Unit-1 Notes

MEANING & DEFINITION:-
Sharing business information, maintaining business relationships and conducting business transactions using computers connected to a telecommunication network is called E-Commerce

CLASSIFICATION:-
CLASSIFIED AS : BUSINESS TO BUSINESS (B2B)

BUSINESS TO CONSUMER(B2C)

CONSUMER TO CONSUMER (C2C)

CONSUMER TO BUSINESS (C2C)

1. Business-to-business (B2B) ¬ Business-to-Business refers to the full spectrum of ecommerce that can occur between two organizations e.g., (www.flipkart.com), and Free Markets (www.freemarkets.com)
2. Business-to-Consumer (B2C) ¬ Business-to-Consumer e-commerce refers to exchanges between businesses and consumers, e.g. Amazon.com, Yahoo.com and Schwab.com.
3. Consumer-to-Consumer (C2C) ¬ Consumer-to-Consumer exchanges involve transactions between and among consumers. e.g., games (www.heat.net), (www.monster.com), Web-based communication Yahoo!
4. Consumer-to-Business (C2B) ¬ Consumers can band together to form and present themselves as a buyer group to businesses in a consumer-to business relationship Eg: Mercata.com, or socially oriented as with cause-related advocacy at voxcap.com.

E-COMMERCE APPLICATIONS-EXAMPLE:-
•RETAIL STORES - Books, Music

•AUCTION SITES

•COOPERATING BUSINESSES –Placing orders, paying invoices etc.

•ELECTRONIC BANKING

•BOOKING TICKETS - TRAINS, CINEMA, AIRLINES

•ELECTRONIC PUBLISHING

•FILLING TAX RETURNS WITH GOVERNMENT DEPT.

FEATURES OF E-COMMERCE:-

1. Non-Cash Payment: E-Commerce enables use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website and other modes of electronics payment.

2. 24x7 Service availability: E-commerce automates business of enterprises and services provided by them to customers are available anytime, anywhere. Here 24x7 refers to 24 hours of each seven days of a week.

3. Advertising / Marketing: E-commerce increases the reach of advertising of products and services of businesses. It helps in better marketing management of products / services.

4. Improved Sales: Using E-Commerce, orders for the products can be generated any time, any where without any human intervention. By this way, dependencies to buy a product reduce at large and sales increases.

5. Support: E-Commerce provides various ways to provide pre sales and post sales assistance to provide better services to customers.

6. Inventory Management: Using E-Commerce, inventory management of products becomes automated. Reports get generated instantly when required. Product inventory management becomes very efficient and easy to maintain.

7 Communication improvement: E-Commerce provides ways for faster, efficient, reliable communication with customers and partners.

FUNCTIONS OF E-COMMERCE:-

The main functions of e-commerce are:
1. Communication
2. Process management
3. Service management
4. Transaction capabilities
5. Information Distribution
6. Logistic/Supply Chain Management

E-COMMERCE PRACTICES V/S TRADITIONAL PRACTICES:-

BASIS FOR COMPARISON	TRADITIONAL COMMERCE	E-COMMERCE
Meaning	Traditional commerce is a branch of business which focuses on the exchange of products and services, and includes all those activities which encourages exchange, in some way or the other.	e-Commerce means carryng out commercial transactions or exchange of information, electronically on the internet.
Processing of Transactions	Manual	Automatic
Accessibility	Limited Time	24×7×365
Physical inspection	Goods can be inspected physically before purchase.	Goods cannot be inspected physically before purchase.
Customer interaction	Face-to-face	Screen-to-face
Scope of business	Limited to particular area.	Worldwide reach
Information exchange	No uniform platform for exchange of information.	Provides a uniform platform for information exchange.
Resource focus	Supply side	Demand side
Business Relationship	Linear	End-to-end
Marketing	One way marketing	One-to-one marketing
Payment	Cash, cheque, credit card, etc.	Credit card, fund transfer etc.
Delivery of goods	Instantly	Takes time

SCOPE OF E-COMMERCE:-

There is high scope of e-commerce in each aspect of business, at present it is in the embryonic stage but in future e-commerce would be the part of day to day activity of business firms. Following are the marketing areas where we seek scope of e-commerce:

  (i) Marketing, sales and sales promotion.
  (ii) Pre-sales, subcontracts, supply.
  (iii) Financing and insurance.
  (iv) Commercial transactions – ordering, delivery, payment.
  (v) Product service and maintenance.
  (vi) Co-operative product development.
  (vii) Distributed co-operative working.
  (viii) Use of public and private services.
  (ix) Business-to-administrations
  (x) Transport and logistics.
  (xi) Public procurement.
  (xii) Automatic trading of digital goods like games, learning material, songs and music etc.
 (xiii) Accounting and financial management.
  (xiv) Legal advice

BASIC MODELS OF E-COMMERCE:-

E-commerce business models can generally be categorized into the following categories.

- Business - to - Business (B2B)
- Business - to - Consumer (B2C)
- Consumer - to - Consumer (C2C)
- Consumer - to - Business (C2B)
- Business - to - Government (B2G)
- Government - to - Business (G2B)
- Government - to - Citizen (G2C)

