Chapter Number 5 : Acquisition, Development of Info. System

- 1. Why system development objectives fail ?
  - 1. User related issues
    - 1. Shifting user needs
    - 2. Resistance to change
    - 3. Lack of user participation
    - 4. Inadequate testing and user training
  - 2. Developer related issues
    - 1. Lack of standard project management and system methods
    - 2. Overburdened and under trained development staff
  - 3. Management related issues
    - 1. Lack of senior management support
    - 2. Development of strategic systems
  - 4. New technologies
- 2. Accountants involvement in development work.
  - 1. Return on Investment
    - 1. Cost
      - 1. Development cost
      - 2. Operating cost
      - 3. Intangible cost
    - 2. Benefits
  - 2. Computing cost of IT Implementation
  - 3. Skills expected from an accountant
- 3. Steps for Waterfall model
  - 1. Preliminary Investigation
  - 2. Requirement analysis
  - 3. System Design
  - 4. System Development
  - 5. System Testing
  - 6. System Implementation and maintenance
- 4. Phases of prototyping model.
  - 1. Identify information system requirement
  - 2. Develop an initial prototype
  - 3. Test and revise
  - 4. Obtain user signoff and approved prototype
- 5. Incremental model stages.
  - 1. Requirement
  - 2. Design
  - 3. Implementation and unit
  - 4. Integration and system testing
  - 5. Operation
- 6. System Development Life Cycle
  - Phase 1 : Preliminary investigation
    - 1. Identification of problem
    - 2. Identification of objectives
    - 3. Delineation of Scope
      - 1. Functionality requirement
      - 2. Data to be processed
      - 3. Control Requirement
      - 4. Performance requirement
      - 5. Constraints
      - 6. Interface
      - 7. Reliability requirement
        - Two Methods through scope of project is determined
          - 1. Reviewing Internal Documents
          - 2. Conduct Interview
    - 4. Feasibility study
      - 1. Technical
      - 2. Financial
      - 3. Economic
      - 4. Schedule / Time
      - 5. Resource
      - 6. Operations
      - 7. Behaviour Related
      - 8. Legal
  - Phase 2 : System Requirement Analysis
    - 1. Generic set of process for system requirement analysis
      - 1. Fact Finding
        - 1. Documentation
        - 2. Questionnaire
        - 3. Interviews
        - 4. Observation
      - 2. Analysis of present system
        - 1. Reviewing historical aspects
        - 2. Analyse Inputs
        - 3. Reviewing data files
        - 4. Reviewing methods, procedures and data communications
        - 5. Analyse output
        - 6. Reviewing internal controls
        - 7. Modelling existing system
        - 8. Undertaking overall analysis of existing system
      - 3. System analysis of proposed system
      - 4. System Development Tools
        - 1. Category of major tools for system development
          - 1. System component and flow
          - 2. User interface
          - 3. Data attributes and relationship
          - 4. Detailed system processes
        - 2. Set of prominent tools
          - 1. Structured English
          - 2. Flow charts
          - 3. Data Flow Diagrams
            - 1. Data source and destination
            - 2. Data Flows
            - 3. Transformation process
            - 4. Data stores
          - 4. Decision tree
          - 5. Decision table
            - 1. Condition Stub
            - 2. Action Stub
            - 3. Condition Entries
            - 4. Action entries
          - 6. CASE Tools
          - 7. System component matrix
          - 8. Data dictionary
          - 9. User interface layouts and forms
            - 1. Layout form and screen generator
            - 2. Menu generator
            - 3. Report Generator
            - 4. Code generator
      - 5. System specification
        - 1. SRS Contents
          - 1. Introduction
          - 2. Information Description
          - 3. Functional Description
          - 4. Behavioural Description
          - 5. Validation Criteria
          - 6. Appendices
          - 7. SRS Review
      - 6. Roles involved in SDLC
        - 1. Steering Committee
        - 2. Project Manager
        - 3. Project Leader
        - 4. System Analyst / Business Analyst
        - 5. Module Leader / Team Leader
