CSE567M
Project Guidelines

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These slides are available on-line at:

http://www.cse.wustl.edu/~jain/cse567-17/

Overview

❏ Project Requirements, End-Goal

❏ Literature Search

❏ Outline: Preparation Process, Mind Maps

❏ Writing: Organization, List of Acronyms, References

❏ HTML Style Guidelines

❏ Draft Submission

❏ Final Submission

Project Suggestions

Note: Do not repeat last year's projects

❏ Cloud Computing

❏ Big Data

❏ Virtualization

❏ Multi-core processors

❏ Sustainability and energy

❏ Health applications

Sample Project Topics

❏ A Survey of Network Traffic Models

❏ A Survey of Queueing Analysis Packages

❏ Recent advances in queueing analysis

❏ A Survey of Simulation Packages

❏ Recent advances in simulation

❏ A Survey of Processor Workloads

❏ A Survey of modeling Tools: R, MATLAB, SPSS, Mathematica

❏ A survey of Network Performance/traffic monitoring Tools

❏ A Survey of Operating Sytems/Process Monitoring Tools

❏ Operating Systems (Unix/Linux/Windows) Performance Tools

❏ Note: Do not repeat last year's projects

Sample Project Topics (Cont)

❑ Time series analysis modeling techniques

❑ Performance Analysis of xxx (Commonly used performance metrics, Workloads, Sample/Actual Analysis, Examples of Use/Misuse of Analysis techniques and plots)

  ➢ Performance of Communication Middleware

  ➢ Performance of Real time systems

  ➢ Performance of Web caching

  ➢ ...

❑ Case Study: Performance Analysis of xxx

Project Schedule

Tue 10/03   Topic Selection

Tue 10/10   References Due

Tue 10/17   Outline Due

Tue 11/07   First Draft Due -> Peer reviewed

Tue 11/14   Reviews Returned

Tue 11/21   Final Report Due

Project Requirements

❑ Application of techniques learnt in this course to your research or area of interest

❑ Comprehensive Survey:
Technical Papers, Industry Standards, Products

❑ Will be published on my website,
Better ones may be submitted to magazines or journals

❑ If you are doing a case study or a survey of performance analysis of xxxx, make sure your report emphasizes the performance concepts and techniques learnt in this course.

❑ In surveys, if you come across misuse of statistics or mistakes, please include it in the report.

Project Requirements (Cont)

❑ No copyright violations:
  ⇒ You need to re-draw all figures
  ⇒ You need to summarize all ideas in your *own* words
  ⇒ Cannot copy any part of text or figure unmodified
  ⇒ Short quotes ok
  ⇒ Any unmodified figures need permissions
Any infringement will result in forfeiture of grades even after graduation.

❑ See papers in previous offering of this course, e.g.,
http://www.cse.wustl.edu/~jain/cse567-15/index.html
http://www.cse.wustl.edu/~jain/cse567-13/index.html
http://www.cse.wustl.edu/~jain/cse567-11/index.html
http://www.cse.wustl.edu/~jain/cse567-08/index.html
http://www.cse.wustl.edu/~jain/cse567-06/index.html

End-Goal

❑ Paper that can be published as a survey paper in any magazine, journal, conference

Literature Search

❑ Finding references: Use Google advanced search options
  ➢ Location 802.11 +filetype:pdf +site:.com
❑ Library.wustl.edu → Databases → Multisearch → Subject, Engineering: search 10 journal databases for the topic
❑ Conduct searches in two phases. In the first phase, use the title words of your project. After reading these, conduct another more comprehensive search.
❑ Remove articles that are not useful
❑ No limit to the number of references
❑ Follow the references in references

Google Search Modifiers

❑ filetype:pdf, doc, ppt, pptx
❑ site:wustl.com
❑ intitle:trend
❑ inurl:trend
❑ allintitle:Networking Trends
❑ Allinurl:
❑ " " ⇒ Exact Phrase
❑ OR
❑ AND
❑ + ⇒ Must include
❑ - ⇒ Not include
❑ ~X ⇒ X or similar
❑ * ⇒ Wildcard

