ERP Notes

Paper Pattern

	Questions	Marks
Q.1 MCQ-	**15**	**15**
Q.2 Full forms-	**10**	**10**
Q.3 True or False	**5**	**5**
Q.4 Answer in short	**5**	**10**
Q.5 Answer in detail	**2**	**10**

MCQ's

1. Material Requirement Planning (MRP) utilizes software applications for scheduling _____.

Answer» production processes.

2. ERP supports _____ currency value.

Answer» multiple.

3. The most important step of ERP implementation is _____ phase.

Answer gap analysis.

4. An enterprise is a group of people with _____.

Answer» common goal.

5. In _____, entire organization is considered as a system and the departments are its subsystem.

Answer» enterprise way.

6._____ approaches reduces data redundancy and provide update information.

Answer» integrated data model.

7. Customer specific products are also known as _____.

Answer» make-to-order.

8. The business information has _____ fundamental characteristics.

Answer» 3

9._____ is the first phase in BPR.

Answer» begin organizational change.

10. A master production schedule specifies

Ans: what product is to be made, and when

11. Which of the following modules are included in ERP system?

(A) Materials management (B) financial accounting

(C) Human resource management (D) all of the above

Ans:D

12. Who is the father of ERP?

Ans: Jan Baan

13. The primary concept of _____ is that storing huge amount of data.

Answer» data warehousing

14. OLAP transforms data warehouse data into _____.

Answer» strategic information.

15._____ is a track-proven technology applicable to every company.

Answer» supply chain management.

16. ERP system is for entire organization.

17. ERP implementation process has eleven phases.

18. Post Implementation is the last phase in ERP implementation life cycle.

19. Decision makers and project team members should determine the characteristic of the current system before implementation

20. Which is the most critical phase in ERP implementation?

Ans.Defining solutions.

Write Full Forms:

1. ERP: Enterprise Resource Planning
2. MRP: Material Requirement Planning
3. OLAP: On-line Analytical Processing
4. EDI: Electronic Data Interchange
5. BPR: Business Process Reengineering
6. PLM: Product life cycle management
7. SCM: Supply Chain Management
8. CRM: Customer Relationship Management
9. GIS: Geographical Information Systems
10. EFT: Electronic Funds Transfer
11. OLTP: On-line Transaction Processing
12. MBR: Memory-based Reasoning
13. EAI: Enterprise Application Integration

14. SMBs: Small and Medium Business

15. SSL: Secure Socket Layers

16. SET: Secure Electronic Transactions

17. EAM: Enterprise Asset Management

18. SOA:-Service Oriented Architecture

19. MIS-Management Information System

20. GMP- Goods Manufacturing Practices

True or False

1. Planning helps to improve future performance of an organization. TRUE

2. MIS is implemented by a company to handle its contact with its customer. FALSE

3. To run an ERP system, trained and experienced employees are needed. TRUE

4. Better decision from an enterprise will help them to go a step ahead of its competitors. TRUE

5. The material planning process is used to maintain internal assets such as machinery and to delivery after-sales customer services such as repairs. False

6. The enterprise acts as a single entity. TRUE

7. ERP is an enterprise reengineering solution. FALSE

8. ERP software also provides total visibility, allowing management to access real-time data for decision-making. TRUE

9. A company could experience cost overruns if its ERP system is not implemented carefully. TRUE

Answer in short:

1. Define ERP

Ans: Enterprise resource planning (ERP) refers to a type of software that organizations use to manage day-to-day business activities such as accounting, procurement, project management, risk management and compliance, and supply chain operations.

2. Types of ERP

1. On-Premise ERP software is implemented onsite and maintained in physical office space within an organization, hosted on the company's own computers and servers for full control, support and ownership of the entire system once implemented.

2. Cloud-based ERP software is a web-based solution, known as Software as a Service (SaaS), where an organization accesses and stores data on any device with an internet connection, usually through the purchase of a subscription. Continual support, updates, training, and flexible customizations supported by the software provider.

3."Hybrid" ERP software refers to a combined implementation of cloud-based and on-premise ERP system solutions. The combination of hosting and deployment services vary by provider. These models can provide ERP users the flexibility to migrate between delivery models, or integrate benefits not available existing implementation.

3. Applications of ERP

- Manufacturing
- Industrial Machinery and Components
- Construction and Home Improvement

- Electronics and Technology
- Automotive
- Aerospace and Defense
- Healthcare, Pharmaceutical and Life Sciences
- Agribusiness, Farming and Agriculture
- Food and Beverage
- Healthcare and Hospitality
- Clothing, Consumer Goods and Retail

4. What is BOM?

A bill of materials (BOM) is a comprehensive inventory of the raw materials, assemblies, subassemblies, parts and components, as well as the quantities of each needed to manufacture a product. In a nutshell, it is the complete list of all the items that are required to build a product.

An example of a Bill of materials is a bakery that needs to sell about 1,000 cakes. A BOM for this bakery will include all the ingredients needed to bake cakes, the baking pans, ovens, and packaging. The quantity, overall cost, and needed time should be also included in the list.

6. What is an enterprise? List all components of an enterprise.

An enterprise is a group of people with a common goal, which has certain resources at its disposal to achieve this goal.

•The enterprise acts as a single entity.

Components:

1. People 2.Resources 3.Goals & Objectives

7. What is the meaning of information systems? List 3 characteristics

An information system is a combination of software, hardware, and telecommunication networks to collect useful data, especially in an organization. Many businesses use information technology to complete and manage their operations, interact with their consumers, and stay ahead of their competition.

Characteristics

1**.** Accuracy 2. Relevancy 3.Timeliness

Answer the following questions:

1. What is ERP? List & Explain 4 benefits of ERP.
   Enterprise resource planning (ERP) refers to a type of software that organizations use to manage day-to-day business activities such as accounting, procurement, project management, risk management and compliance, and supply chain operations.

