ECE297
M4 Design Document

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March 17, 2014

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M4 Design Document

- *Executive Summary,* revised to reflect CI suggestions and to reflect new design decisions

- *M3 Design Document,* revised, edited and updated

- *New Design Decisions*, as presented in "Design Considerations" on the course website

- *Lessons Learned,* an individual statement, assessing your learning in ECE297

- *Performance Evaluation Report,* as explained on the course website, and due with the M4 code

Goal: a summative, client-ready document

M4 Design Document

- Executive Summary:

  ▶ Written for managers

  ▶ Specifically targets your user/client

  ▶ Makes a business case for your system

M4 Design Document

- M3 Design Document Revised:

  ▶ M3 material organized and consolidated in final form

  ▶ Careful attention to document flow

  ▶ Careful attention to concision and precision

M4 Design Document

- New Design Decisions:

  ▶ Careful consideration of each decision

  ▶ Detailed evaluation of alternative design choices using valid criteria

  ▶ Masterly use of tables and figures, expertly meshed with your text

M4 Design Document

- Lessons Learned:

  ▶ 500-600 words, written and submitted individually

  ▶ Discusses challenges and/or learning opportunities in *three areas* in the course:

    1. Programming

    2. Written *or* oral communications

    3. Team work

  ▶ Might answer: "What would I do differently if I could start again? Why would I do it differently?"

M4 Design Document

- Performance Evaluation:

  ▶ Evaluate how multiple clients affect

    1. Average end-to-end delay of a storage operation

    2. Transaction abort rate

  ▶ Follows same format as the M2 PE (methodology, results, analysis) but must use graphs, not tables

  ▶ Submitted at coding deadline

M4 DD should show advanced writing skills

- Revisions should meet your audience's needs.
- Paragraphs should be carefully controlled
- Sentences should be carefully edited
- Unnecessary "padding" should be eliminated

M4 DD should show advanced writing skills

- Our team considered many options when choosing a data structure. We weighed each objective carefully before choosing a linked list. We decided on a linked list because of its efficiency and its ease of implementation.
- A linked list best meets the needs of our client. Inserting elements into a linked list is fast, and though searching for an element is time consuming, this is not a high-level objective in the design specification.

Which do you prefer and why?

M4 DD should show advanced writing skills

- Our team considered many options when choosing a data structure. We weighed each objective carefully before choosing a linked list. We decided on a linked list because of its efficiency and its ease of implementation.

The first example too heavily emphasizes the team and the the team's process.

Which do you prefer and why?

M4 DD should show advanced writing skills

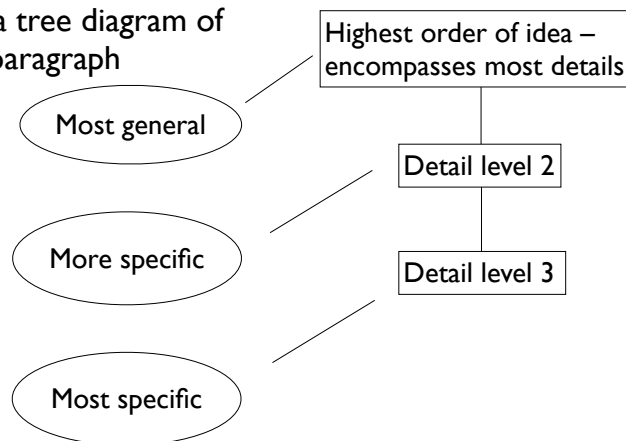- Our team considered many options when choosing a

The second example emphasizes the design decision and the reasoning behind it.

- A linked list best meets the needs of our client. Inserting elements into a linked list is fast, and though searching for an element is time consuming, this is not a high-level objective in the design specification.

Which do you prefer and why?

Paragraphs have a frame and logic

- You should be able to draw a tree diagram of your paragraph

Most general

Highest order of idea – encompasses most details

More specific

Detail level 2

Detail level 3

Most specific

Paragraphs have a frame and logic

Object-oriented concepts are crucial in software design because they address fundamental issues of adaptation and evolution. With the proliferation of object-oriented notations and methods, the Unified Modeling Language (UML) has emerged to provide a standardized notation for describing object-oriented models. However, for the UML notation to be effectively applied, it needs to be used with an object-oriented analysis and design method. This tutorial describes the COMET method for designing real-time and distributed applications, which integrates object-oriented and concurrency concepts and uses UML.

http://dl.acm.org/citation.cfm?id=1134504

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Highest order idea

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More specific

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Most specific

Improving paragraph flow

1. <u>To amplify meaning</u>, make the topic the subject of most sentences in the paragraph
2. <u>To extend meaning</u>, use the inchworm technique
3. <u>To aid cohesion</u>, use passive voice
4. <u>To orient readers</u>, use forecasters

1. To amplify meaning

- Use the "Topic String" strategy

<u>Ford Motors</u> is one of the oldest surviving manufacturers of automobiles. <u>The company</u> envisioned a future in which common people could enjoy the mobility of the rich. <u>Ford</u> pioneered assembly-line production, and it paid workers a wage that enabled them to buy the cars they made. Thus, <u>Ford</u> succeeded with high volume and low prices.