Business - to - Business

A website following the B2B business model sells its products to an intermediate buyer who then sells the product to the final customer. As an example, a wholesaler places an order from a company's website and after receiving the consignment, sells the end product to the final customer who comes to buy the product at one of its retail outlets.
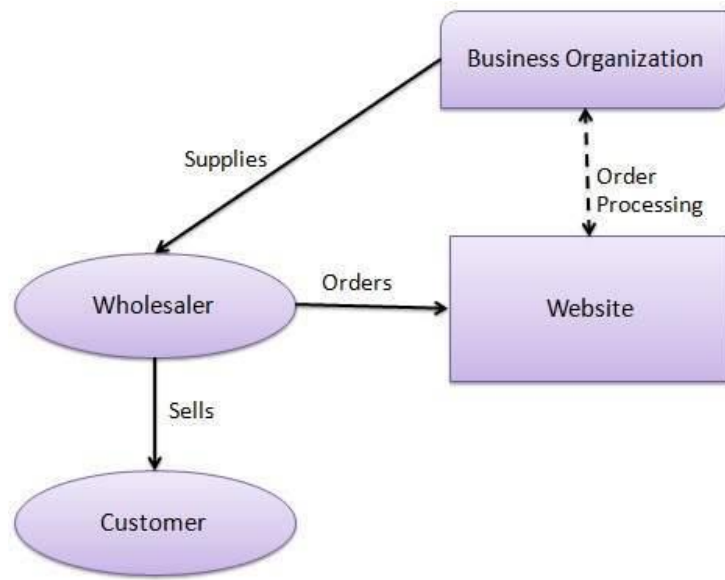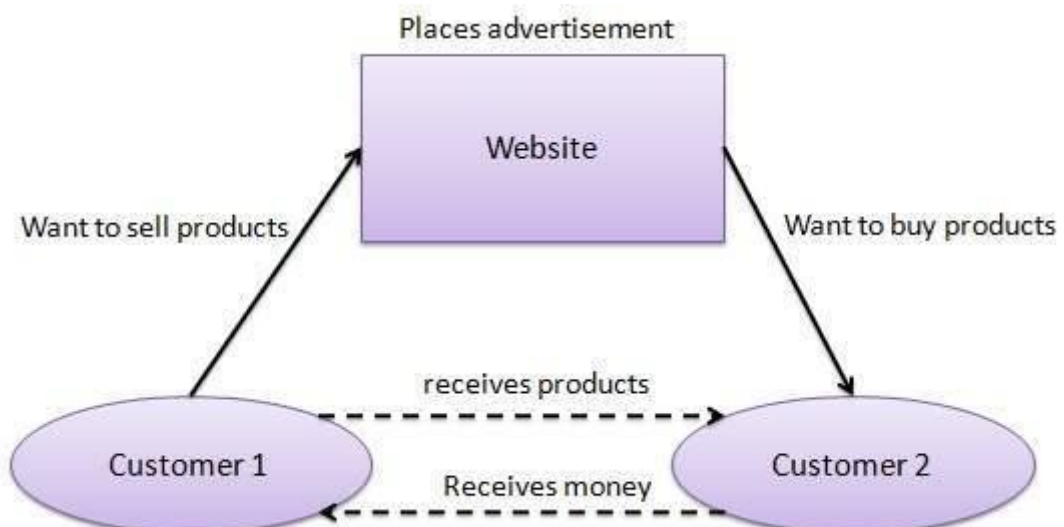
Business - to - Consumer

A website following the B2C business model sells its products directly to a customer. A customer can view the products shown on the website. The customer can choose a product and order the same. The website will then send a notification to the business organization via email and the organization will dispatch the product/goods to the customer.
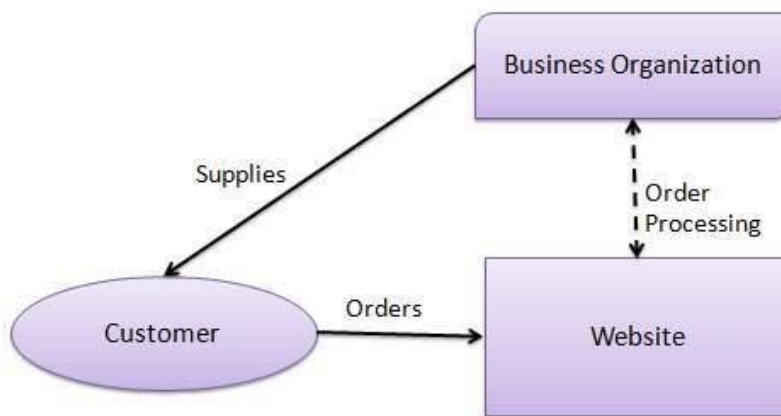

Consumer - to - Consumer

A website following the C2C business model helps consumers to sell their assets like residential property, cars, motorcycles, etc., or rent a room by publishing their information on the website. Website may or may not charge the consumer for its services. Another consumer may opt to buy the product of the first customer by viewing the post/advertisement on the website.


4

Consumer - to - Business

In this model, a consumer approaches a website showing multiple business organizations for a particular service. The consumer places an estimate of amount he/she wants to spend for a particular service. For example, the comparison of interest rates of personal loan/car loan provided by various banks via websites. A business organization who fulfills the consumer's requirement within the specified budget, approaches the customer and provides its services.
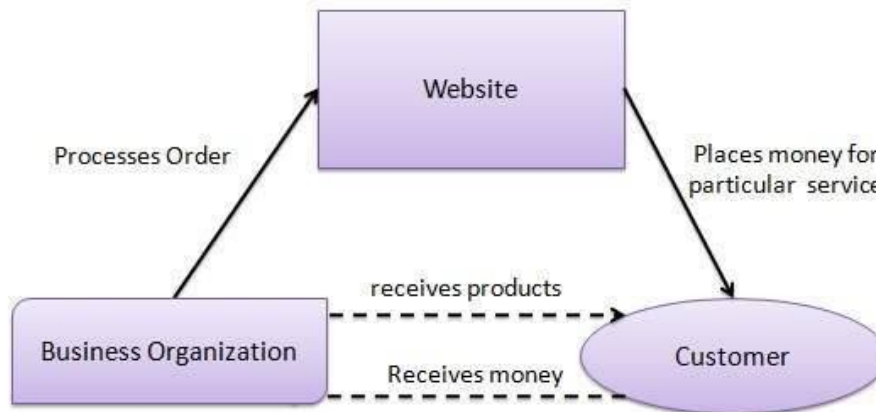
Business - to - Government

B2G model is a variant of B2B model. Such websites are used by governments to trade and exchange information with various business organizations. Such websites are accredited by the government and provide a medium to businesses to submit application forms to the government.
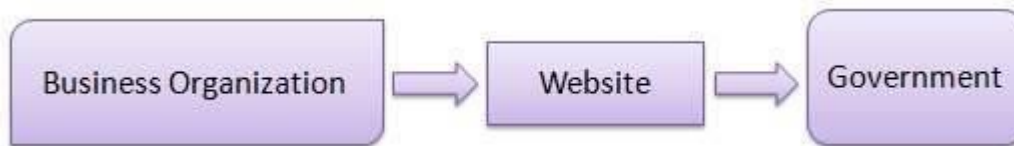
Government - to - Business

Governments use B2G model websites to approach business organizations. Such websites support auctions, tenders, and application submission functionalities.

Government - to - Citizen

Governments use G2C model websites to approach citizen in general. Such websites support auctions of vehicles, machinery, or any other material. Such website also provides services like registration for birth, marriage or death certificates. The main objective of G2C websites is to reduce the average time for fulfilling citizen's requests for various government services.

LIMITATIONS OF E-COMMERCE:-

1. Security: the security risk in ecommerce can be
• client / server risk
• data transfer and transaction risk
• virus risk

2. High start up cost:
The various components of cost involved with ecommerce are:-

• connection:- connection cost to the internet.