Google Search (Cont)

❑ Google search, https://en.wikipedia.org/wiki/Google_Search
❑ How to search Google, http://www.wikihow.com/Search-Google
❑ Google Guide Quick reference: Google advance operators cheat sheet, http://www.googleguide.com/advanced_operators_reference.html
❑ Search Tips & Tricks –Inside Search – Google, http://www.google.com/intl/en_us/insidesearch/tipstricks/all.html
❑ How to search on Google: 31 Advanced Google Search Tips, http://blog.hubspot.com/blog/tabid/6307/bid/1264/12-Quick-Tips-To-Search-Google-Like-An-Expert.aspx
❑ Search Operators, https://support.google.com/websearch/answer/2466433

Project Homework 1

- Search web pages, books, and journal articles from IEEE XPlorer, ACM Digital Library, MOBIUS, Safari books, ILLIAD at Olin Library for **one** of the following topics:
  - Computer Systems Performance Analysis
  - Computer Systems Modeling
  - Computer Systems Simulation
  - Experimental Design
  - Queueing Theory
- On the web try the following search points:
  - http://library.wustl.edu/findart.html
  - http://library.wustl.edu/fulltext/
  - http://scholar.google.com
  - http://books.google.com
  - http://dl.acm.org/
  - http://ieeexplore.ieee.org/Xplore/home.jsp

Project Homework 1 (Cont)

- Ignore all entries dated 2012 or before. Also ignore all entries that do not indicate topic or similar words in the title. List others in the following format (5 each):
  - Author, "Title," publisher, year, ISBN. (for 5 books)
  - "Title," URL [One line description] (for 5 web pages)
  - Author, "Title," source (for 5 technical/magazine articles)
- For the books, include whether the book is available at WUSTL, MOBIUS, Safari, or ILLiad
- Serially number the references and submit electronically to jain@wustl.edu. The mail should have a subject field of "CSE 567 Project Homework 1" (Please note the subject carefully. Do not any other characters in the subject). Your answers should be the content of the message and not in an attachment.
- Make a list of other interesting search points and share in class.

Common Mistakes in Project Homework #1

- Listing older books

- Listing books/Magazines/journals that have little to do with the topic – may show up in search engines because of a minor mention of the topic or words

- Web Pages – No one line descriptions

- Incomplete bibliographic data for journal articles. Need volume, issue, year, pages.

- Missing journals. Need names of journals dealing with the topic chosen.

Sample Solution to Project HW #1

- Books:
  1. Randolph Nelson, "Probability, Stochastic Processes, and Queueing Theory: The Mathematics of Computer Performance Modeling," Springer, 2010, 612 pp., ISBN:1441928464.
  2. Lester Lipsky, "Queueing Theory: A Linear Algebraic Approach," Springer, 2010, 554 pp., ISBN:1441923861.
  3. Donald Gross, "Fundamentals of Queueing Theory, Set," Wiley, 2009, 600 pp., ISBN:0470547839.
  4. Naishuo Tian, Zhe George Zhang, "Vacation Queueing Models: Theory and Applications," Springer, 2010, 385 pp., ISBN:1441941460.
  5. John N. Daigle, "Queueing Theory with Applications to Packet Telecommunication," Springer, 2010, 316 pp., ISBN:1441935630
- Papers:
  - J. G. Shanthikumar, Shengwei Ding, M. T. Zhang, "Queueing Theory for Semiconductor Manufacturing Systems: A Survey and Open Problems," IEEE Transactions on Automation Science and Engineering, Oct. 2007, Vol. 4, No. 4, pp. 513 - 522
- Web Pages:
  - Wikipedia, "Queueing Theory," http://en.wikipedia.org/wiki/Queueing_theory [A simple to understand explanation of queueing theory]

