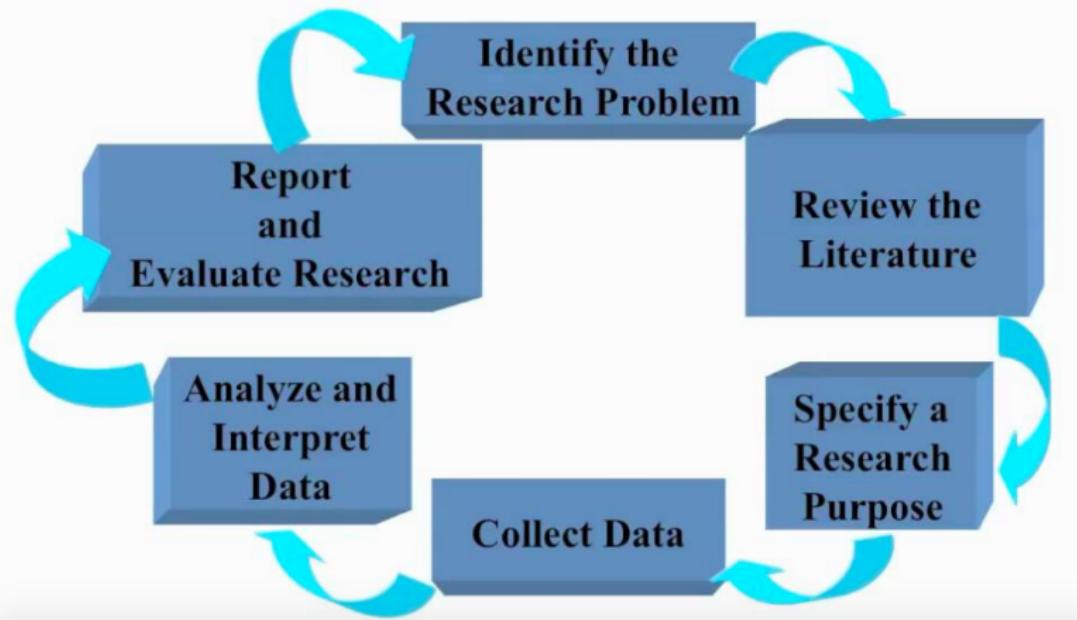
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- What are all these steps??
- How can I use them?

# A Cheery Diagram

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- This diagram is more cheery, but the same steps as before?
- I still have the same questions: How can I use these steps?

# Senior Research, the Game Board

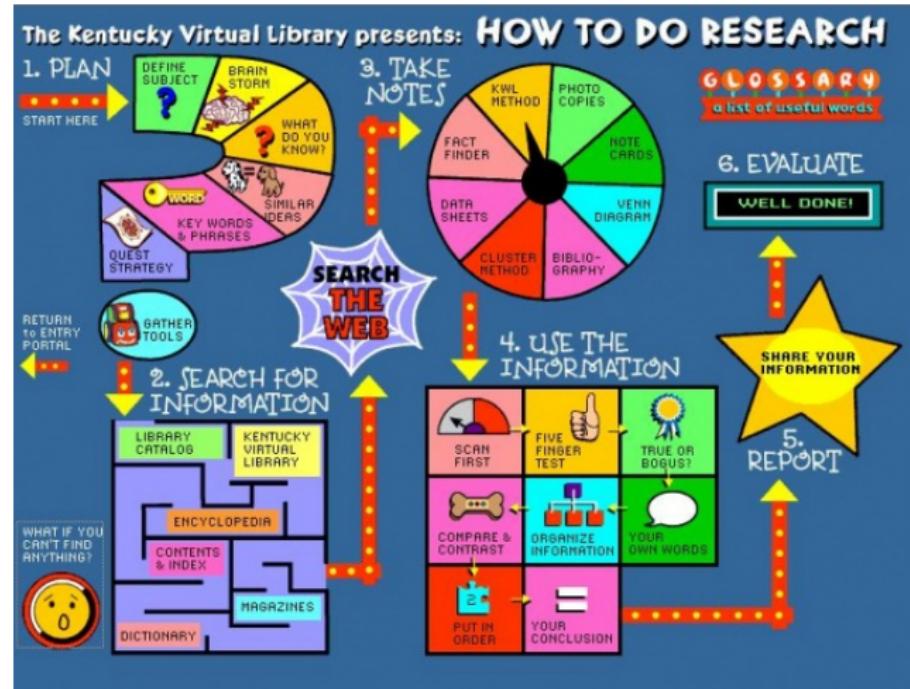
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- *This is really not helping me!*
- I still have the same questions: How can I use these steps?