• hardware / software:- this includes cost of sophisticated computer, moduer, routers, etc.

• maintenance:- this include cost invole in traning of employees and maintenance of web-pages.

3. Legal issues:- these issues arises when the customer data is fall in the hands of strangers.

4. Lack of skilled personnel:- there is difficulty in finding skilled www developers and knowledgeable professionals to manage and a maintain customer on line.

5. Loss of contact with customers:- Sometimes customers feels that they doesnot have received sufficient personal attention.

6. Uncertainty and lack of information :- most of the companies has never used any electronic means of communication with its customers as the internet is an unknown mode for them.

7. Some business process may never be available to ecommerce:- Some items such as foods, high cost items such as jwellery may be impossible to be available on the internet.

PRECAUTION FOR SECURE E-COMMERCE :-

Security is an essential part of any transaction that takes place over the internet. Customers will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions –

• Confidentiality – Information should not be accessible to an unauthorized person. It should not be intercepted during the transmission.

• Integrity – Information should not be altered during its transmission over the network.

• Availability – Information should be available wherever and whenever required within a time limit specified.

• Authenticity – There should be a mechanism to authenticate a user before giving him/her an access to the required information.

• Non-Repudiability – It is the protection against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.

• Encryption – Information should be encrypted and decrypted only by an authorized user.

• Auditability – Data should be recorded in such a way that it can be audited for integrity requirements.

Measures to ensure Security

Major security measures are following –

• Encryption – It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypts the data using a secret code and only the specified receiver can decrypt the data using the same or a different secret code.

- Digital Signature – Digital signature ensures the authenticity of the information. A digital signature is an e-signature authenticated through encryption and password.
- Security Certificates – Security certificate is a unique digital id used to verify the identity of an individual website or user.

Security Protocols in Internet

We will discuss here some of the popular protocols used over the internet to ensure secured online transactions.

Secure Socket Layer (SSL)

It is the most commonly used protocol and is widely used across the industry. It meets following security requirements –

- Authentication
- Encryption
- Integrity
- Non-reputability

"https://" is to be used for HTTP urls with SSL, where as "http:/" is to be used for HTTP urls without SSL.

Secure Hypertext Transfer Protocol (SHTTP)

SHTTP extends the HTTP internet protocol with public key encryption, authentication, and digital signature over the internet. Secure HTTP supports multiple security mechanism, providing security to the end-users. SHTTP works by negotiating encryption scheme types used between the client and the server.

Secure Electronic Transaction

It is a secure protocol developed by MasterCard and Visa in collaboration. Theoretically, it is the best security protocol. It has the following components –

- **Card Holder's Digital Wallet Software** – Digital Wallet allows the card holder to make secure purchases online via point and click interface.
- **Merchant Software** – This software helps merchants to communicate with potential customers and financial institutions in a secure manner.
- **Payment Gateway Server Software** – Payment gateway provides automatic and standard payment process. It supports the process for merchant's certificate request.
- **Certificate Authority Software** – This software is used by financial institutions to issue digital certificates to card holders and merchants, and to enable them to register their account agreements for secure electronic commerce.

ADVANTAGE & DISADVANTAGES, PRE-REQUISITE OF E-COMMERCE:-

Advantages of E-commerce

- Much faster transactions available 24/7.
- Products and services are easy to find.
- Easier time managing a business.
- Doesn't require much (if at all) physical space.
- No geographical limitations translates as a bigger customer reach.
- Higher quality of services and lower operational costs.

Disadvantages of E-commerce

- No guarantee of product quality.
- Customer loyalty becomes a bigger issue as there is a minimal direct customer-company interaction.
- Inability to experience products beforehand leads to more checkout dropouts.
- Anyone can start an online business, which sometimes leads to scam and phishing sites.
- Hackers target web shops more often than you think.
- Mechanical failures can get quite more punishing.

Unit-2 Notes

Electronic business is super set of business cases. E-commerce is one of them. Other important aspects of E-business are E-auctioning, E-banking, E-marketing, E-trading etc.

i) E-commerce : Electronic commerce is transacting are facilitating business through internet. E–commerce revolve around buying and selling online. Any form of business transaction conducted electronically is E-commerce.

ii) E-auctioning : In E-auctioning the people who want to participate in the auction, visit the website with a click and go through the details of goods offered or kept in auction in concerned web pages and participate in auction.

iii) E–banking : Electronic banking is one of the most successful online business. E–banking allows customers to access their accounts and execute orders through the use of website. Online banking allows customers to get their money from ATM.

iv) E-marketing : Electronic marketing provides a world wide form of buying and selling of goods. The internet allows companies to react to individual customers demand immediately. It does not matter where the customer is located. It can be done by E-mails etc.

v) E–trading : E–trading is also known as "online trading" or E-broking. It is used for buying and selling stocks in stock exchange.

PEER TO PEER BUSINESS MODEL:-

The peer to peer business model has been around for some time. The largest peer to peer business model known in e-commerce is eBay. EBay is an e-commerce marketplace were both businesses and individuals can sell goods to each other. Peer to Peer business models depend mostly on attracting both the customers and the vendors or sellers. Peer to Peer business model in e-commerce is not a new thing. The person to person model is even in the modern transaction methods of e-commerce. E-commerce depends a lot of transactions that are completed from person to person rather than business to business. In e-commerce peer to peer payment system have become very important allowing individuals to sell products directly to customers and to receive payment directly. The most notorious e-commerce peer to peer payment system is Bitcoins. There is no doubt that bitcoin has taken the e-commerce sector by storm. There are now a lot of P2P payment systems operating in the e-commerce sector. E-commerce stores especially on the dark web use bitcoin as their principal payment method. This helps them from being tracked by the authorities.

CUSTOMER TO CUSTOMER BUSINESS MODEL:-

Customer to customer (C2C) is a business model, whereby customers can trade with each other, typically, in an online environment. Two implementations of C2C markets are auctions and classified advertisements. C2C marketing has soared in popularity with the arrival of the internet and companies such as eBay, Etsy, and Craigslist.

How C2C Works

C2C represents a market environment where one customer purchases goods from another customer using a third-party business or platform to facilitate the transaction. C2C companies are a new type of model that has emerged with e-commerce technology and the sharing economy.

Customers benefit from the competition for products and often find items that are difficult to locate elsewhere. Also, margins can be higher than traditional pricing methods for sellers because there are minimal costs due to the absence of retailers or wholesalers. C2C sites are convenient because there is no need to visit a brick-and-mortar store. Sellers list their products online, and the buyers come to them.