HTML Style Guidelines

❑ See papers from previous classes on my website for details
❑ Use plain text editors with simple html
❑ No Java, flash, animation
❑ Do not use HTML generated by MS Word. It will not pass any HTML validation test. Save the word file as plain text and add HTML tags.
❑ Learn to use special characters in text and reference URLs. See
  ➢ http://www.w3schools.com/tags/ref_urlencode.asp
  ➢ https://perishablepress.com/stop-using-unsafe-characters-in-urls/
❑ HTML5 only

Header

<!DOCTYPE html>

<html lang="en">

<head>

<title>

<meta name="Author"

<meta name="robots"

<meta name="Keywords"

<meta name="Description"

</head>

Body

<body>

<h1>Title</h1>

<B>Author</B>, Permanent-Email

<hr>

<h2>Abstract:</h2>

...

<hr>

See Also:

<hr>

Body (Cont)

<h2>Table of Contents:</h2>

2. 10-Gigabit Ethernet Overview

2.1 Benefits of 10-Gigabit Ethernet

...

<hr>

Body (cont)

<h2>Introduction</h2>

...

<p>[Grow99]

<p>

...

Project Homework 2

- ❑ Prepare a short webpage (written manually) using most of the tags indicated in this handout
- ❑ Include one image/photo in the page
- ❑ Validate the page using:
  - ➢ https://www.onlinewebcheck.com/check.php
  - ➢ https://www.freehtmlvalidator.com/
- ❑ Check the Google-friendliness of the page: https://varvy.com/
- ❑ Submit the html source file printout, web page printout, and the URL
- ❑ Remember:
  - ➢ To add all meta tags specified in the handout
  - ➢ Validate the page
  - ➢ Load it in an ad-free area

WUSTL Engineering Student Webpages

- ❑ IT will create the URL:
  http://students.cec.wustl.edu/cse567m_fl17/<wustlkey>
- ❑ For example:
  http://students.cec.wustl.edu/cse567m_fl17/jain/
- ❑ On Linux this corresponds to:
  /project/websites/cse567m_fl17
- ❑ On Windows this corresponds to:
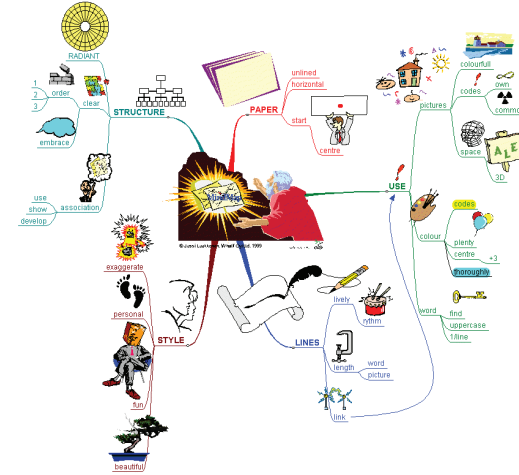 \\warehouse.cec.wustl.edu\websites\cse567m_fl17

Common Mistakes in Homework 2
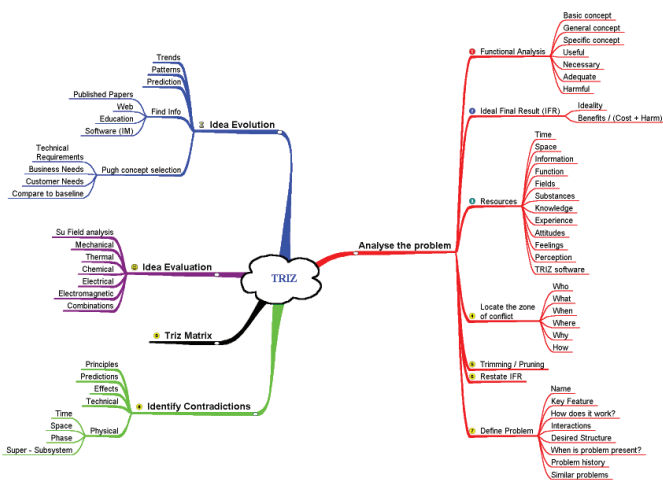
- ❑ Not using parameters for meta tags
- ❑ Not validating