# Information Overload!

I am overwhelmed!

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Learning how to do research from the Internet

- Is almost like taking a drink from a fire-hose



# Help is Coming!

A class to teach me how to do my own research?

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- This looks like a job for:

**Junior Seminar (CS580)**



# Articulating the Research Area

We learned this!

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Research Area

Finding Literature

Determining Feasibility

Big Questions

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## How to begin a project ...

- Decide on a topic: find your *passion-zone*
- Narrow down the area: anything you find in your passion-zone should be fun
  - General Area → reduced topic → Focus area (niche)
  - Ex: Algorithms → Sorting Algorithms → A Novel Sorter
- Lightning talk: *Area of interest*, Assignment 2

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Research Area

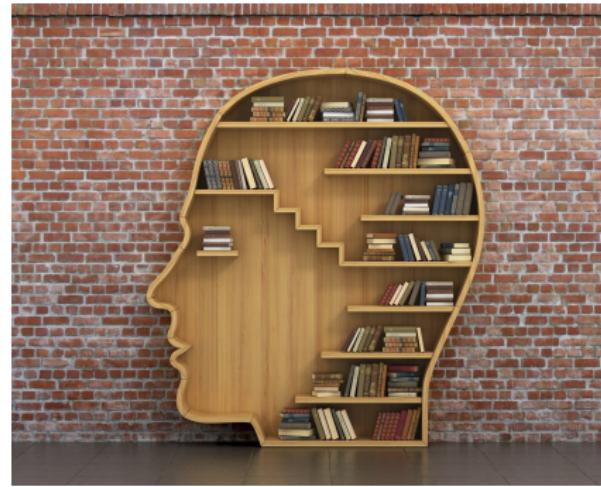
Finding Literature

Determining Feasibility

Big Questions

Writing

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How to find out what is already known about my area?

- Literature Review
  - What is known from peer-reviewed studies in this area?
  - How can I build on this knowledge?
- *Ideas from Articles, Assignment 3*



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Research Area

Finding Literature

Determining Feasibility

Big Questions

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### How to determine what else is involved in a project?

- Feasibility
  - What are some of the project's associated tools, libraries, software, data and etc?
  - Can I access these elements to help in my own project?



## How to determine core issues of a project



- What is /are my main focuses?
    - Is there an *over-arching goal* to this work?
    - What will solving this problem do or *look like*?
  - What is /are my secondary focuses?
    - What are further applications to this work?
    - What other types of problems can I now solve, with my solution?

# The Parts of the Proposal

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The Intro, Related Works and Method

Finding Methods

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Consider these ...

- What question(s) am I trying to answer?
- Why is my work relevant?
- What kind of approach am I to use to get there?
- How to introduce the details of the written proposal
- How much detail to add?
- When to introduce these ideas?

Some more ideas to consider ...



# Introduction

How do I grab my reader's attention?