        - 6. Programmers / Developers
        - 7. Database Administrator
        - 8. Quality Assurance
        - 9. Testers
        - 10. Domain Specialist
        - 11. IS Auditor
      - 7. Internal Controls
  - Phase 3 : System Design
    - 1. System designing phase activities
      - 1. Architectural design
      - 2. Design of data/ information source
      - 3. Design of database
        - 1. Four activities in design of database
          - 1. Conceptual modelling
          - 2. Data modelling
          - 3. storage structure design
          - 4. physical layout design
      - 4. User interface design
        - 1. Factors affecting input output form design
          - 1. Content
          - 2. Timeliness
          - 3. Format
          - 4. Media
          - 5. Forms
          - 6. Input volume / Output volume
      - 5. Physical design
      - 6. Systems operating platform
      - 7. Internal design controls
  - Phase 4 : System Acquisition
    - 1. Acquisition standards
    - 2. Acquiring system component from vendors
      - 1. Factors before acquisition of hardware and software
        - 1. Vendor selection
        - 2. Geographical location of vendor
        - 3. Presentation by selected vendors
        - 4. Evaluation of users feedback
    - 3. Other acquisition aspects and practises
      - 1. Hardware acquisition
      - 2. Software acquisition
      - 3. Contracts, Software license, copyright violations
      - 4. Validation of vendors proposals
      - 5. Methods of validating proposals
        - 1. Checklist
        - 2. Point - Scoring Analysis
        - 3. Public Evaluation Reports
        - 4. Benchmarking problem related vendor's solution
        - 5. Testing problems
  - Phase 5 : System development
    - 1. Characteristics of good coded programme
      - 1. Reliability
      - 2. Robustness
      - 3. Accuracy
      - 4. Efficiency
      - 5. Usability
      - 6. Readability
    - 2. Other related aspects
      - 1. Programme coding standards
      - 2. Programming Language
      - 3. Program Dubugging
      - 4. Testing the programme
      - 5. Programme documentation
      - 6. Programme maintenance
  - Phase 6: System testing
    - 1. Different Levels of testing
      - 1. Unit testing
        - 1. Five categories of test
          - 1. Functional test
          - 2. Performance test
          - 3. Stress test
          - 4. Structural test
          - 5. parallel test
        - 2. In terms of technique, further classification of unit testing
          - 1. Static Testing
            - 1. Desk Check
            - 2. Structured Walk through
            - 3. Code Inspection
          - 2. Dynamic testing
            - 1. Black box testing
            - 2. white board testing
            - 3. gray box testing
      - 2. Integration testing
        - 1. Bottom up integration
        - 2. Top down integration
      - 3. Regression Testing
      - 4. System Testing
        - 1. Recovery testing
        - 2. Security Testing
        - 3. Stress or Volume testing
        - 4. Performance testing
      - 5. Final acceptance testing
        - 1. Quality Assurance testing
        - 2. User acceptance testing
          - 1. Alpha testing
          - 2. Beta Testing
  - Phase 7: System Implementation
    - 1. Activities in system implementation
      - 1. Equipment installation
        - 1. Site Preparation
        - 2. Installation of new hardware / Software
        - 3. Equipment Checkout
      - 2. Training Personnel
      - 3. System change over strategies
        - 1. Direct Implementation / Abrupt changeover
        - 2. Phased changeover
        - 3. Pilot changeover
        - 4. Parallel Changeover
      - 4. Technical activities for change over
        - 1. Procedure Conversion
        - 2. File Conversion
        - 3. System Conversion
        - 4. Scheduling personnel and equipment
  - Phase 8 : Post implementation review and maintenance
    - 1. Post Implementation review
      - 1. Development Evaluation
      - 2. Operational Evaluation
      - 3. Information Evaluation
    - 2. System maintenance
      - 1. Schedule maintenance
      - 2. Rescue maintenance
      - 3. Corrective maintenance
      - 4. Adaptive maintenance
      - 5. Perfective maintenance
      - 6. Preventive maintenance