Outline Preparation Process

❏ Read abstract and stop if irrelevant

❏ Underline the key points in the paper

❏ Write the key summary on the first page of the paper

❏ Prepare a text document with the key ideas

❏ Keep adding to this text document document from different papers with [refs, page, paragraph]

❏ Import the text document in PowerPoint

❏ Add figures and clean up the outline
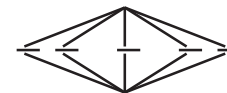
❏ Like getting ready to make a presentation to the class

Mind Maps

Mind Maps (cont)

Diamond Writing Style

❏ Each paper should start with an introduction and end with a summary.

❏ Each section should start with a short introduction and end with a summary with a lead in to the next section. The same applies to subsections.

❏ All subsections should be of comparable length.

❏ Add an appendix with all abbreviations

❏ Add a list or discussion of related products

Writing Style

❑ Readers want to get to the information fast. Keep the nonessential stuff at the end.

❑ Check thoroughly for grammar and spelling.

❑ Avoid excessive use of abbreviations.

❑ Be consistent in case and usage: MOBILE, Mobile, mobile

Organization

❑ Every paper should have an introduction and a summary.

❑ Divide paper in to sections.

❑ Every section should have a lead-in paragraph.

❑ Header level should correspond to the level in table of contents.

Organization (Cont)

❑ Title
❑ Author
❑ Abstract
❑ Keywords
❑ See Also:, References to Other Reports
❑ Table of Contents
❑ Introduction
❑ Other Sections
❑ Summary
❑ References
❑ List of Acronyms
❑ Date Last Modified:

Organization (Cont)

❑ Table of Contents
  ➢ Sections and subsections
  ➢ Numbering n.n
  ➢ 3-7 subsections per section
  ➢ 3-7 sections per paper
  ➢ Include one first and 2nd level headers n. and n.n
  ➢ Do not include 3rd and higher levels, e.g., n.n.n

Title/Keywords/Abstract

- Title
  - Based on Table of contents
  - Searchable
- Abstract
  - Based on Table of Contents
  - 3-7 sentences
  - Emphasize what part of course was used in the paper
- Key Search words
  - Based on Table of contents
  - Acronyms and full names
- Description:
  - One line based on ToC and Abstract

Organization (Cont)

- Introduction
  - Explain what the topic is about.

Other Sections

- Each section less than 3 pages.
- Each section needs at least one introductory paragraph. Do not start with a subsection.
- Each subsection at least 1 paragraph.
- All sections/subsections should be numbered n. n.n
- If you borrowed several sentences from some source, italicize the text and indicate the source.

> Never write a sentence with the original source in front of you. This will block you from writing it in your own words. Write ideas from source, merge ideas from different sources, and then write the ideas in your own words.

Other Sections (Cont)

- Always include citations for sources of ideas even if the expression is yours.
- Redraw the line drawings. Avoid copy and paste as much as possible (e.g., for photographs).
- If there is no author, e.g., a web page, use the site name followed by a number, e.g., [wikipedia02] in the body of the text, with full title and url in the reference list.
- If multiple papers in the same year from the same last name, use [lastnameyya] [lastnameyyb],… in the text.

Summary

- One or more sentences about the each issue.
- Based on Table of Contents
- Key lessons

References

- Style of References
  - Author, "Title," publisher, year, ISBN for books
  - "Title," URL [One line description] for web pages
  - Author, "Title," source, year, pp., URL for technical/magazine articles
- All authors: First-initial. Last-Name or First-Name Last-Name. Do not use Last-Name, First-Name or First-Initial.
- All URLs should show up as well as have a link.
  - This allows URLs to show in printed version.
- In the text point to the end In the end point to actual URL. Provide URL.