Unit-3 Notes

APPLICATION OF E COMMERCE IN DIRECT MARKETING AND SELLING:-

Direct marketing is a very popular and widely method of informing people about products and services in order to make sales. It's a method of contacting customers and potential customers personally. Using e-commerce, companies provide credit and electronically buying facilities to a customer in order to facilitate the customers and to attract the attention of customers.

Following are the application of e-commerce in direct marketing and selling.
- Introduction and rapid promotion of a product through direct link, interactive and customizable information to the customer.
- Generation of responsive feedback to customer inquiries, capturing and tracking of information about consumer requests and providing customized services based on personal needs and interests of consumers.
- Reduced delivery time of digitized products like music, software, online education, and consultancy. Elimination of all the administration work and transport time.
- Increased in customer satisfaction because of availability of online detailed information and quick response to his queries via email.
- Targeting customer segments with personalized offers and generating sales leads through observation and analysis of customer behavior.
- Providing the easiest, cost-effective and quickest method to contact the customers directly.
- Surveys can be easily conducted without the involvement of the machinery of surveyors.
- Data about transactions of customers along with their personal information can be collected and stored into databases. Analysis of this data helps in achieving a higher return of on investment.
- An opening of new markets that were not accessible and facilitating export in international markets directly.

VALUE CHAIN INTEGRATION, SUPPLY CHAIN MANAGEMENT:-
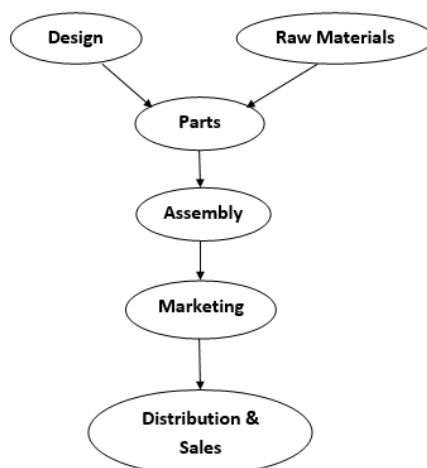
VALUE CHAIN MODEL

A value chain for a product is the chain of actions that are performed by the business to add value in creating and delivering the product. For example, when you buy a product in a store or from the web, the value chain includes the business selecting products to be sold, purchasing the components or tools necessary to build them from a wholesaler or manufacturer, arranging the display, marketing and advertising the product, and delivering the product to the client.

Porter Value Chain Template

Support Processes	**Firm infrastructure:** General management, Planning Management, Legal, Finance, Accounting				
	Human Resource Management: Recruitment, Retention, Training, R&D				
	Technology Development: Continuous improvement in printing & finishing assets				
	Procurement of Resources: Purchasing paper, printing consumables and other finishing consumables				Competitive Advantage
Primary Business Processes	**Inbound Logistics** • Reception • Storage • Inventory control • Transportation planning	**Operations** • Printing • Finishing	**Outbound Logistics** • Warehousing • Order fulfilment • Transportation • Distribution	**Marketing and Sales** • Partnership • Advertising • Promotion	**Service** • Customer support

- The value chain is a concept from business management that was first described and popularized by Michael Porter in his 1985 best seller, Competitive Advantage: Creating and Sustaining Superior Performance.
- A value chain is a step-by-step business model for transforming a product or service from idea to reality.
- Value chains help increase a business's efficiency so the business can deliver the most value for the least possible cost.
- The end goal of a value chain is to create a competitive advantage for a company by increasing productivity while keeping costs reasonable.
- The value-chain theory analyzes a firm's five primary activities and four support activities.

Here we have shown just a basic value chain flow of an Automobile Industry.

```
Design          Raw Materials
      \         /
       Parts
         |
      Assembly
         |
      Marketing
         |
  Distribution &
      Sales
```

The idea of the value chain is based on the process of organization, the idea of seeing a manufacturing (or service) organization as a system, made up of subsystems each with inputs, transformation processes and outputs. Inputs, transformation processes, and outputs involve the acquisition & consumption of resources- money, labour, materials, equipment, buildings, land, administration and management. How value chain activities are carried out determines costs and affects profits. Most organizations engage in hundreds, even thousands of activities in the process of converting inputs to outputs. These activities can be classified generally as either primary or support activities that all businesses must undertake in some form.

According to Porter (1985), the activities are:-

Primary Activities
Primary activities consist of five components, and all are essential for adding value and creating competitive advantage:-

1. **Inbound logistics** include functions like receiving, warehousing, and managing inventory.
2. **Operations** include procedures for converting raw materials into a finished product.
3. **Outbound logistics** include activities to distribute a final product to a consumer.
4. **Marketing and sales** include strategies to enhance visibility and target appropriate customers—such as advertising, promotion, and pricing.
5. **Service** includes programs to maintain products and enhance the consumer experience—like customer service, maintenance, repair, refund, and exchange.

Support Activities are:-

6. Procurement concerns how a company obtains raw materials.
7. Technological development is used at a firm's research and development (R&D) stage—like designing and developing manufacturing techniques and automating processes.

8. Human resources (HR) management involves hiring and retaining employees who will fulfill the firm's business strategy and help design, market, and sell the product.
9. Infrastructure includes company systems and the composition of its management team—such as planning, accounting, finance, and quality control.
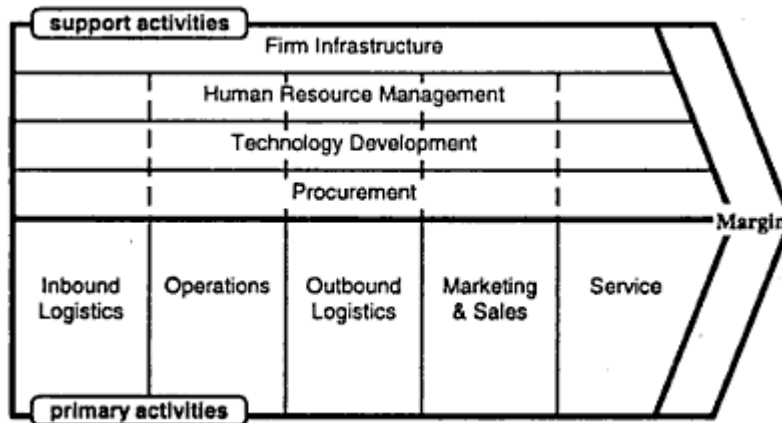

SUPPLY CHAIN MANAGEMENT:-

Supply Chain Management (SCM) is a range of activities needed to plan, coordinate, schedule and control the procurement, production, and deliveries of products to customers. SCM is the backbone of eCommerce and is a very crucial component in its growth. Supply Chain Efficiency ensures the right product reaches the right place at the right time. It ensures cost reduction and enhancement of cash utilization.

