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Sessional Assignment

INFORMATION SYSTEM AND DATA PROCESSING

Total Marks :20

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BS (SE) Section B (8th semester)



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Question 1:

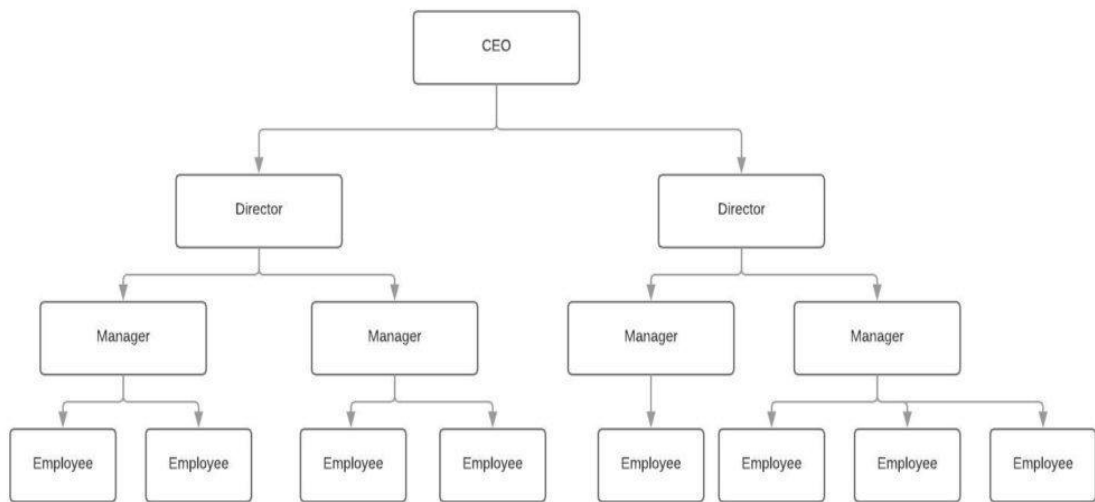
1) Define organization; also explain the structure of an organization by giving an example of a well known organization.

Answer:

Organization:

An **organization** is an entity, such as a company, an institution, or an association, comprising one or more people and having a particular purpose.

Structure of organization :



This is the most traditional of the organizational structures that business use. There's an executive at the top of the heap, people responsible for each area (the director tier is for bigger businesses), and teams of people who do the work in each departments.

The **advantages** of this type of organizational structure lies in its simplicity. The **disadvantages** lies in its rigidity and the length of time needed for information to flow through the organization. Everyone just get on with the allocated task.

If you look at the lines in the diagram, you'll see that each tier only takes instructions from, and communicates with, its immediate superior. There's no collaboration going on here. As the saying goes, "One hand doesn't know what the

other is doing.” Since there’s no horizontal communication going on, the “big boss” has to coordinate everything.

Having said that, this type of organizational structure could work for businesses who work according to a rigid routine, collaborate informally, and don’t employ many people.

Question 2 :

Explain System Development Life Cycle; also explain different types system development life cycle.

The system-development life cycle enables users to transform a newly-developed project into an operational one.

The System Development Life Cycle, "SDLC" for short, is a iterative process, structured in a methodical way. This process is used to model or provide a framework for technical and non-technical activities to deliver a quality system which meets or exceeds a business"s expectations or manage decision-making progression.

Traditionally, the systems-development life cycle consisted of five stages. That has now increased to seven phases. Increasing the number of steps helped systems analysts to define clearer actions to achieve specific goals.

Similar to a project life cycle (PLC), the SDLC uses a systems approach to describe a process. It is often used and followed when there is an IT or IS project under development.

The SDLC highlights different stages (phrases or steps) of the development process. The life cycle approach is used so users can see and understand what activities are involved within a given step. It is also used to let them know that at any time, steps can be repeated or a previous step can be reworked when needing to modify or improve the system.

Following are the seven types of the SDLC

1. Planning

This is the first phase in the systems development process. It identifies whether or not there is the need for a new system to achieve a business"s strategic objectives.

This is a preliminary plan (or a feasibility study) for a company's business initiative to acquire the resources to build on an infrastructure to modify or improve a service. The company might be trying to meet or exceed expectations for their employees, customers and stakeholders too. The purpose of this step is to find out the scope of the problem and determine solutions. Resources, costs, time, benefits and other items should be considered at this stage.