1. **Enhanced Business Reporting:**
   - Better reporting tools with real-time information
   - A single source of truth – one integrated database for all business processes
2. **Better customer service:**
   - Better access to customer information
   - Faster response times
   - Improved on-time delivery
   - Improved order accuracy
3. **Improved Inventory Costs:**
   - Only carry as much inventory as needed, avoid these common issues
     - Too much inventory, and higher overhead costs

- Too little inventory, and longer customer fulfillment times

4. **Boosted Cash Flow:**
   - Better invoicing and better collections tools to bring cash in faster
   - Faster cash means more cash on-hand for the business
5. **Cost Savings:**
   - Improved inventory planning
   - Better procurement management
   - Better customer service
   - Improved vendor relationship management
6. **Better Data & Cloud Security:**
   - Dedicated security resources
   - Avoid installing malicious software
   - Data distributed across multiple servers
7. **Business Process Improvements:**
   - Automate manual or routine tasks
   - Implement smarter workflows
   - Gain efficiency
8. **<u>Supply Chain Management</u>:**
   - Effective demand forecasting and lean inventory
   - Reduce production bottlenecks
   - Transparency through the business

2. List all ERP related technologies. Explain any 2 with diagram

Enabling Technologies

• Some of these technologies which when integrated with the ERP system, will enable the companies to do business at Internet speed. These technologies used are:

1. Business Process Reengineering (BPR)
2. Data warehousing & data marts
3. Data mining
4. On-line analytical processing (OLAP)

5. Product life cycle management (PLM)
6. Supply chain management (SCM)
7. Customer relationship management (CRM)
8. Geographical information systems (GIS)
9. Intranets and extranets
10. Electronic data interchange (EDI)
11. Electronic Funds Transfer (EFT)
12. Cryptography

1. Business Process Reengineering (BPR)

BPR is the analysis and redesign of workflow within and between enterprises.

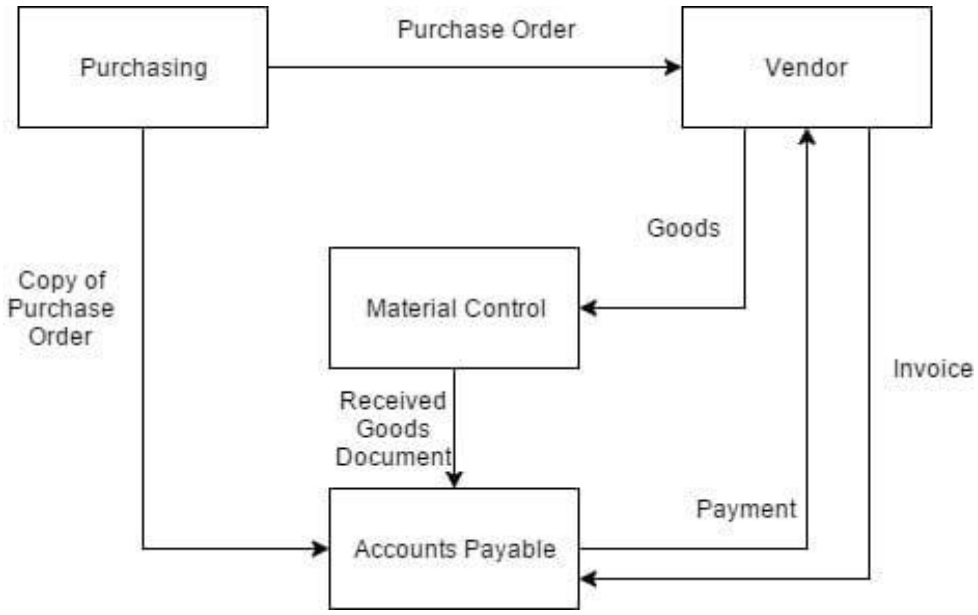
Business process reengineering is **the act of recreating a core business process with the goal of improving product output, quality, or reducing costs**.

Example: Older Payable process

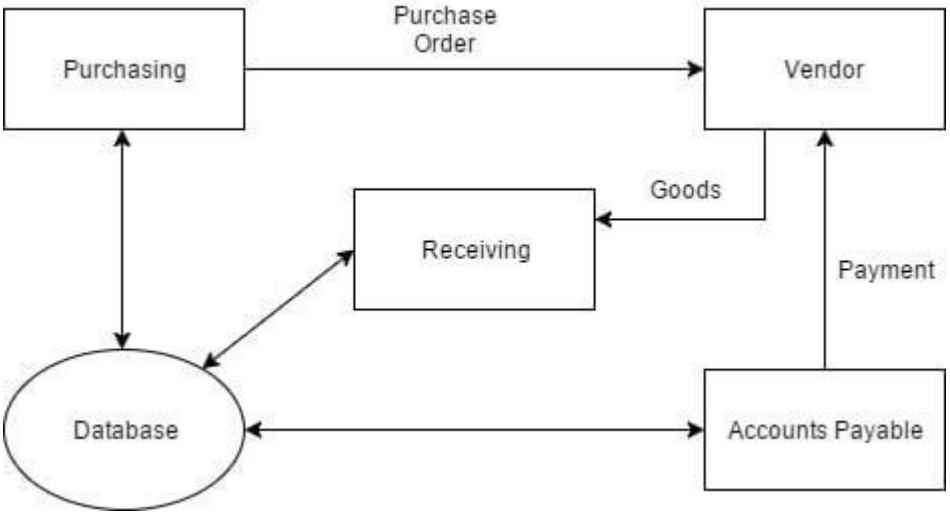
They analyzed the current system, and found out that it worked as follows:

1. When the purchasing department would write a purchase order, they sent a copy to accounts payable.
2. Then, the material control would receive the goods, and send a copy of the related document to accounts payable.
3. At the same time, the vendor would send a receipt for the goods to accounts payable.

Then, the clerk at the accounts payable department would have to match the three orders, and if they matched, he or she would issue the payment. This, of course, took a lot of manpower in the department.



Newer Payable Process



So, as is the case with BPR, Ford completely recreated the process digitally.

1. Purchasing issues an order and inputs it into an online database.
2. Material control receives the goods and cross-references with the database to make sure it matches an order.
3. If there's a match, material control accepts the order on the computer.

Business Process Reengineering is a dramatic change initiative that contains five major steps that managers should take:

- Refocus company values on customer needs
- Redesign core processes, often using information technology to enable improvements
- Reorganize a business into cross-functional teams with end-to-end responsibility for a process
- Rethink basic organizational and people issues
- Improve business processes across the organization

2. Data warehousing & data marts

A data warehouse is **a large collection of business data used to help an organization make decisions**.

Data Warehouse is vast in size.

