Manajemen Kualitas Perangkat Lunak

Desy Intan Permatasari

http://desy.lecturer.pens.ac.id/

Lab Sistem Informasi

Penilaian

- Teori
  - UTS : 30 %
  - UAS : 40 %
  - Quiz: 20 %
  - Tugas : 10%

Ketentuan Perkuliahan

- Tatap muka selama 1 semester sebanyak 16x pertemuan
- Saat kuliah HP harap dimatikan / *silent*.
- Mahasiswa/i berpakaian rapi dan sopan di kelas
- Tidak diperbolehkan memakai sandal
- Mahasiswa yang terlambat > 15 menit setelah dosen hadir di kelas, akan menerima sangsi

Lain - lain

- Materi dan ebook dapat didownload di http://desy.lecturer.pens.ac.id/
- Tidak ada ujian perbaikan atau tambahan untuk memberikan nilai tambahan

Syarat Masuk Kelas

- Mempersiapkan materi sesuai topik bahasan di tiap minggu kuliah
- Harus sudah membaca materi perkuliahan sebelum kuliah dimulai
- Tanya jawab secara acak mengenai materi kuliah akan diberikan di akhir tatap muka

Topik Pembahasan

- Software Quality Challenge
- The uniqueness of software quality assurance
- The environments for which SQA methods are developed

Referensi

- Daniel Galin

  Software Quality Assurance, From Theory to Implementation.

Download di : desy.lecturer.pens.ac.id

The uniqueness of software quality assurance

- Do you think that there is **a bug-free** software?
- Can software developers **warrant** their software applications and their documentation from any bugs or defects?
- What are the essential elemental differences between software and other industrial products such as automobiles, washing machines etc?

the essential elemental differences between software and other industrial products

- **Product complexity**
  - can be measured by the number of operational modes the product permits
- **Product visibility**
  - Whereas the industrial products are visible, software products are invisible
- **Product development and production process**

The phase contributes to the detection of defects (INDUSTRIAL PRODUCTS)

- **Product development**
  - the designers and quality assurance (QA) staff check and test the product prototype, in order to detect its defects
- **Product production planning**
  - the production process and tools are designed and prepared
- **Manufacturing**
  - QA procedures are applied to detect failures of products themselves

The phase contributes to the detection of defects (SOFTWARE PRODUCTS)

- **Product development**
  - efforts of the development teams and software quality assurance professionals are directed toward detecting inherent product defects
- **Product production planning**
  - not required for the software production process
- **Manufacturing**
  - the manufacturing of software is limited to copying the product and printing copies of the software manuals. Consequently, expectations for detecting defects are quite limited during this phase

Factors affecting defect detection in software products vs other industrial products

Characteristic	Software products	Other industrial products
Complexity	Usually, very complex product allowing for very large number of operational options	Degree of complexity much lower, allowing at most a few thousand operational options
Visibility of product	Invisible product, impossible to detect defects or omissions by sight (e.g. of a diskette or CD storing the software)	Visible product, allowing effective detection of defects by sight
Nature of development and production process	Opportunities to detect defects arise in only one phase, namely product development	Opportunities to detect defects arise in all phases of development and production: - Product development - Product production planning - Manufacturing

Conclusion – 1 :

- The uniqueness of the software development process:
  - **High complexity**, as compared to other industrial products
  - **Invisibility of the product**
  - **Opportunities to detect defects ("bugs")** are limited to the product development phase

The environments for which SQA methods are developed

- **Pupils and students**
  - develop software as part of their education
- **Hobby**
  - Software amateurs develop software as a hobby
- **Professionals in engineering, economics, management and other fields**
  - develop software to assist them in their work, to perform calculations, summarize research and survey activities, and so forth.
- **Software development professionals (systems analysts and programmers)**
  - develop software products or firmware as a professional career objective while in the employment of software houses or by software development and maintenance units (teams, departments, etc.) of large and small industrial, financial and other organizations.

The main characteristics of SQA environment:

1. Contractual conditions
2. Subjection to customer-supplier relationship
3. Required teamwork
4. Cooperation and coordination with other software teams
5. Interfaces with other software systems
6. The need to continue carrying out a project despite team member changes
7. The need to continue carrying out software maintenance for an extended period

Characteristics 1 : **Contractual conditions**

- As a result of the commitments and conditions defined in the contract between the software developer and the customer, the activities of software development and maintenance need to cope with:
  - **A defined list of functional requirements** that the developed software and its maintenance need to fulfill
  - **The project budget**
  - **The project timetable**

Characteristics 2 :
Subjection to customer-supplier relationship

- Software Developer must cooperate continuously with the customer :
  - To consider his request for changes
  - To discuss his criticisms about the various aspects of the project
  - To get his approval for changes initiated by the development team

Characteristics 3 :
Required teamwork

- Three factors usually motivate the establishment of a project team:
  - **Timetable requirements**. In other words, the workload undertaken during the project period requires the participation of more than one person if the project is to be completed on time.
  - **The need for a variety of specializations** in order to carry out the project.
  - **The wish to benefit from professional mutual support and review** for the enhancement of project quality