References (Cont)

- Find URL for published papers
- Do not include references that are useless.
- In the text, use [Authoryy] notation, e.g., [Jain99] Exceptions: Standards, company documents, RFCs.
- Shorten IEEExplore URLs to include only *arnumber*, e.g., http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=4301304
- All references should consistently use the same style

List of Acronyms

- Search the text
- Define on first use
- Avoid acronym use if used less than 5 times.
- Exception: Commonly used acronyms, e.g., CPU, I/O, IP, …

Figures/Tables

- All figures should be numbered 1, 2, ...
- All tables should be numbered 1, 2, ...
- All figures should have a title <u>below</u> the figure
- All tables should have a title <u>above</u> the table
- All figures/tables should be referenced in the text and explained.
- Should be placed close to their references.
- To prepare figures in Windows use blank slides in PowerPoint using the font sizes to be used in the paper. Group the figure as one object. Copy and use <u>paste special</u> as "Enhanced Windows Metafile (EMF)" for best quality.
- Do not rescale figures in Word. Rescaling the fonts reduces their quality.
- All Figures and Tables should have a max width of 6.5" (to allow printing on a letter size paper)
- Use only .jpg, .png, .gif files for figures. No fig?.pdf

Draft Submission

- Submit 4 hardcopies
- In the draft:
  - For the review purposes, the author's name and email should be removed. Substitute last 3 digits of your student ID.
  - Add keywords after abstract
- Spell check using MS Word
- Grammar Check: https://app.grammarly.com/
- Plagiarism check: http://www.scanmyessay.com

Editorial

- Check all acronyms. All acronyms should be defined on first use.
- Check capitalization. No unnecessary capitalization. Headers are usually capitalized.
- Spell Check entire document.
- K=1024, k=1000. Disk storage is measured in KB, network link speeds are measured in kb. kbps not Kbps.
- Leave a space between numbers and units, e.g., 15 km not 15km.

Editorial (Cont)

- Look for special characters
- American English: Signaling, Synchronization
- Check for continuity
- Break long paragraphs.
- Single space between paragraphs.
- The paper should be 10-15 pages long
- If you copy any figures, give reference and credit
- Use the template supplied

Common Mistakes

- No Figures
- Figure/equations fonts too large
- Figures with no title or number or reference
- Figures/tables overflowing the margins
- References with no annotation
- References not cited
- Key pieces of information w/o references
- Tables w/o references
- Papers too short

Common Mistakes (Cont)

- No comparison of different alternatives
- No Acronyms
- No summary
- Incorrect reference style
- No keywords

HTML Guidelines (Cont)

- File name: index.html, fig1.gif, fig2.gif, ..., fig.ppt
- Keep PowerPoint figure source files in the same directory although these may not be referenced in the paper
- Keep all references relative.
  Absolute: http://www.cse.wustl.edu/~jain/papers/x.ps
  Relative: papers/x.ps
- Keep the whole paper in one file "index.html" with figures in fig$n$.gif in the same directory. No Subdirectories.
- All files names should have eight characters or less for name and 3 characters or less for extension (MS/DOS compatible). The only exception is index.html

HTML Guidelines (Cont)

- All filenames and extensions should be <u>lowercase</u> and contain no spaces.
- Author (at) wustl.edu
- Ensure there is a link attached to every line in Table of contents
- Spread references throughout the document. Use mnemonic references with link attached to them, e.g., [Cisco99]
- Keep all internal anchor names and ids lowercase without spaces, dot, or special characters, e.g., cisco99.
- Use only id (not name):
  ok: <A id="xx">
  Not ok: <A name="xx">
- All img should have alt.
  If you use width and height, these should match the image size.