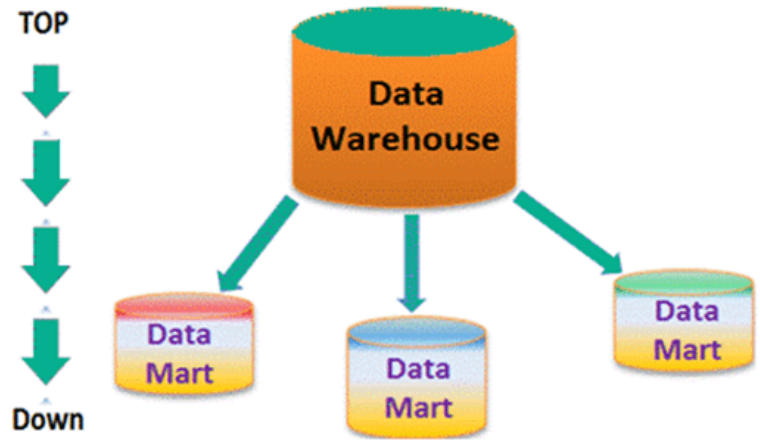
It collects data from various data sources.

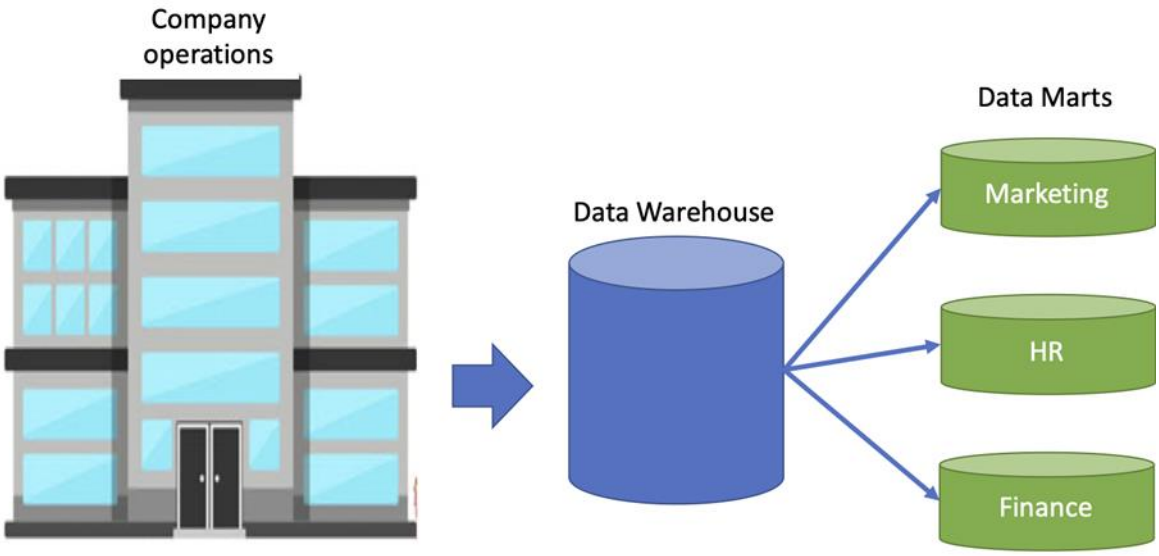
Data warehouse is top-down model.

Data warehouse is a Centralized system.

To build a warehouse is difficult.

Long time for processing the data because of large data.





DATA MARTS

A data mart is **a subset of a data warehouse focused on a particular line of business, department, or subject area**

Data Mart is subject-oriented, and it is used at a department level.

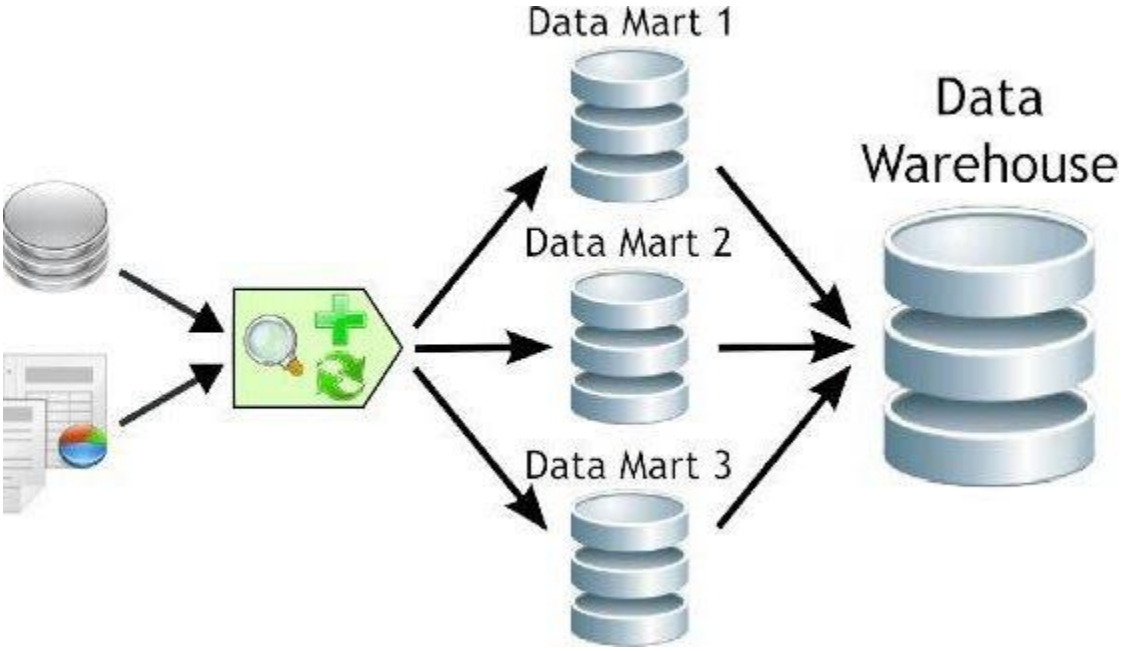
Data marts make specific data available to a defined group of users, which allows those users to quickly access critical insights without wasting time searching through an entire data warehouse.

Data Marts are built for particular user groups. Therefore, data short and limited.

To build a mart is easy.

Less time for processing the data because of handling only a small amount of data.

While it is a bottom-up model.



