Information Systems Analysis & Design (M8748)

Tutorial 22 Answer

1. What is the difference between ‘methodology’ and ‘method’?
   A methodology is essentially a set of principles. A method is an instantiation of the principles in a given situation.

2. Distinguish between 'task' and 'technique', and give some examples of each.
   A task is something you do in a particular project. Tasks have products. A technique specifies how to carry out a task. A task might be ‘Analyse the requirements for a use case’. One technique for doing this would be the UML collaboration diagram.

3. What are the three logical views of an information system?
   These are usually said to be:
   - Data,
   - Process and
   - Time.

4. Explain the key elements in the philosophy of the USDP.
   Use-case driven: each use case is a thread that links a series of models from requirements through to implementation; it is a constant reminder to the systems developers that users’ requirements are what matters.
   Architecture-centric: software architecture is an essential theme in modeling from the earliest stages of a project.
   Iterative: at each stage of the project, the activities are essentially the same, but they are carried out in an iterative manner. A unit of software may pass through several cycles of analysis, design, implementation and testing before it meets users’ approval.
   Incremental: the system is built as a series of increments. In the simplest terms, each use case is an increment or unit of delivery that has practical significance to users.

5. In what ways does the participative design approach agree with object-oriented approaches, such as OPEN and the USDP?
   PD approaches typically employ use scenarios, which in many respects resemble use cases. PD approaches usually emphasize prototypes and storyboards, as do many object-oriented approaches. The typical PD lifecycle is experimental and iterative in nature. The active participation of users in design and development is fundamental to all PD approaches.

6. How does the full USDP approach differ from the simplified approach followed in this book?
   In its fullest form, USDP is a large and complex methodology that specifies project roles and activities in considerable detail. In this book we have offered only a very simple subset of USDP, while trying to adhere to its essential philosophy and underlying principles.

7. Name the five levels of Humphrey's model of process maturity.
   Initial, Repeatable, Defined, Managed and Optimizing.

8. Distinguish between the hard systems view and the soft systems view.
   Put briefly, the hard systems approach is based on an assumption that the reality of systems development can be described in a way that is beyond reasonable dispute, and that this description can be subjected to rational analysis.

9. Why might a methodology based on a hard systems approach be unsuccessful in a situation where the goals of the organization are unclear?
   Hard systems methodologies assume that system objectives can be clearly identified and defined. This can lead to solving the wrong problem or developing a wonderful system that nobody needs. Or the project may sink in quicksand and end by being cancelled.

10. What general advantages are claimed for using a methodology?
    Among the main advantages usually claimed are these:
    - Better quality system product
    - More complete satisfaction of user requirements
    - Greater management control
    - Better communication among developers and with users
    - Capture of know-how and its dissemination through the organization

11. What might be the disadvantages of using an inappropriate methodology?
    The problems already mentioned for Review Question 22.9 apply here too. Also disproportionate cost and delay if the methodology is too complex; quality problems if its techniques do not provide adequate models of the application; user rejection if it does not encourage sufficient participation.