What is Research?
and how to find a topic

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What is Research?

• Asking a question and looking for facts to answer it.

What is a research paper?

• A report about the answer to your question.

• When the answer is not directly found in one source (like a textbook).

• When the reader may not accept your answer without some explanation of how you reached it. (support for your claim).

Find a topic

• what do you already know about?

• what do you want to learn about?

• what issues do you debate with others?

Narrow your topic:

• read more about it (wikipedia, textbook)

• forums, blogs, google

• other books (more focused on the topic)

• foundational or summary papers in journals
Question your topic

• Ask how and why questions as you read.
• Ask what if? questions
• Analyze the topic:
  - what is its history?
  - what categories are there?
  - how do parts fit together?
• What kinds of questions do other people ask about it?
• Let one question lead to another.

Some example questions:
(from software engineering)

• What is the best method to . . .
  - do rapid software development?
  - test programs containing concurrency?
  - prevent bugs in safety critical software?
  - prevent the failure of software projects?
• Under what conditions can agile methods be used successfully in large organizations?

Where to find (reliable) answers
(useful sources)

• Journal articles, technical reports:
  - have been published in an academic journal (in print)
  - DO NOT cite copies of these on the internet.
• Other articles that have been published (in print or e-zine)
• Books (chapters) preferably NOT textbooks!
• On the internet: Be very careful
• Evaluating your source: see Harvard Guide to Using Sources

Record the proper bibliographic data

• Author(s)
• Title
• Page numbers, volume + issue + edition numbers
• Publisher: name, place, date
• Conference? name and location and date
• URL IFF that's all that you have.
How to find the sources:

- Go to Texas State Library home page, under Quick Links:
  - Library catalog (primarily for books)
  - Research Database (for scholarly articles, publications)
    ✦ (MUST BE LOGGED IN to library to access articles)
    ✦ Click on computer science
      › ACM Digital Library
      › IEEE Explore
    ✦ Click on ‘G’ to find Google Scholar
- Browse the shelves in the library
- Browse internet