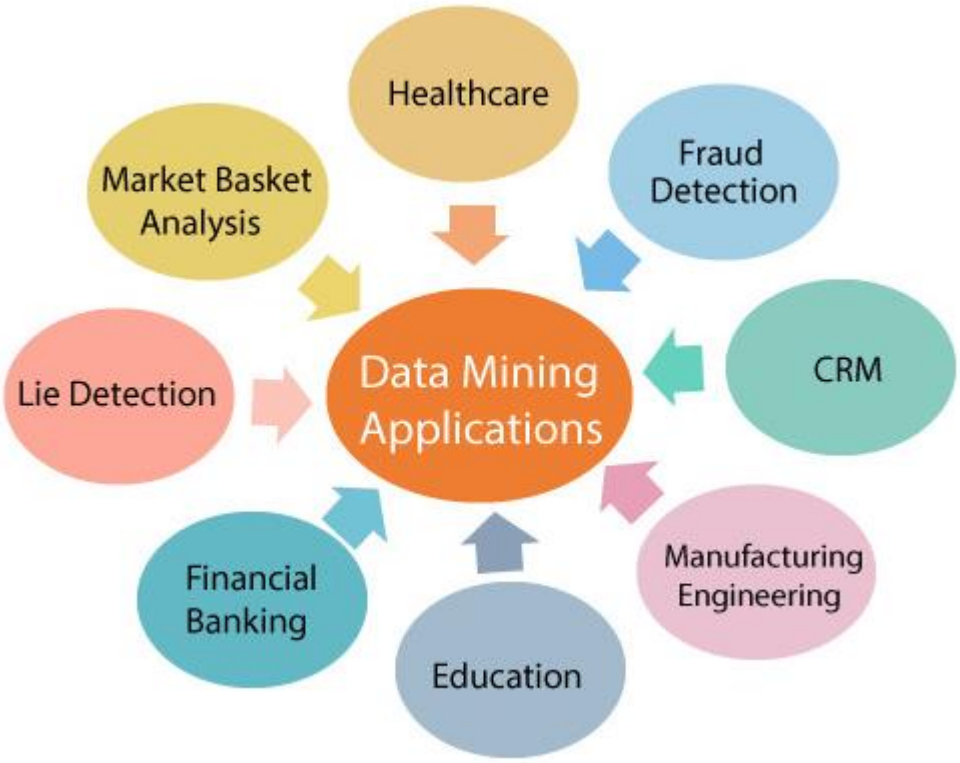
3. Data mining

Data mining is the process of analyzing dense volumes of data to find patterns, discover trends, and gain insight into how that data can be used.

Data miners can then use those findings to make decisions or predict an outcome.

Data mining is an interconnected discipline, blending the fields of statistics, machine learning, and artificial intelligence.