It is an expansive and complex undertaking which ensures that each partner i.e. from suppliers to manufacturers and beyond perform well. An effective supply chain management is a combination of change management, collaboration, and risk management which helps to create alignment and communication between all the entities.
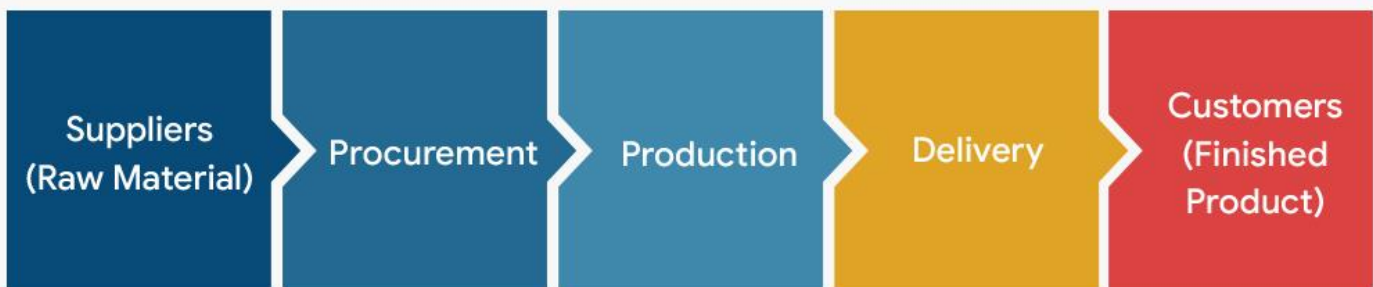

Supply chain (definition) is a network of facilities and distribution options that perform the functions of procurement of materials, transformation of these materials into intermediate and finished products, and distribution of these finished products to customers. SCM deals with the planning and execution issues involved in managing a supply chain.

Supply chain has 3 main parts
- Supply side: concentrates on how, where from, and when raw materials are procured and supplied to manufacturing.
- Manufacturing side: converts raw materials to finished products.
- Distribution side: ensures that finished products reach the final customers through a network of distributors, warehouses and retailers.
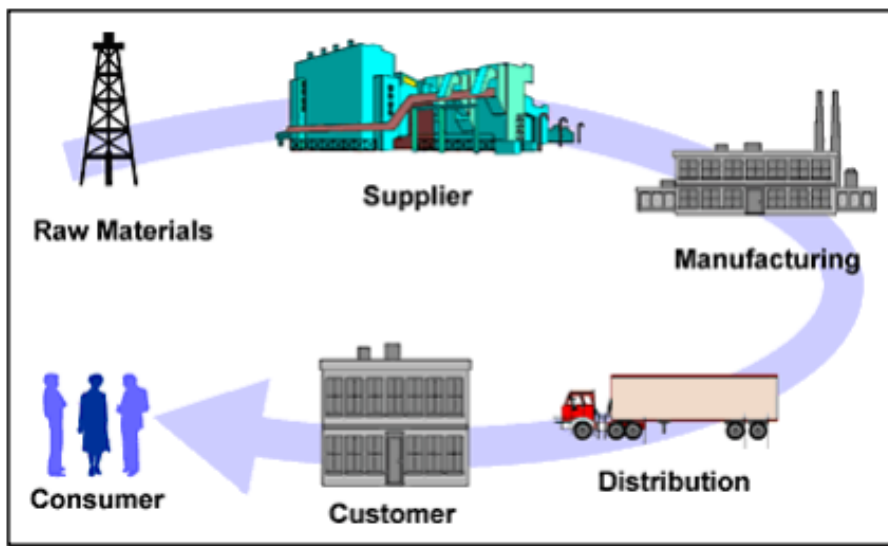
OBSTACLES IN ADOPTING E COMMERCE APPLICATIONS:-

- Lack of awareness
- Trust and Confidence
- The difficulty in re-engineering the business process
- Huge investment required
- Poor customers, Suppliers, and Business Partners' Base
- Lack of trust and confidence
- Lack of legal and Regulatory Framework
- Lack of Knowledge of E-commerce
- Weak Payment and delivery system
- Taxation

FUTURE OF E-COMMERCE:-

Internet and online services are poised to grow, and India will be one of the main beneficiaries. For instance, in the developed countries, online banking already represents between 5 and 10 per cent of total retail banking transactions.

1. **Emerging Trends in E-commerce Technology Real-time Shopping Experience at Online Shopping:-** There is no doubt the people prefer to talk to real sales person and hold the product in their hand. Most online retailers have facilities to chat online, get suggestions and answer all your queries. Online subscription even allow you to hold the product and touch it.
2. **Using Mobiles and Android Apps for Transaction :-**The websites must act like any app and must be very responsive in terms of design. We have many kinds of apps now that assist consumers to check out on his own, use payment wallet, store coupon codes like loyalties, card numbers and have GPS for proper advertisement of companies.
3. **Social Networking Sites :-** The social networking sites increase in popularity, retailers must be using this platform for marketing and selling their products. Facebook, Twitter, LinkedIn will be the platforms where you will get data about the latest discounts and offer
4. **Retailers Support to Omni-Channel Consumers:-** Mobile apps are there in the market that lets you compare prices, check the reviews online and share the product with friends. Retailers will be integrating their separate channels into one for offering support to the consumers.
5. **Mobile POS and Accessing Via Mobile:-** The idea of Mobile POS to make each and every employee work and allow the customer transact without being to the billing counter. There are also apps that will let you compare the prices of the same product at different outlets.

CONCLUSION:- The e-commerce is one of the biggest thing that has taken the business by a storm. It is creating an entire new economy, which has a huge potential and is fundamentally changing the way businesses are done. It has advantages for both buyers as well as sellers and this win-win situation is at the core of its

phenomenal rise. Though there are some weak links, with improvements in technology, they will be ironed out, making the ecommerce easy, convenient and secure. The e-commerce is certainly here to stay.

Unit-4 Notes

ELECTRONIC PAYMENT SYSTEMS:-

E-commerce sites use electronic payment, where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing the paperwork, transaction costs, and labor cost. Being user friendly and less time-consuming than manual processing, it helps business organization to expand its market reach/expansion. Listed below are some of the modes of electronic payments –

- Credit Card
- Debit Card
- Smart Card
- E-Money
- Electronic Fund Transfer (EFT)

Credit Card

Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- The card holder – Customer
- The merchant – seller of product who can accept credit card payments.
- The card issuer bank – card holder's bank
- The acquirer bank – the merchant's bank
- The card brand – for example , visa or Mastercard.