HTML Guidelines (Cont)

- Do not resize images in html. Resize them before using. Prepare figures so that there is no rescaling required. Use 12 point fonts in PowerPoint.
- Center all figures, tables, and equations
- Serially number all figures as 1, 2, … not 1.1 2.1 etc.
- Serially number all tables as 1, 2, …
- No font tags
- Check that keywords tags in the header are appropriate and exhaustive.
- Check that description in header is appropriate.

Check for Plagiarism

- Viper – The anti-plagiarism scanner
  http://www.scanmyessay.com/
  Requires Windows but best free checker

Final Submission

- Validate your page on:
  - https://www.onlinewebcheck.com/check.php
  - https://www.freehtmlvalidator.com/
- I use CSE HTML Validator:
  https://www.htmlvalidator.com/
- Check URLs. Check local anchors.
- Remember to submit copies of unusual references (not available in the library or the Internet) with the final paper.

Final Submission (Cont)

- No WinWord generated HTML
- You can use WinWord for spell checking the text
- Use plain text editor to insert HTML tags..
- Submit the final HTML version as a single zip file
- No Tar/tgz files (please submit only one zip file with all files)
- Filename: 8-or-less-letters-short-project-name.zpi
  Rename zip file to .zpi for transmission through email.
- Email .zpi file to: jain@cse.wustl.edu with the subject field of "CSE574 Project Report"

Common Mistakes in HTML

- ❑ Used WinWord generated HTML file.
- ❑ Did not validate HTML.
- ❑ Incorrect title.
- ❑ Images resized in HTML. Height and Width attribute in the images do not match those of the actual image.
- ❑ Used HTML4
- ❑ WUSTL proxy in URLs
- ❑ Figures not scaled properly
- ❑ Table rows not aligned on top

Checklist

T F
1. ☐ ☐ Are Keywords appropriate?
2. ☐ ☐ Is the title satisfactory?
3. ☐ ☐ Does the abstract clearly summarize the topic discussed?
4. ☐ ☐ Table of Contents logically organized?
5. ☐ ☐ Does introduction entice you to read the rest of the paper?
6. ☐ ☐ Major ideas and topics received enough attention?
7. ☐ ☐ Are individual sections and subsections of uniform length?
8. ☐ ☐ Are references correctly formatted and spread throughout?
9. ☐ ☐ Include author, title, dates, pages, and URL?
10. ☐ ☐ Did the author follow the diamond explanation principle?
11. ☐ ☐ Acronyms used properly and listed?
12. ☐ ☐ Figures and Tables (Clearly labeled and professional looking, referenced in the text and explained)
13. ☐ ☐ Are paragraphs of right length (not too long or too short)?
14. ☐ ☐ Do the subheadings clarify the sections of the text?
15. ☐ ☐ Was the material ordered in a way that was logical, clear, and easy to follow?
16. ☐ ☐ Is there any portion of the text that could be omitted?
17. ☐ ☐ Does the summary point out the key results?
18. ☐ ☐ Copyright violations in text, figures, or tables?
19. ☐ ☐ Text checked for Grammar, Spelling, Punctuation errors
20. ☐ ☐ Is the quality good enough for publication in IEEE Magazine?

Scan This to Download These Slides

Raj Jain
http://rajjain.com

Related Modules

 CSE567M: Computer Systems Analysis (Spring 2013),
https://www.youtube.com/playlist?list=PLjGG94etKypJEKjNAa1n_1X0bWWNyZcof

CSE473S: Introduction to Computer Networks (Fall 2011),
https://www.youtube.com/playlist?list=PLjGG94etKypJWOSPMh8Azcgy5e_10TiDw

 Wireless and Mobile Networking (Spring 2016),
https://www.youtube.com/playlist?list=PLjGG94etKypKeb0nzyN9tSs_HCd5c4wXF

CSE571S: Network Security (Fall 2011),
https://www.youtube.com/playlist?list=PLjGG94etKypKvzfVtutHcPFJXumyyg93u

 Video Podcasts of Prof. Raj Jain's Lectures,
https://www.youtube.com/channel/UCN4-5wzNP9-ruOzQMs-8NUw