2. To extend meaning

- Use the "inchworm" strategy

More people are now driving the Ford Focus Electric. The Focus Electric is assembled in the Ford plant in Wayne, Michigan. Michigan, until recently, was the home of the US auto industry. However, the auto industry is now widely situated throughout North America, with plants in more than a dozen states in the US, as well as plants in Canada and Mexico.

3. To aid cohesion

- Use the passive voice

Apple Inc.'s revenue increased 43% in the first quarter of 2012. High demand for the iPad and the iPhone fuelled the rise.

Apple Inc.'s revenue increased 43% in the first quarter of 2012. The rise was fuelled by high demand for the iPad and the iPhone.

the passive

4. To orient readers

- Use forecasters
  - ▸ Logical forecasters: *therefore, however, furthermore, on the contrary,* etc.
  - ▸ Sequential forecasters: *first, second, third, fourth, last,* etc.
  - ▸ Temporal forecasters: *after, before, finally, next,* etc.
  - ▸ Spatial forecasters: *above, below, beside, under,* etc.

To improve sentences

1. Elevate verbs
2. Follow known-to-new strategy
3. Use positive constructions
4. Be clear, concise, and correct

1. Elevate verbs

- Verb (strong)
  - ‣ Research <u>confirms</u> the results.
- Noun (weak)
  - ‣ Confirmation <u>is</u> in the results.
- Participle (weak)
  - ‣ The results <u>are confirmed</u> by the research.

Actions are strongest as verbs, weakest as nouns or participles

2. Known-to-new strategy

- Takes into account the needs of the reader
- "Known information" at the start of a sentence
- "New information" at the end
- <u>Astrocytes, oligodendrocytes and neurons</u>, the brain's three major cell types, can be generated by stem cells found in the adult brain.
- <u>Stem cells found in the adult brain</u> can generate the brain's three major cell types: astrocytes, oligodendrocytes and neurons.

new

known

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- The most common mechanism for meters that have a pointer that moves across a scale is the d'Arsonval movement. D'Arsonval movement can be used to measure current, voltage, and resistance.

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- <u>Stem cells found in the adult brain</u> can generate the brain's three major cell types: astrocytes, oligodendrocytes and neurons.
- The most common mechanism for meters that have a pointer that moves across a scale is the d'Arsonval movement. D'Arsonval movement can be used to measure current, voltage, and resistance.

3. Use positive constructions

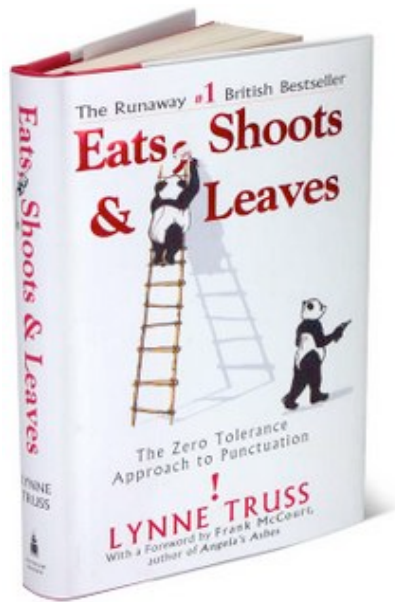| Positive	Negative
most	not all
few	not many
on time	not late
inefficient	not efficient
reject	cannot accept
impossible	not possible

Because the team <u>did not have sufficient time</u> to finish the project, it <u>was not able to produce</u> a satisfactory report.

Because the team <u>had too little time</u> to complete the project, it <u>produced</u> an unsatisfactory report.

4. Be concise

1. Finally, we worked out that if any failure is encountered, the server will output an error message.
2. The server will output an error message in response to failure.
3. Our team decided to preserve the initial client-server connection for the duration of the entire session.
4. The initial client-server connection persists for the duration of the session.

4. Be correct

The panda eats shoots and leaves

The panda eats shoots and leaves

The panda eats, shoots and leaves

The panda eats, shoots and leaves

http://www.ebaumsworld.com/pictures/view/912186/

Commas that link

- Use a comma to link independent clauses joined by a coordinating conjunction (*and, or, but, so, for, yet*)

  - The interface is wall mounted, and it requires keyword access.

  - The interface is wall mounted, and requires keyword access.

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  ✓ The interface is wall mounted and requires keyword access.

Commas that separate

- Use a comma or a pair of commas to separate non-restrictive (non-essential) phrases and clauses from the rest of the sentence.

  - The right lane of Queen St. is a danger to TTC passengers, who must cross it, when exiting the streetcar.

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Do the pair of commas change the meaning?

Commas that separate

- "A grammatical blunder may force Rogers Communications Inc. to pay an extra $2.13 million to use utility poles in the Maritimes after the placement of a comma in a contract permitted the deal's cancellation...

Grant Robertson, "A basic rule of punctuation,"
Globe and Mail, August 6, 2006

Commas that separate

- "Language buffs take note -- Page 7 of the contract states: '*The agreement shall continue in force for a period of five years from the date it is made, and thereafter for successive five year terms, unless terminated by one year prior notice in writing by either party.*'"

Grant Robertson, "A basic rule of punctuation,"
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