Credit Card Payment Process

Step	Description
Step 1	Bank issues and activates a credit card to the customer on his/her request.
Step 2	The customer presents the credit card information to the merchant site or to the merchant from whom he/she wants to purchase a product/service.
Step 3	Merchant validates the customer's identity by asking for approval from the card brand company.
Step 4	Card brand company authenticates the credit card and pays the transaction by credit. Merchant keeps the sales slip.
Step 5	Merchant submits the sales slip to acquirer banks and gets the service charges paid to him/her.
Step 6	Acquirer bank requests the card brand company to clear the credit amount and gets the payment.
Step 7	Now the card brand company asks to clear the amount from the issuer bank and the amount gets transferred to the card brand company.

Debit Card

Debit card, like credit card, is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank. The major difference between a debit card and a credit card is that in case of payment through debit card, the amount gets deducted from the card's bank account immediately and there should be sufficient balance in the bank account for the transaction to get completed; whereas in case of a credit card transaction, there is no such compulsion.

Debit cards free the customer to carry cash and cheques. Even merchants accept a debit card readily. Having a restriction on the amount that can be withdrawn in a day using a debit card helps the customer to keep a check on his/her spending.

Smart Card

Smart card is again similar to a credit card or a debit card in appearance, but it has a small microprocessor chip embedded in it. It has the capacity to store a customer's work-related and/or personal information. Smart cards are also used to store money and the amount gets deducted after every transaction.

Smart cards can only be accessed using a PIN that every customer is assigned with. Smart cards are secure, as they store information in encrypted format and are less expensive/provides faster processing. Mondex and Visa Cash cards are examples of smart cards.

E-Money

E-Money transactions refer to situation where payment is done over the network and the amount gets transferred from one financial body to another financial body without any involvement of a middleman. E-money transactions are faster, convenient, and saves a lot of time.

Online payments done via credit cards, debit cards, or smart cards are examples of emoney transactions. Another popular example is e-cash. In case of e-cash, both customer and merchant have to sign up with the bank or company issuing e-cash.

Electronic Fund Transfer

Electronic funds transfer is one of the oldest electronic payment systems. EFT is the groundwork of the cash-less and check-less culture where and paper bills, checks, envelopes, stamps are eliminated. EFT is used for transferring money from one bank account directly to another without any paper money changing hands. The most popular application of EFT is that instead of getting a paycheck and putting it into a bank account, the money is deposited to an account electronically. EFT is considered to be a safe, reliable, and convenient way to conduct business. It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in the same bank or different banks. Fund transfer can be done using ATM (Automated Teller Machine) or using a computer.

Nowadays, internet-based EFT is getting popular. In this case, a customer uses the website provided by the bank, logs in to the bank's website and registers another bank account. He/she then places a request to transfer certain amount to that account. Customer's bank transfers the amount to other account if it is in the same bank, otherwise the transfer request is forwarded to an ACH (Automated Clearing House) to transfer the amount to other account and the amount is deducted from the customer's account. Once the amount is transferred to other account, the customer is notified of the fund transfer by the bank. The advantages of EFT contain the following:

• Simplified accounting • Improved efficiency • Reduced administrative costs • Improved security

Pros and Cons of Using an E-payment System
E-payment systems are made to facilitate the acceptance of electronic payments for online transactions. With the growing popularity of online shopping, e-payment systems became a must for online consumers to make shopping and banking more convenient. It comes with many benefits, such as:

- Reaching **more clients** from all over the world, which results in more sales.

- More **effective and efficient transactions** — It's because transactions are made in seconds (with one-click), without wasting customer's time. It comes with speed and simplicity.
- **Convenience**. Customers can pay for items on an e-commerce website at anytime and anywhere. They just need an internet connected device. As simple as that!
- **Lower** transaction cost and decreased technology costs.
- Expenses control for customers, as they can always check their virtual account where they can find the transaction history.
- Today it's easy to add payments to a website, so even a non-technical person may implement it in minutes and start processing online payments.
- Payment gateways and payment providers offer highly **effective security and anti-fraud tools** to make transactions reliable.

KEY DIFFERENCES BETWEEN NEFT, RTGS AND IMPS:-

Online transfer methods are subject to availability based on the customer's eligibility and level of access granted by the bank. Additionally, the limits on fund value, timings, settlement speed, and other factors are a part of the **online fund transfer** method to provide a positive experience to the customer when they choose one transfer method over the other. Currently, NEFT, RTGS, and IMPS are the most popular methods of fund transfer in India, few of the notable differences between these methods are listed below:

NEFT (National Electronic Fund Transfer)- The funds transferred under this method are settled in batches (based on Deferred Net Settlement (DNS) and at a specific time of the day. If the transfer is initiative beyond the cut-off time specified by RBI, the funds are typically settled on the next working day. At present, the fund transfer requests under NEFT are processed in twelve batches between 8 a.m. to 7 p.m. on weekdays and six batches between 8 a.m. to 1 p.m. on Saturdays. Unfortunately, NEFT is not available on Sundays and bank holidays. One of the biggest advantages of NEFT is the cost-effectiveness, an individual can carry out smaller value transfers without worrying about the transaction fee and service charges. A smaller fee on the transfer enables the individual to carry out more payments which make NEFT the most popular and extensively used method for online fund transfers.

Under NEFT, the transactions can be initiated and settled from the bank account of one particular bank to another bank's account throughout India at no additional cost apart from the standard charges, provided both the banks are a part of the NEFT transfer network (NEFT-enabled). Though some banks might have their own policies concerning the NEFT service provided by them, such as restrictions on transferring funds immediately to a newly added beneficiary, fund value limits restricting the value of transfer beyond a specified limit, etc., these protocols are proven to be effective for safeguarding the customer's financials.

RTGS (Real Time Gross Settlement) - This type of transfer methods is applicable and available for fund transfers of a minimum of Rs.2 lakh and there is no upper limit, however, the biggest advantage for RTGS is the fastest/real-time settlement factor. As soon as the transfer instructions are sent, the fund gets settled almost immediately. However, in order to take advantage of the RTGS facility, both the originator's and the beneficiary's account has to be RTGS-enabled. Even though most banks are a part of the vast and popular RTGS transfer network facilitated by RBI, individuals are recommended to either get in touch with their bank directly or refer to their online banking section to discover their eligibility concerning access to RTGS payment system. The transaction fee under RTGS is higher than the other methods due to the faster settlement speed performed on an instruction by instruction basis.