Data Mining Applications

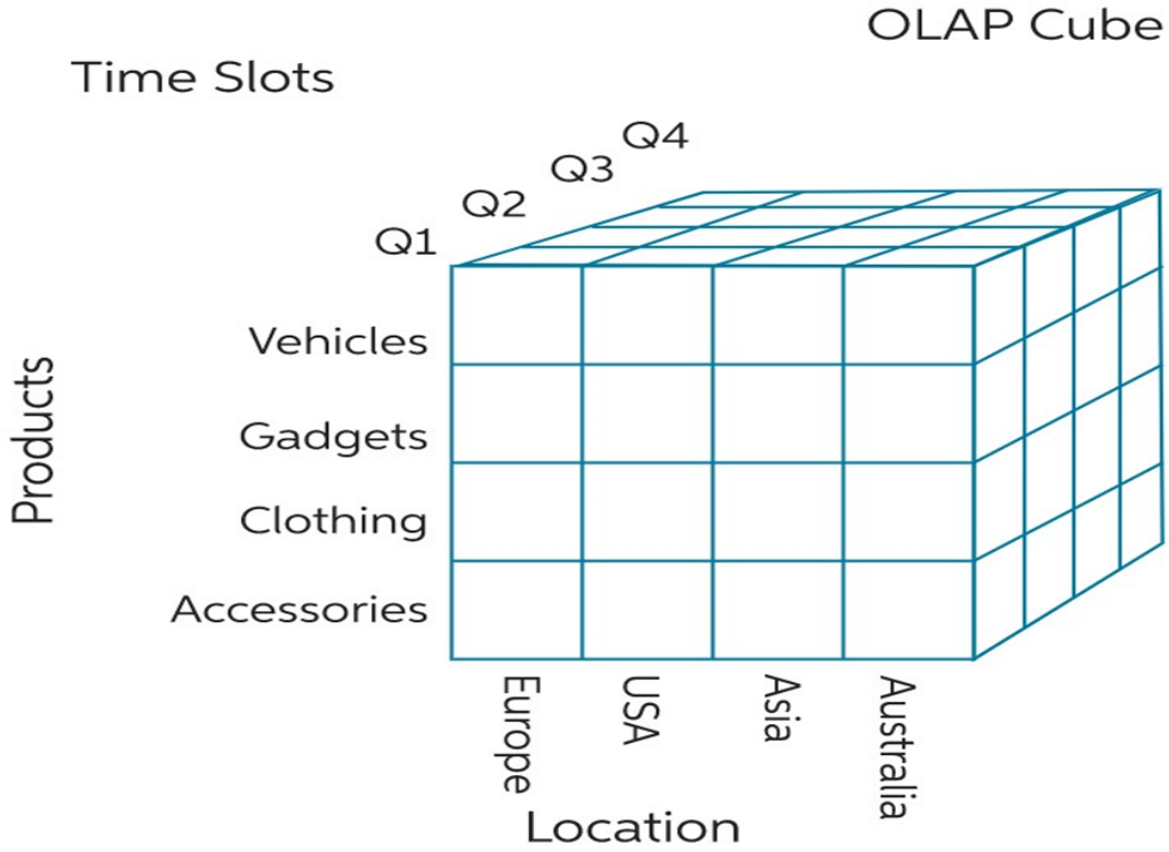


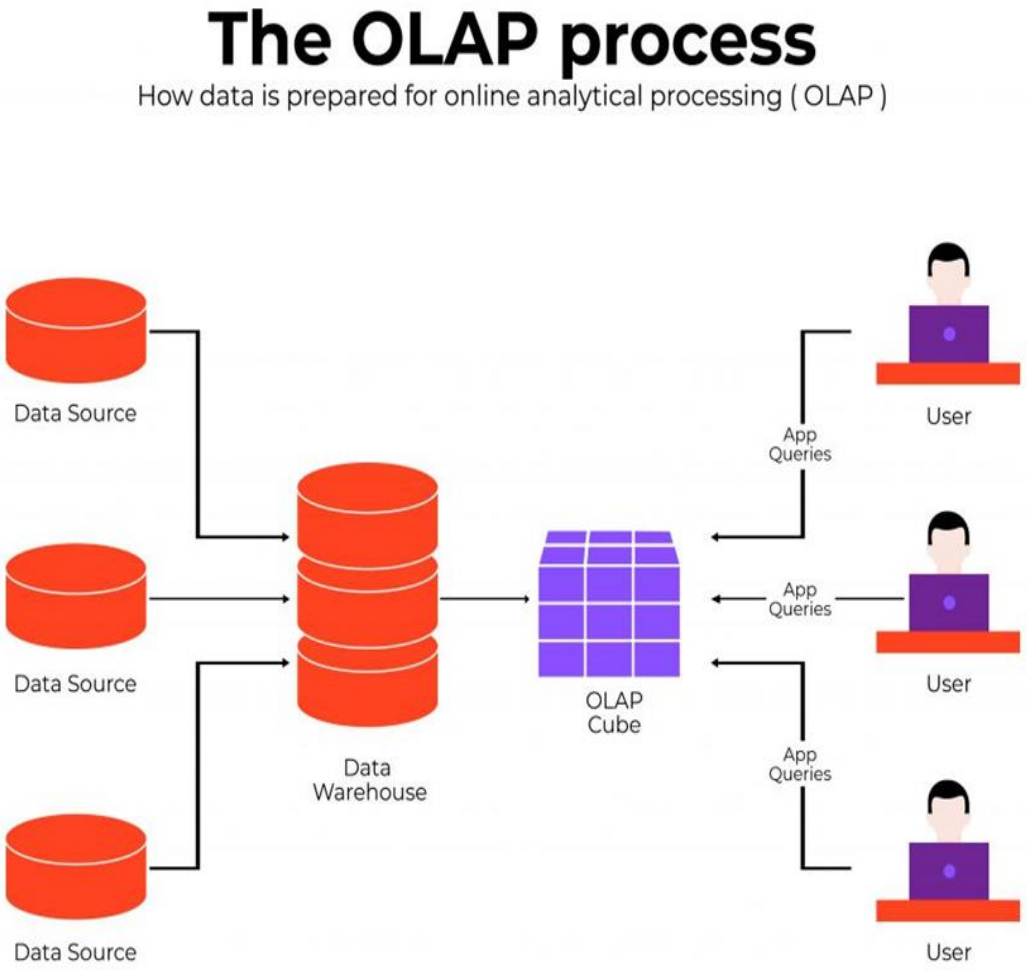
4. On-line analytical processing (OLAP)

Online Analytical Processing (OLAP) is a category of software that allows users to analyze information from multiple database systems at the same time.

It is a technology that enables analysts to extract and view business data from different points of view.

Analysts frequently need to group, aggregate and join data. These OLAP operations in data mining are resource intensive. With OLAP data can be pre-calculated and pre-aggregated, making analysis faster.

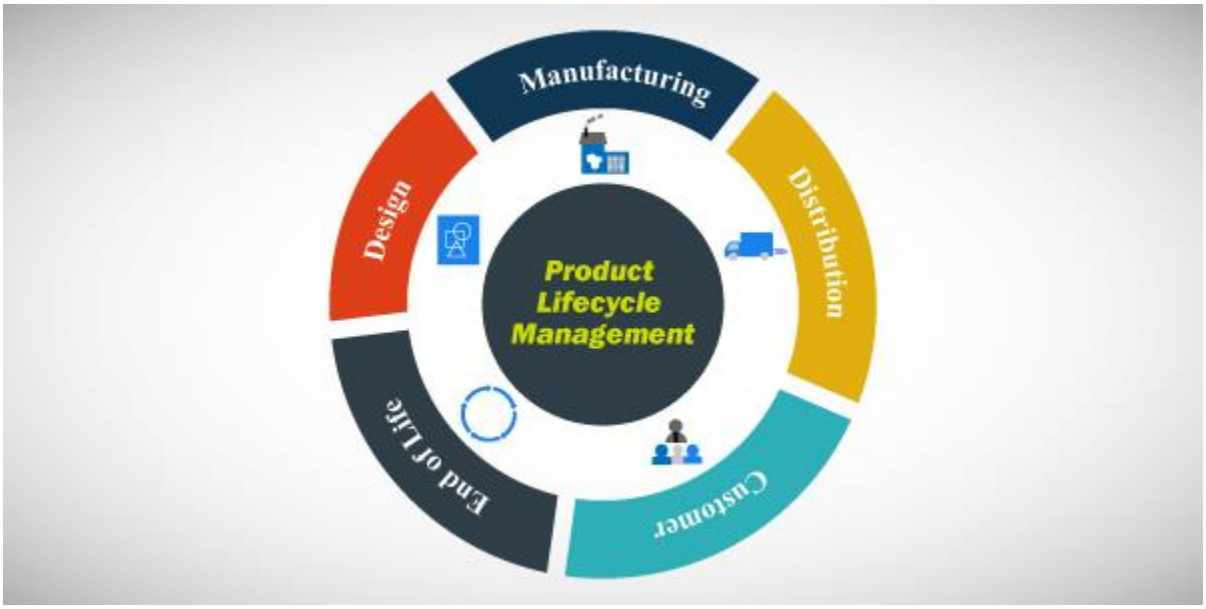



The OLAP process
How data is prepared for online analytical processing (OLAP)
Data Source
Data Source
Data Source
Data Warehouse
OLAP Cube
App Queries
App Queries
App Queries
User
User
User

5. Product life cycle management (PLM)

Product lifecycle management (PLM) is **the process of managing a product's lifecycle from inception, through design and manufacturing, to sales, service, and eventually retirement**. As a technology, PLM software helps organizations to develop new products and bring them to market.

PLM software is a solution that manages all of the information and processes at every step of a product or service lifecycle across globalized supply chains. This includes the data from items, parts, products, documents, requirements, engineering change orders, and quality workflows.



6. **Supply chain management (SCM)**

A supply chain is a network that connects a company to suppliers of raw materials. It is also used to deliver a product to customers. The better the supply chain management, the more of a competitive advantage the company has

Supply chains are steps that are required to get raw materials, products or services from the original state to the customer and improve customer relations. Large companies and projects usually have more than one supply chain, which is known as a supply network.

7. Customer relationship management (CRM)

Customer relationship management (CRM) is a technology for managing all your company's relationships and interactions with customers.