2. Systems Analysis and Requirements

The second phase is where businesses will work on the source of their problem or the need for a change. In the event of a problem, possible solutions are submitted and analyzed to identify the best fit for the ultimate goal(s) of the project. This is where teams consider the functional requirements of the project or solution. It is also where system analysis takes place—or analyzing the needs of the end users to ensure the new system can meet their expectations. Systems analysis is vital in determining what a business's needs are, as well as how they can be met, who will be responsible for individual pieces of the project, and what sort of timeline should be expected.

There are several tools businesses can use that are specific to the second phase. They include:

- CASE (Computer Aided Systems/Software Engineering)
- Requirements gathering
- Structured analysis

3. Systems Design

The third phase describes, in detail, the necessary specifications, features and operations that will satisfy the functional requirements of the proposed system which will be in place. This is the step for end users to discuss and determine their specific business information needs for the proposed system. It's during this phase that they will consider the essential components (hardware and/or software) structure (networking capabilities), processing and procedures for the system to accomplish its objectives.

4. Development

The fourth phase is when the real work begins—in particular, when a programmer, network engineer and/or database developer are brought on to do the major work

on the project. This work includes using a flow chart to ensure that the process of the system is properly organized. The development phase marks the end of the initial section of the process. Additionally, this phase signifies the start of production. The development stage is also characterized by instillation and change. Focusing on training can be a huge benefit during this phase.

5. Integration and Testing

The fifth phase involves systems integration and system testing (of programs and procedures)—normally carried out by a Quality Assurance (QA) professional—to determine if the proposed design meets the initial set of business goals. Testing may be repeated, specifically to check for errors, bugs and interoperability. This testing will be performed until the end user finds it acceptable. Another part of this phase is verification and validation, both of which will help ensure the program's successful completion.

6. Implementation

The sixth phase is when the majority of the code for the program is written. Additionally, this phase involves the actual installation of the newly-developed system. This step puts the project into production by moving the data and components from the old system and placing them in the new system via a direct cutover. While this can be a risky (and complicated) move, the cutover typically happens during off-peak hours, thus minimizing the risk. Both system analysts and end-users should now see the realization of the project that has implemented changes.

7. Operations and Maintenance

The seventh and final phase involves maintenance and regular required updates. This step is when end users can fine-tune the system, if they wish, to boost performance, add new capabilities or meet additional user requirements.

Question 3 : Explain Incremental model and Spiral; also explain main difference between spiral and incremental model.

Answer:

Incremental Model:

Incremental Model is a process of software development where requirements are broken down into multiple standalone modules of software development cycle. Incremental development is done in steps from analysis design, implementation, testing/verification, maintenance.

Spiral Model :

Spiral Model is a combination of a waterfall model and iterative model. Each phase in spiral model begins with a design goal and ends with the client reviewing the progress.

The development team in Spiral-SDLC model starts with a small set of requirement and goes through each development phase for those set of requirements. The software engineering team adds functionality for the additional requirement in every-increasing spirals until the application is ready for the production phase.

Difference between spiral model & Incremental model

Comparison of Various SDLC Models

Properties of Model	Incremental Model	Spiral Model
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Planning in early stage	Yes	Yes
Returning to an earlier phase	Yes	Yes

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Properties of Model	Incremental Model	Spiral Model
Handle Large-Project	Not Appropriate	Appropriate
Detailed Documentation	Yes but not much	Yes
Cost	Low	Expensive
Requirement Specifications	Beginning	Beginning
Flexibility to change	Easy	Easy
User Involvement	Intermediate	High
Maintenance	Promotes Maintainability	Typical
Duration	Very long	Long
Risk Involvement	Low	Medium to high risk
Framework Type	Linear + Iterative	Linear + Iterative
Testing	After every iteration	At the end of the engineering phase
Overlapping Phases	Yes (As parallel development is there)	No
Maintenance	Maintainable	Yes
Re-usability	To some extent	To some extent

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Properties of Model	Incremental Model	Spiral Model
Time-Frame	Long	Long
Working software availability	At the end of every iteration	At the end of every iteration
Objective	Rapid Development	High Assurance
Team size	Not Large Team	Large Team

End of the Assignment