RTGS comes with limits on the minimum; however, there's no maximum fund value and it is efficiently used in situations where individuals and businesses require immediate settlement of high-value funds that are well within the specified limits. Efficiency, speed, and reliability factors are few among the many factors that make RTGS as one the most-sought medium of online fund transfers.

IMPS (Immediate Mobile Payment Service) - Also known for being one of the popular and fastest methods of fund transfer, IMPS is used widely across most banks. Unlike other methods of fund transfer that become

unavailable on bank holidays and during off working hours, IMPS functions 24/7 allowing a fund transfer at any time of the day. Similar to NEFT, IMPS also allows transfer of low value-funds but what makes it unique is, it immediately settles the funds. NEFT functions as more or less the combined version of NEFT and RTGS, where remitters are neither worried about the size of the fund and service availability nor do they have to be concerned about the settlement speed.

IMPS facility is provided only on the internet and online banking services. Few banks may offer SMS-based IMPS service to mobile banking users. Many of the digital wallets in India utilise IMPS services to credit the money from an individual's wallet to his/her bank account. Though IMPS provides an immediate fund settlement facility, the transaction fees are as low as NEFT.

PORTALS: INTRODUCTION TO PORTALS – CALENDARING AND SCHEDULING:-

A **portal** is a web-based platform that collects information from different sources into a single user interface and presents users with the most relevant information for their context. Over time, simple web portals have evolved into portal platforms that support digital customer experience initiatives.

Calendaring - 1) To register in a calendar or list, to register, to record.

2) Management of any schedulable resource and related information.

Scheduling - The action of entering in or drawing up a schedule esp. the preparation of a timetable for the completion of the various stages of a complex project, the co-ordination of many related actions or tasks into a single time sequence. A list of some things that can be scheduled: courses, events, facilities, meetings, resources, work. A list of some things that cannot be scheduled but may relate to calendaring: memos, todo lists, address book, phone logs.

MAJOR FUNCTIONS OF PORTALS:-

- search and navigation.
- personalization.
- notification.
- task management and workflow.
- collaboration and groupware.

ENTERPRISE PORTAL :-

An enterprise portal, also known as an enterprise information portal (EIP), is a framework for integrating information, people and processes across organizational boundaries in a manner similar to the more general web portals. Enterprise portals provide a secure unified access point, often in the form of a web-based user interface, and are designed to aggregate and personalize information through application-specific portlets.

E-COMMERCE PORTAL:-

E-Commerce Portals are online platforms that allow businesses to conduct interactions and transactions with customers and suppliers instantly, facilitating a more intuitive and connected operation.

REASONS FOR BUILDING OWN WEBSITES:-

- A Website Instantly Showcases Work or Talent
- Your Employment Potential May Increase
- You Can Be an Instant Entrepreneu
- Knowledge Can Be Expanded
- You Can Amp Up Creativity
- You Can Grow and Promote Your Blog
- Promote Yourself
- People Can See Your Ideas Any Time.

DOMAIN REGISTRATION OF WEBSITE:-

Domain name registration is the act of reserving a name on the Internet for a certain period, usually one year. It is important to know that this domain will remain yours for as long as you renew it and there is no way to purchase a domain name forever.Domain name registration is necessary for a website, an email or another web service. However you don't have to always register a new domain name. Many companies allow you to use subdomains of their domain names for a website, or you can have an email with their primary domain (ex. yahoo.com, gmail.com).The most important thing about a domain name registration is that it gives you personality and recognized identity. Once you register a domain name, the information about its owner is publicly available. The price for a domain name registration varies greatly on its extension. For example, the most common .com is the most affordable one, while some country-specific domain name extensions are 5 times more expensive.

Unit-5 Notes

CONCEPT OF EDI:-

Electronic Data Interchange (EDI) is the electronic interchange of business information using a standardized format; a process which allows one company to send information to another company electronically rather than with paper. Business entities conducting business electronically are called trading partners. Electronic data interchange is the concept of businesses electronically communicating information that was traditionally communicated on paper, such as purchase orders and invoices. Technical standards for EDI exist to facilitate parties transacting such instruments without having to make special arrangements.

DIFFERENCE BETWEEN PAPER BASED BUSINESS AND EDI BASED BUSINESS:-

In the paper-based method, the following process typically occurs:
- The inventory system automatically notifies the buyer to place an order, or, after querying the inventory system, the buyer determines that an order needs to be created
- The buyer enters data onto the screen of a purchasing system to create the PO, prints and mails it
- After several days, the vendor receives the PO and manually enters it into the sales order system
- The vendor prints an invoice and encloses it with the shipment and/or sends it separately by mail
- The buyer manually enters the invoice into the Accounts Payable system

The exchange of paper documents can add a week to the process. If there are errors caused by manual data entry, the time can be greatly increased.

Now compare that with the EDI process:
- The buyer's procurement system, which utilizes EDI software, automatically generates and sends an EDI-formatted PO when inventory reaches the critical level
- Within minutes the vendor's sales order system, utilizing EDI software, receives the EDI PO, notifies the shipping department to ship the goods and generates an EDI invoice to be transmitted directly to the buyer's accounts payable system

The EDI process can be completed within hours.

ADVANTAGES & DISADVANTAGES OF EDI:-

Improves data quality, delivering at least a 30—40% reduction in transactions with errors—eliminating errors from illegible handwriting, lost faxes/mail and keying and re-keying errors. Using EDI can reduce the order-to-cash cycle time by more than 20%, improving business partner transactions and relationships.

- Minimal paper usage. EDI reduces associated expenses of storage, printing, postage, mailing and recycling.
- Enhanced quality of data. EDI minimises data entry errors, improves accounts payable/receivable times as processes become streamlined and can be used for forecasting.
- Improved turnaround times.
- EDI provides cost savings by reducing paper and eliminating paper processing.
- Time savings and eliminating repetition are other benefits from the reduction in paper processing.
- Documents can be transferred more quickly and processing errors can be decreased allowing business to be done more efficiently.
- More efficient processing will likely lead to improved customer service which will ultimately expand the customer base.

Disadvantages of EDI

- Contrasted to XML, which is not strictly standardized, many consider EDI to have too many standards.
- There are various standards bodies who have developed 'standard document formats' for EDI which can cause problems with cross compatibility.
- These standards bodies also push standards revisions annually which could cause problems if you have a more recent version of a document than a business partner.