A CRM system helps companies stay connected to customers, streamline processes, and improve profitability.

CRM is a combination of business strategies, software and processes that enable companies to build long-lasting relationships with their customers.

The goal is to improve customer service relationships and assist in customer retention and drive sales growth. CRM systems compile customer data across different channels, or points of contact, between the customer and the company, which could include the company's website, telephone, live chat, direct mail, marketing materials and social networks.

8. Geographical information systems (GIS)

A Geographic Information System (GIS) is **a computer system that analyzes and displays geographically referenced information**. It uses data that is attached to a unique location.

Geographical information system (GIS) is basically defined as a systematic integration of hardware and software for capturing, storing, displaying, updating manipulating and analyzing data.

GIS relies on progress made in fields such as computer science, databases, statistics, and artificial intelligence.

Components of GIS:

People, Hardware & Software, Data & Methods

9. Intranets and extranets

An intranet is an online network only company employees can access

Intranet is a tool for sharing information throughout the organization.

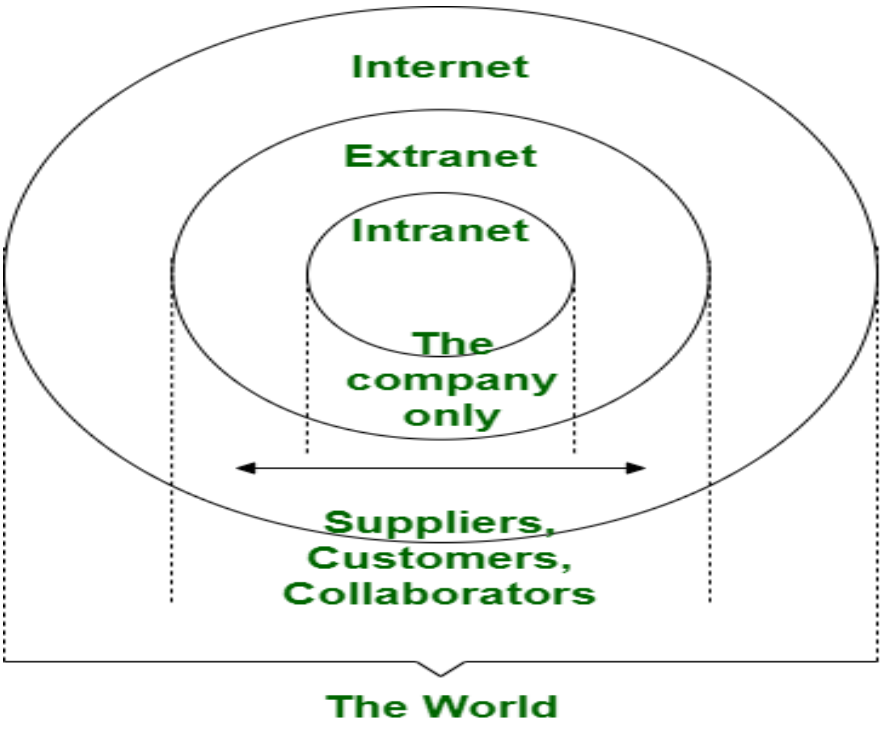
Example: WIPRO using internal network for its business operations.

Extranet in simple terms **provides a secure network for an organization to share information with relevant people outside the organization**.

It is a tool for sharing information between the internal members and external members.

Examples: An e-commerce site exchanges information with its retailers, a supplier's through an extranet network.

Example: DELL and Intel using network for business related operations.



10. Electronic data interchange (EDI)

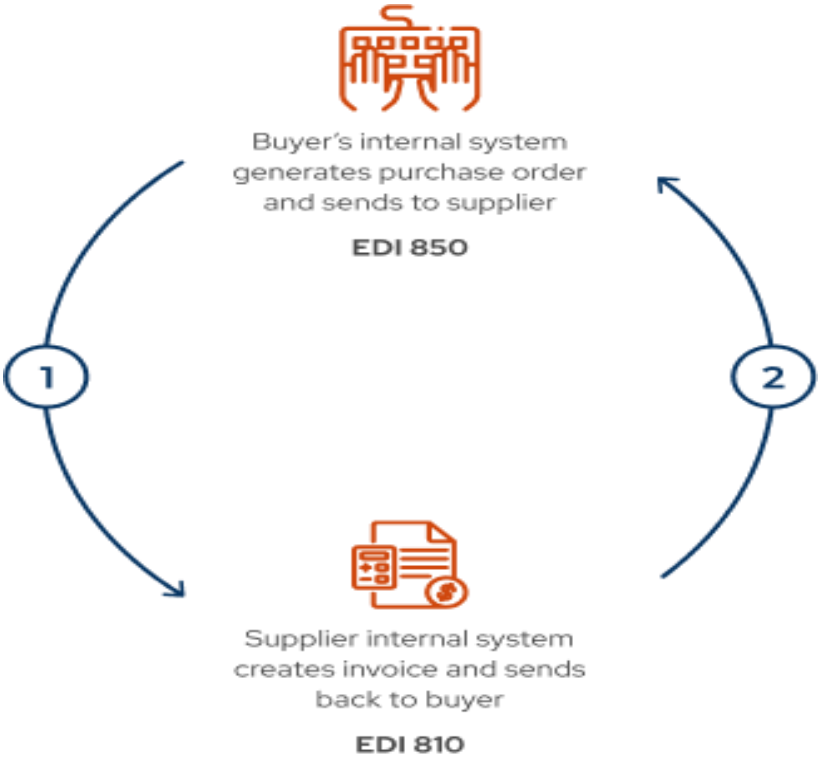
Electronic Data Interchange (EDI) is the exchange **of business information in a standard and structured format**.

It is a process which allows one company to send information to another company electronically rather than with paper.

Electronic data interchange (EDI) is defined as computer-to-computer exchange of business information in a standard and structured format.

Organizations are moving to electronic data interchange to streamline and improve operational efficiency of business processes and communications by exchanging data electronically.

Example:



A common transaction such as (EDI 850) Purchase Order and (EDI 810) Invoice, help simplify and streamline the entire data interchange process, form order purchasing to invoice sending.

11. Electronic Funds Transfer (EFT)

An electronic funds transfer is the process of moving money from one bank account to another using computer-based technology.

For business owners, from small to enterprise, taking and making payments is a regular and vital part of their everyday activities. Whether it's paying staff or vendors, or receiving payments from customers, the ability to make quick, seamless, and secure payments is a key component in business.