Characteristics 4 :

Cooperation and coordination with other software teams

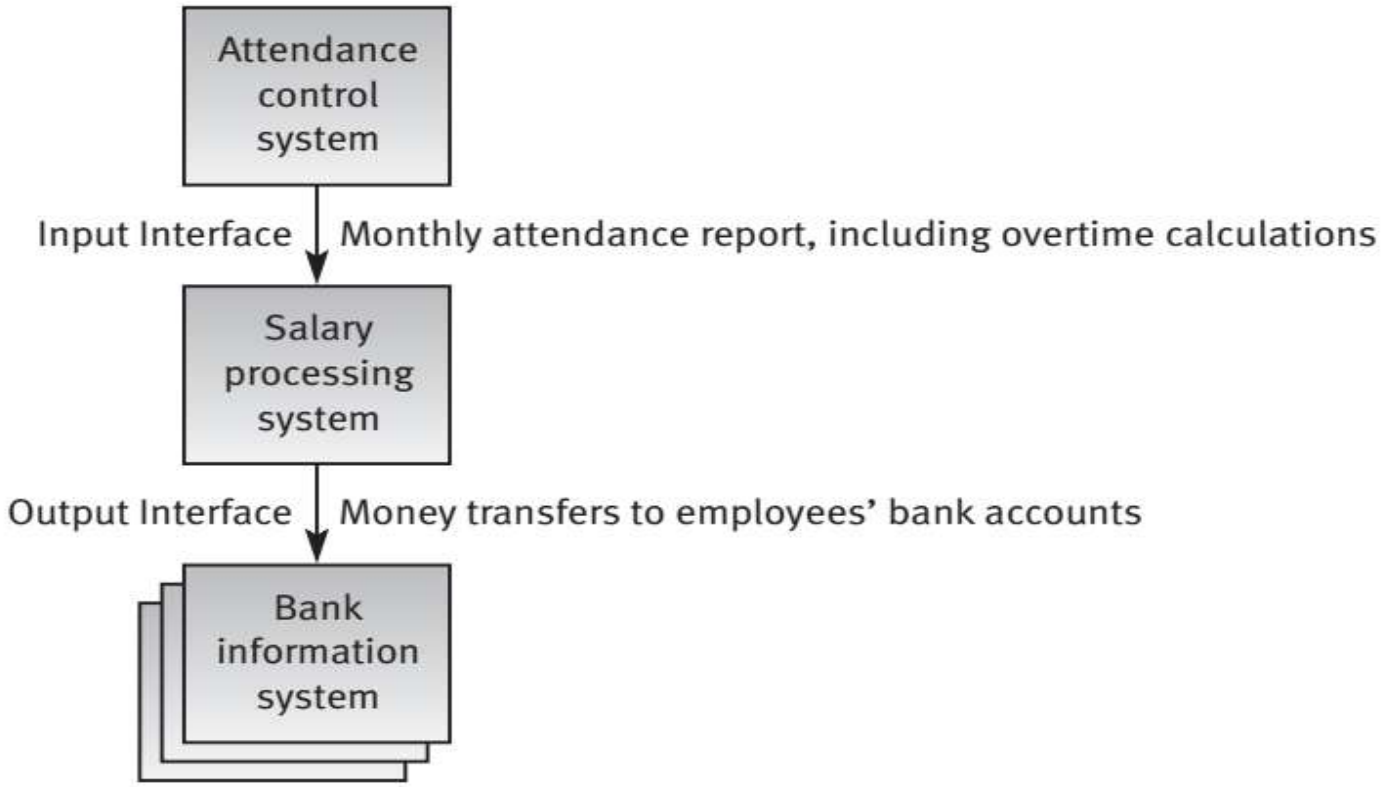
- Cooperation may be required with
  - **Other software development teams** in the same organization
  - **Hardware development teams** in the same organization
  - **Software and hardware development teams** of other suppliers
  - **Customer software and hardware development teams** that take part in the project's development

Characteristics 5 :

Interfaces with other software systems

- **Input interfaces**
  - where other software systems transmit data to your software system
- **Output interfaces**
  - where your software system transmits processed data to other software systems
- **Input and output interfaces to the machine's control board**
  - as in medical and laboratory control systems, metal processing equipment, etc.

Example of software interfaces :
the salary software system



Characteristics 6 :

The need to continue carrying out a project despite team member changes

- During the project development period we might be face:
  - team members to leave the team whether owing to promotions to higher level jobs
  - switch in employers
  - transfers to another city

Characteristics 7 :

The need to continue carrying out software maintenance for an extended period

- For 5–10 years, customers who develop or purchase a software system expect to continue utilizing it for a long period
  - Maintenance
  - Enhancement
  - Changes (Modification)

Any Question ?

Conclusion

- Identify the unique characteristics of software as a product and as production process that justify separate treatment of its quality issues
- Recognize the characteristics of the environment where professional software development and maintenance take place
- Explain the main environmental difficulties faced by software development and maintenance teams as a result of the environment in which they operate