

Supplementary to ISCA Practical Problems.

There are two corrections in the above file uploaded earlier as under –

- Question Number – 1:** Consider first paragraph of answer as answer to Part (a)

Consider answer of Part (a) as answer to Part (b)

Consider answer of Part (b) as answer to Part (c)
- Question Number – 9:** Ignore answer of this question, correct answer to this is given as under on next page.

9. An organization is in the stage of systems development to implement an enterprise wide information system, where the following conditions exist:

- ❖ End users are not aware of the information needs.
- ❖ The new system is mission critical and there is a hasty need.
- ❖ The business risks associated in implementing the wrong system are high. Read the above case carefully and answer the following with proper justification/s:

- (a) Identify the system development approach and the steps to be followed in the above stated conditions.
- (b) State the reasons for choosing the particular approach for system development.
- (c) Identify the risks, when end-users are involved in the system development process.
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Answer:

(a) The system development approach that helps organizations to develop smaller systems such as decision support systems, management information systems and expert systems is 'Prototyping'. The features of this approach are:

- ☐ To develop a small or pilot version, called a prototype of part or all of a system.
- ☐ A prototype is a usable system or system component that is built quickly and at a lesser cost, and with the intention of being modifying or replacing it by a full scale and fully operational system.
- ☐ As users work with the prototype, they make suggestions about the ways to improve it. These suggestions are then incorporated into another prototype, which is also used and evaluated and so on.
- ☐ A prototype is developed that satisfies all user requirements, either it is refined and turned into the final system or it is scrapped. If it is scrapped, the knowledge gained from building the prototype is used to develop the real system.
- ☐ It helps users to identify additional requirements and needs that they might have overlooked or forgotten to mention and gives a clear visual picture of what the final version will look like.
- ☐ Prototyping can be viewed as a series of four steps:

In the given scenario, the steps to be followed for the prototyping are as follows:

(i) **Step 1: Identify Information System Requirements:** The design team needs only fundamental system requirements to build the initial prototype, the team can develop the detailed requirements of the system later after users have had time to interact with the prototype and provide feedback.

(ii) **Step 2: Develop the Initial Prototype:** The designers create an initial base model for example, using fourth-general programming languages or CASE tools. Here the goals are "rapid development" and "low cost." The designers emphasis on system characteristics as "simplicity," "flexibility," and "ease of use."

(iii) **Step 3: Test and Revise:** The initial prototype is demonstrated to users and given to them to experiment. The users are informed that the prototype is incomplete and requires subsequent modifications based on their feedback.

(iv) **Step 4: Obtain User Signoff of the Approved Prototype:** At the end of Step 3, users formally approve the final version of the prototype, which commits them to the current design and establishes a contractual obligation about what the system will, and will not, do or provide.

(b) The major reasons for choosing the prototyping approach for system development are:

- (i) Prototyping requires intensive involvement by the system users. Therefore, it typically results in a better definition of these users' needs and requirements than does the traditional systems development approach.
- (ii) A very short time period (e.g., a week) is normally required to develop and start experimenting with a prototype. This short time period allows system users to immediately evaluate proposed system changes.
- (iii) Since system users experiment with each version of the prototype through an interactive process, errors are hopefully detected and eliminated early in the developmental process.
- (iv) The iterative process of modification and reevaluation continues until the users are satisfied, through four to six interactions.
- (v) It enables users to interact with tentative versions of data entry display screens, menus, input prompts, and source documents.
- (vi) It enables users to be able to respond to system prompts, make inquiries of the information system, judge response times of the system, and issue commands.
- (vii) The information system implemented can ensure more reliability with less costly to develop.
- (viii) Decision supports semi-structured or unstructured management decision environment, are ideal for the experimentation and trial-and-error development associated with prototyping.

(c) With the increasing availability of low-cost technology, end user involvement in development is critical for the successful implementation of information systems in organizations. A clear documentation of end-user requirements during the systems development activities is mandatory. For example, whenever a manager or a department acquires its own, relatively inexpensive micro computers or office information systems, end-user development often takes place. The risks involved in end-user computing are:

- ☐ A decline in standards and controls. When an analyst is in-charge of developments, walk-through will be done and standards and policies will be enforced; these things are unlikely to be carried out to the same degree with end-user computing.
- ☐ Inaccuracy of specification requirements. The end-user will not have the experience of an analyst in completing an accurate specification of system requirements.
- ☐ Due to the lack of adequate specifications, there would be a reduction in the quality assurance and stability of the system.
- ☐ An increase in unrelated and incompatible systems. Departments would choose their own software and hardware and incompatibility of systems would result; this would mean that management would have difficulty in obtaining full corporate data.
- ☐ Difficulties in accessing could arise for users trying to access a central system, such as the corporate database, with a proliferation of different systems and applications.

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