Electronic payments offer an easy payment solution that allow businesses to take payments quickly and securely.

Transactions are processed by the bank through the Automated Clearing House (ACH) network, the secure transfer system that connects the different financial institutions. For payments, funds are transferred electronically from one bank account to the billing company's bank, usually less than a day after the scheduled payment date.

Example:

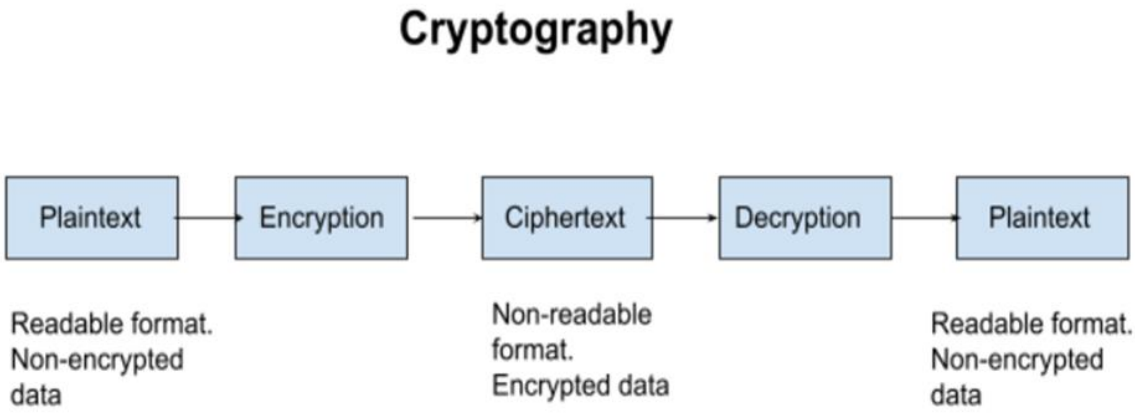
Automatic teller machines (ATM)

12. Cryptography

Cryptography is **technique of securing information and communications through use of codes so that only those person for whom the information is intended can understand it and process it**.

The encryption algorithm uses a "key," which is a binary number that is typically from 40 to 256 bits in length.

The greater the number of bits in the key (cipher strength), the more possible key combinations and the longer it would take to break the code. The data are encrypted, or "locked," by combining the bits in the key mathematically with the data bits. At the receiving end, the key is used to "unlock" the code and restore the original data.



3. Explain difference between Internet, Intranet & Extranet. (Any 5 points)

Point of difference	**Internet**	**Intranet**	**Extranet**
Accessibility of network	Public	Private	Private
Availability	Global system.	Specific to an organization.	To share information with suppliers and vendors it makes the use of public network.
Coverage	All over the world.	Restricted area upto an organization.	Restricted area upto an organization and some of its stakeholders or so.
Accessibility of content	It is accessible to everyone connected.	It is accessible only to the members of organization.	Accessible only to the members of organization and external

Point of difference	Internet	Intranet	Extranet
			members with logins.
No. of computers connected	It is largest in number of connected devices.	The minimal number of devices are connected.	The connected devices are more comparable with Intranet.
Owner	No one.	Single organization.	Single/ Multiple organization.
Purpose of the network	It's purpose is to share information throughout the world.	It's purpose is to share information throughout the organization.	It's purpose is to share information between members and external, members.
Security	It is dependent on the user of the device	It is enforced via firewall.	It is enforced via firewall that separates internet and extranet.

Point of difference	Internet	Intranet	Extranet
	connected to network.		
Users	General public.	Employees of the organization.	Employees of the organization which are connected.
Policies behind setup	There is no hard and fast rule for policies.	Policies of the organization are imposed.	Policies of the organization are imposed.
Maintenance	It is maintained by ISP.	It is maintained by CIO. HR or communication department of an organization.	It is maintained by CIO. HR or communication department of an organization.
Economical	It is more economical to use.	It is less economical.	It is also less economical.

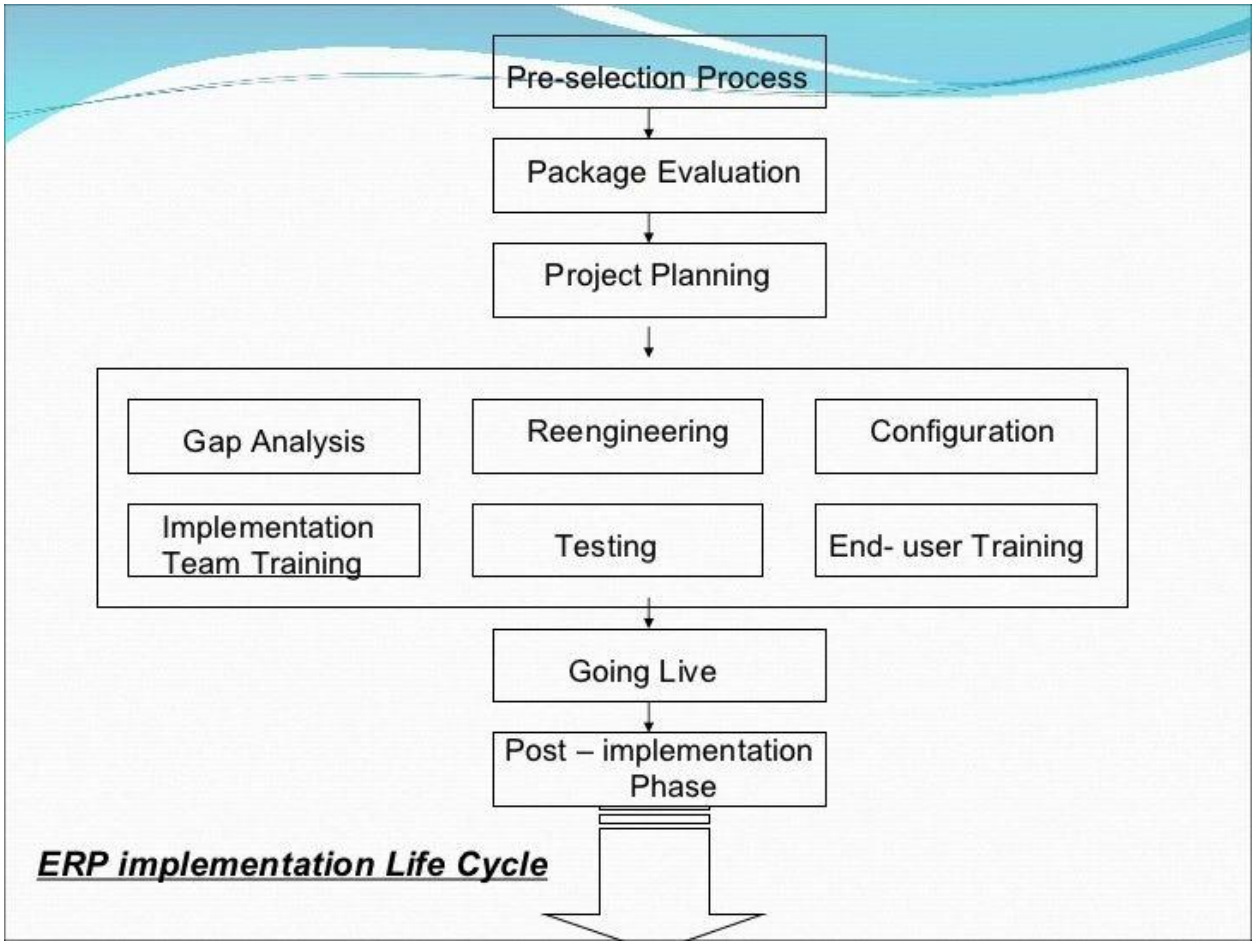
Point of difference	Internet	Intranet	Extranet
Relation	It is the network of networks.	It is derived from Internet.	It is derived from Intranet.
Example	What we are normally using is internet.	WIPRO using internal network for its business operations.	DELL and Intel using network for its business operations.

