SOFTWARE DOCUMENTATION

• **User documentation**
  Product use aspects
  • End user
  • System administrator

• **Technical or system documentation**
  Product comprehension and maintenance aspects
  • Program folder
  • Programming/documentation standards
TECHNICAL DOCUMENTATION

Program Folder:

- Specifications
- Modular design
- Interfaces
- Operative information
  - Plan, notes
  - Instructions
  - Alternative implementations
- Source code (+ cross-references)
- Tests
- Problems arisen (maintenance)
DOCUMENTATION STANDARDS

Goal: Reduce maintenance cost
(40% to 60% total cost)

DIFFERENT PROGRAMMERS

Standards regarding:
- Program code
- Documentation itself

Uniformity in notation:
- Mnemonic names
- Separation among words: capital letters, underscores, ...
- Hungarian notation
HUNGARIAN NOTATION
(Simonyi, 1972)

- Identifiers naming convention
- It provides information about type + possible operations (or intended use)

**NAMES STRUCTURE:**

TYPE + QUALIFIER

- Data representation
- Possible values
- Measure units
- Applicable operations
- Basic types -> extensions
- Procedures

- Booleans: true cond.
- Enumerated sets: specific element
HUNGARIAN NOTATION

• Examples:
  
  wnFirst = wnLast; ← correct
  
  wnFirst = cpLast; ← incorrect

  Procedure notation:
  
  *pwn = WnShowCp ( cpLast);

• Type examples:

  f - flag
  ch – character
  p – pointer
  i – index

• Qualifier examples:

  Temp
  Prev-Cur-Next
  Dest-Src
  Min-Max
  First-Last
  1,2,…

  Absence of qualifier if there is no ambiguity
DOCUMENTATION
OTHER RULES (I):

• Program structure:
  • Position and formatting of comments
  • Layout of the elements of the language (indentation of the control structures)
  • Use of tabs or (exclusive) spaces
  • Use of blank lines
  • Maximum line length
  • Maximum method length (recommended maximum and limit)
  • Maximum class length
  • Use of defined constants (matrices dimension, booleans, codes, etc.)
• Rules for the use of resources (libraries, … )
• Restrictions on the set of instructions to be used
DOCUMENTATION
OTHER RULES (II):

- Comments:
  - Short, relevant (not obvious), comprehensible
  - Optional: use of documentation tools (i.e. javadoc)
  - Clearly state:
    - Where they will appear
    - Which ones will be mandatory/optional

- Class header comments:
  - Description, author, date, other used classes, pre/post-conditions, invariants, …
  - Document versions: modifications record (description, date, author)

- Inside each class:
  - Per attribute (brief description)
  - Per operation (pre/post-condition, description)
  - Per loop/conditional (invariant, description)
  - Per not auto-descriptive variable/constant
  - Informative: document the ends of structures (})
USER DOCUMENTATION

• 2 types:
  • Online
    • Contextual
    • General
  • Offline

• Necessary:
  • Knowledge about user
  • Knowledge about product

Conceptual level
Syntactic level
USER DOCUMENTATION

FORM:

• According to the type of user:

  1. Reference guide
     • Directed to advanced users
     • Exhaustive reference of the system functionalities
  2. User guide
     • Broad and shallow access to the system features
     • User behaviour (actions sequence) in order to achieve his/her goals
  3. Learning manual or tutorial
     • Learning or self-training guide for the basic functionalities of the system
     • Interactive documentation for introduction to the product
  4. Dictionaries and glossaries
USER DOCUMENTATION

CONTENTS:

• Introduction
  • Purpose of the product
  • Operative environment
  • General functionality
  • Special functions
  • Restrictions
  • Conventions used throughout the manual

• Installation
  • Hardware requirements
  • Copies and backup
  • Product installation procedures
  • Program customization

• Tutorial
  • “Tour” through an example
  • Explanation of the example
  • Use of online helps and manuals

• Detailed instructions
  • Program outputs
  • Program inputs
  • Program operation
  • Error treatment
  • Specific functions
    • How to invoke them
    • Necessary input data
    • How to interpret the results

• Technical details
  • Operation principles
  • Advanced functions
  • Main algorithms
  • Main data structures
  • Product modification
  • How to obtain support and additional information