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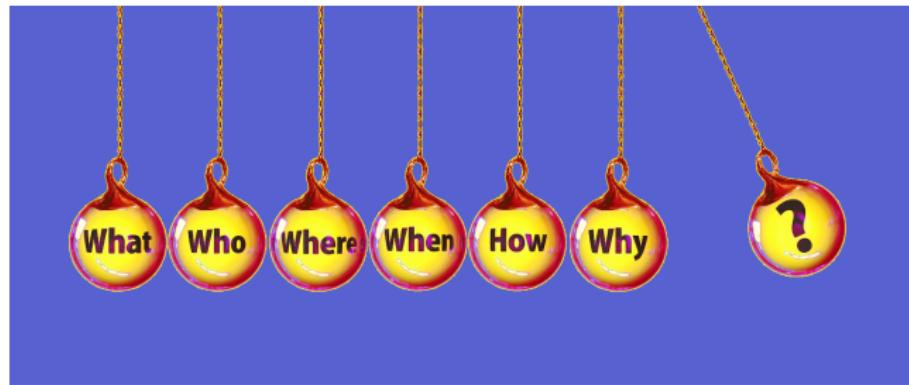
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The Intro, Related Works and Method

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- You begin with an outline to organize your thoughts ...
  - How to introduce the project in a way that makes readers continue to read
  - What kinds of supporting documents to include to substantiate the relevance of the project.
  - When should I introduce each of these elements??
- Then we add detail to the outline to *grow-out* the body of text that is the introduction.



# Related Works

What supports my work?

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The Intro, Related Works and Method

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- You begin with an outline to organize your related works section
- This section tells a story of what is known or has been done in your research area.
  - When should I introduce the articles of the related work?? (It matters!)
- Then add the details to the outline *grow-out* the discussion.



## The Method and Accessories to the Method

## What approach am I going to use?



- What method (and its associated part) to complete the project and how to link them together?
    - What programming languages? What data? What algorithms? What techniques? What libraries?  
*What-what-what?!*

# Building a Map

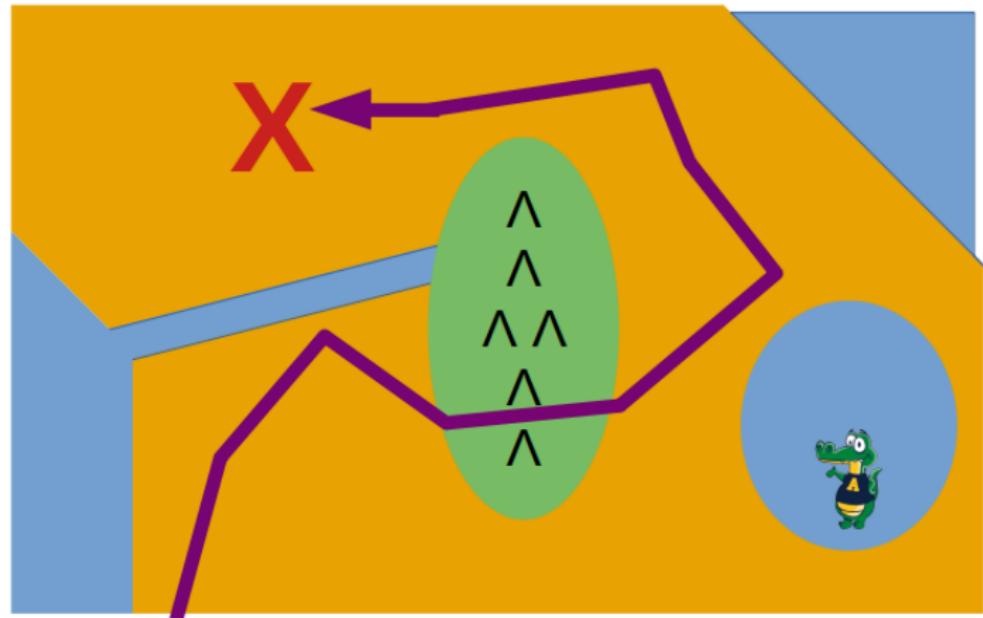
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A map to answer a question