4. List different phases of ERP implementation life cycle & explain any 2 with diagram.

Enterprise Resource Planning (ERP) is made to automate any task. With ERP, it is easy to manage every department under one single database.

This consumes not much time and is easy and fast way to do work with.

ERP at its core is an effective way of centralizing information and workflow processes through data management. Because ERP keeps all of your workflow data in one place.



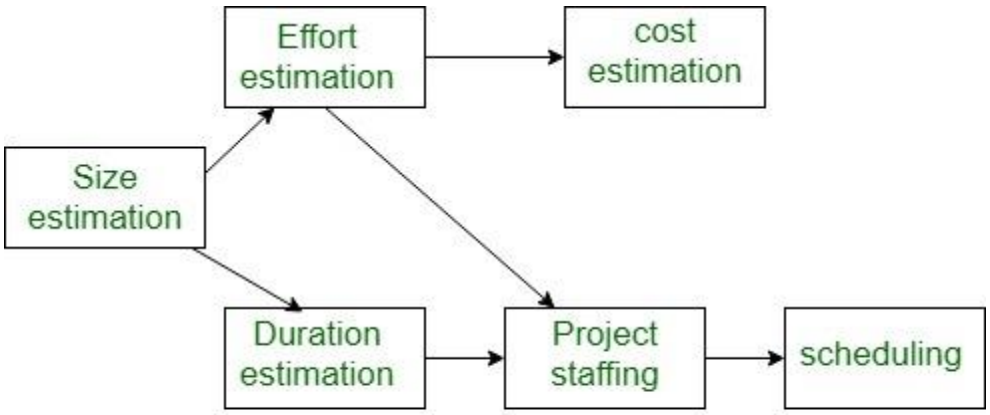
Different phases of ERP Implementation :

1. **Pre-evaluation screening**
2. **Package Evaluation**
3. **Project Planning Phase**
4. **Gap Analysis**
5. **Re-engineering**
6. **Customization**
7. **Implementation Team Training**
8. **Testing**
9. **Going Live**
10. **End-User Training**
11. **Post-Implementation**

1. **Pre-evaluation screening :**
   This phase starts when company decides to go for ERP system. For this, search for package starts. It is time-consuming process because every package has to analyze first before reaching to any decision. As all packages are not same and each has its own strengths and weakness. This process should eliminate those packages that are not suitable for company's business processes.

2. **Package Evaluation :**
   It is the most important phase in implementation. This phase depends on success and failure of entire project with package selection. Most important factor while selecting any package is that not every package can be totally perfect for project but at-least it should be good fit for project.

3. **Project Planning Phase :**
   This phase plans and designs implementation process.



Precedence ordering among planning activities

Estimating the subsequent attributes of the project:

- **Project size:**
  What's going to be downside quality in terms of the trouble and time needed to develop the product?
- **Cost:**
  What proportion is it reaching to value to develop the project?
- **Duration:**
  However long is it reaching to want complete development?

- **Effort:**
  What proportion effort would be required?

4. **Gap Analysis :**
   It is the most crucial phase in this implementation. Here, gaps are analyzed between company's practices and that practices which are supported by ERP package. It has been estimated that even best ERP package only meets 80-85% of company's functional requirements.

5. **Re-engineering** :
   It is the fundamental rethinking and radical redesign of business processes to achieve improvements.
   Software Re-engineering is a process of software development which is done to improve the maintainability of a software system. Re-engineering is the examination and alteration of a system to reconstitute it in a new form.

   Re-engineering, also known as reverse engineering or software re-engineering, is the process of analyzing, designing, and modifying existing software systems to improve their quality, performance, and maintainability.

6. **Customization :**
   It is the main functional area of ERP Implementation. Arrived solution must match with overall goals of company. Prototype should allow for thorough testing and attempts to solve logistical problem.

7. **Implementation Team Training :**
   Now after above processes, implementation team knows how to implement system. This is phase where company trains its employees to implement and later run system.

8. **Testing :**
   This is the phase where team break system. Sometimes, system overloads or multiple users trying to login at same time etc. Test cases are designed specifically to find weak links in system. Different types of testing are: Unit testing, integration testing, acceptance testing, security testing, performance and stress testing.

9. **Going Live :**
   Once technical and functional side is properly working and testing is done. There comes next phase i.e, “Going Live”. Once system is ‘live’, old system is removed & new system is used for doing business.

10.End-User Training:
This is the phase where user of system is given training on how to use system. Employees and their skills are identified and training is given to them in groups based on their current skills. Every employee is provided with training of job which he is going to perform.

11.Post-Implementation :
It is the most important and critical factor. Post Implementation is based on two words- Operation and Maintenance of system. Duration of this phase depends on training efficiency. Necessary enhancements & upgrades are made in this phase.