Goals of Presentation

Class Data To Date (separate handout)

Discuss Chapter 7 and Sixth Exercise

Lecture (Watts Humphrey's material)

Some definitions about “errors” and languages

Preparation for techniques for better/faster reviews

Assignment & Exercise Details

• Reading
• Standards
• Exercise – Report 4
Discussion Chapter 7 and Sixth Exercise

How and why should the "Software Quality Strategy" be changed

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Discussion Chapter 7 & Sixth Exercise (cont.)

What's the difference between a PSP Form and a PSP Template

• PSP Form:

• PSP Template:

Watts has given us ways to analyze our data, WE must still gather the data.
Discussion Chapter 7 & Sixth Exercise (cont.)

How might you share information on your process with your colleagues without exposing your data

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Any other questions, comments or observations?

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Agenda

Discuss Chapter 7 and Sixth Exercise

⇒ Watts Humphrey's Material ⇐

Addenda to Watts Humphrey's Material

The Problem with Absolute Size Errors

Assignment & Exercise Details
Addenda to Watts Humphrey’s Material

Programming Linguistics – Semiotics
Encyclopedia of Computer Science (CS)

- Semiotics – Random House College Dictionary: "a general theory of signs and symbolisms, usually divided into the branches of pragmatics, semantics and syntactics"

- Natural languages (used for human-to-human communication)
  - Syntax: their grammar – defines valid relationships between the elements; specifies which forms of the language are grammatically acceptable
  - Semantics: meaning prescribed or intended by the originator (writer)
  - Pragmatics: meaning received by a listener or reader

- Computer Programming Languages (used for human-to-computer communication)
  - Highly restricted symbol sets – Syntactic specifications can be predicated on individual symbols rather than words, prefixes & suffices
  - Artificial – Can specify "no differences" between semantics & pragmatics

Syntax, Semantics and Pragmatics – Encyclopedia of CS)

- Every language of communication possesses two identifiable properties
  - form of the language
  - meaning associated with the form

- Grammar: usually the rules governing the generation of [valid] stings in the language

- Syntax: recognition legal strings in the language

- Semantics: the code (or state?) produced for a legal string in the language

- Pragmatics

- Linguistic ambiguities
  - Syntactic inadequacies
  - Confusion between semantic and pragmatic meanings (also the basis of much modern humor, e.g. puns and riddles)
Addenda to Watts Humphrey's Material (cont.)

More Syntax, Semantics and Pragmatics
(Encyclopedia of Computer Science)

• Implementation of a computer language
  – Syntactic ambiguities
    o any present in the language definition automatically removed
    o one and only one meaning to any language construct possible
  – Semantic and pragmatic ambiguities still possible; cause much confusion between
    o what the programmer thought
    o what the computer takes as the meaning of what the programmer wrote

Syntax & Semantics

• Syntax: The structural or grammatical rules that define how the symbols in a language are to be combined to form words, phrases, expressions, and other allowable constructs.
• Semantics: The relationships of symbols or groups of symbols to their meanings in a given language.
• Pragmatics: no definition provided.

Syntactic error & Semantic error (ibid)

• Syntactic error: A violation of the structural or grammatical rules defined for a language; for example, using the statement B+C=A in FORTRAN rather than the correct A=B+C. Syn. syntax error.
• Semantic error: An error resulting from a misunderstanding of the relationship of symbols or groups of symbols to their meaning in a given language.
Addenda to Watts Humphrey's Material (cont.)

Defect & Error
- Defect: no definition provided.
- Error (with a set of synonomic distinctions):
  - 1. The difference between a computed, observed or measured value or condition and the true, specified, or theoretically correct value or condition. For example, a difference of 30 meters between the computed result and the correct result. AKA "error".
  - 2. An incorrect step, process, or data definition. For example, an incorrect instruction in a computer program. AKA "fault".
  - 3. An incorrect result. For example, a computed result of 12 when the correct result is 10. AKA "failure".
  - 4. A human action that produces an incorrect result. For example, an incorrect action on the part of a programmer or operator. AKA "mistake".

Agenda

Discuss Chapter 7 and Sixth Exercise

Watts Humphrey's Material

Addenda to Watts Humphrey's Material

⇒ The Problem with Absolute Size Errors ⇐

Assignment & Exercise Details
Absolute Size Errors

Watts’ A8 Regression line and Range lines

What's wrong with the Above?

70% & 90% Range lines:
Agenda

Discuss Chapter 7 and Sixth Exercise

Watts Humphrey's Material

Addenda to Watts Humphrey's Material

The Problem with Absolute Size Errors

⇒ Assignment & Exercise Details ⇐

Assignment & Exercise Details

Reading and Exercises

Read Chapter 8

Extra Credit Spreadsheet Exercise 7S: Separate Handout