- EDI systems are extremely expensive making it difficult for small businesses to implement.
- Many large organizations will only work with others who utilize EDI. This may limit the business small companies are able to do with such organizations and limit trading partners.

APPLICATION AREAS FOR EDI:-

Retail Sector – In the retail sector profit margins usually depend upon efficient inventory management. EDI provides a structured way to maintain and replenish goods stocked at a retail outlet. Retailers use a common model stock for each shop location and the point of sale stock position is updated continuously and data in fed via EDI enabled SCM (supply chain management) network. The EDI software monitors all the logistics and makes updates in the original stock.

Electronic data interchange EDI in Manufacturing sector

Manufacturing Sector – EDI ensures effective and efficient management of materials required for production of a commodity. In manufacturing sector EDI facilitates Material requirement planning and just in time manufacturing. The Inventory position of OEM is constantly updated through EDI and the supplier is notified about shortage of materials. This helps the supplier to plan and schedule supply according to requirements of the manufacturer. The suppliers respond via EDI with an ASN to identify the parts/materials to be delivered and the approximate delivery time and as soon as the shipment is delivered at the production plant the inventory is updated again.

Automobile Sector – In automobile sector EDI is used to keep customers updated with the current product and pricing information during the purchase cycle. An advance shipping notice is transmitted through EDI to the customers to prepare a loading schedule and to ensure proper receipt of the product. The customer may also make payment on receipt of goods via EDI to speed up the payment process.

SOFTWARE CONCEPT OF ELECTRONIC SIGNATURE:-

An electronic signature is often confused with a "digital signature," because it uses digital signature technology for detection alteration. An electronic signature also requires user authentication such as a digital certificate, smart card or biometric method. The electronic equivalent of a handwritten signature. There is more to it than pasting a graphic of a signature into a text document. Electronic signature software binds a signature, or other mark, to a specific document. Just as experts can detect a paper contract that was altered after it was signed, electronic signature software can detect the alteration of an electronically signed file any time in the future. CIC (www.cic.com) and Silanis Technology (www.silanis.com) are pioneers of electronic signature technology, which has proven especially relevant in the financial, insurance and real estate industries. There are typically three algorithms involved with the digital signature process:

- Key generation – This algorithm provides a private key along with its corresponding public key.
- Signing – This algorithm produces a signature upon receiving a private key and the message that is being signed.
- Verification – This algorithm checks for the authenticity of the message by verifying it along with the signature and public key

To facilitate the digital document signing process, businesses need software which can help them securely sign, send, and manage documents. With this, they can improve the overall collaboration and productivity within their company. Digital Signature software includes solutions for secure signature capture through a cryptographic operation and applications that allow its users to electronically attach an image of a signature to a document.

Unit-6 Notes

CRYPTOGRAPHY:-

Cryptography is associated with the process of converting ordinary plain text into unintelligible text and vice-versa. It is a method of storing and transmitting data in a particular form so that only those for whom it is intended can read and process it. Cryptography not only protects data from theft or alteration, but can also be used for user authentication. Cryptography is used in many applications like banking transactions cards, computer passwords, and e- commerce transactions. Three types of cryptographic techniques used in general.

1. Symmetric-key cryptography

2. Hash functions.

3. Public-key cryptography

Symmetric-key Cryptography: Both the sender and receiver share a single key. The sender uses this key to encrypt plaintext and send the cipher text to the receiver. On the other side the receiver applies the same key to decrypt the message and recover the plain text.

Public-Key Cryptography: This is the most revolutionary concept in the last 300-400 years. In Public-Key Cryptography two related keys (public and private key) are used. Public key may be freely distributed, while its paired private key, remains a secret. The public key is used for encryption and for decryption private key is used.

Hash Functions: No key is used in this algorithm. A fixed-length hash value is computed as per the plain text that makes it impossible for the contents of the plain text to be recovered. Hash functions are also used by many operating systems to encrypt passwords.

E-COMMERCE SECURITY PROTOCALS:- SSL & SET

Secure Socket Layer protocol has been the industry standard for securing Internet communications. Secure Electronic Transactions protocol is a complex and more secure protocol than SSL. SSL protocol was developed by Netscape for the purpose of securing online transactions. SET protocol was jointly developed by MasterCard and Visa with the goal of securing Web browsers for bankcard transaction.

Difference between Secure Socket Layer (SSL) and Secure Electronic Transaction (SET)

Secure Socket Layer (SSL):
Secure Socket Layer (SSL) is that the normal security technology for establishing associate encrypted link between an internet server and a browser. This link ensures that each one knowledge passed between the online server and browsers stay personal and integral. SSL is associate trade normal and is employed by numerous websites within the protection of their on-line transactions with their customers. SSL permits counselling like Social Security numbers, mastercard numbers, or login credentials to be transmitted firmly. Secure Sockets Layer (SSL) technology protects transactions between your Web site and visitors. The protocol uses a third party, a Certificate Authority (CA), to identify one end or both end of the transactions. This is in short how it works. A browser requests a secure page (usually https://).

Secure Electronic Transaction (SET):
Secure Electronic dealings (SET) could be a system for making certain the safety of economic transactions on the web. it absolutely was supported at the start by Mastercard, Visa, Microsoft, Netscape, and others. With SET, a user is given associate degree electronic case (digital certificate) and a dealings is conducted and verified employing a combination of digital certificates and digital signatures among the client, a merchant, and also the purchaser's bank during a means that ensures privacy and confidentiality.

PRACTICAL TIPS TO SECURE E-COMMERCE:-

- Choose a Better Ecommerce Hosting Service
- Use HTTPS
- Choose a Secure Ecommerce Platform
- Secure User Level Information
- Don't Store Sensitive Customer Data
- Run Vulnerability Tests On Your Website
- Ensure Your Website is PCI DSS Compliant
- Keep Your Website Updated.

INFORMATION TECHNOLOGY ACT 2000 AND E-COMMERCE:-

Indian Information Technology (IT) Act gives legal recognition to electronics records and electronic signature. These are the foremost steps to facilitate paper less trading. Under this Act Ministry of Electronics & Information Technology also has Information Technology Rule, 2000 for Reasonable security practices and procedures and sensitive personal data or information. Under section 72A of IT Amendment Act, 2008, punishment for disclosure of information in breach of a lawful contract is laid down.

VIRTUAL PRIVATE NETWORK:-

A **v**irtual **p**rivate **n**etwork (**VPN**) is a network that is constructed using public wires — usually the internet — to connect remote users or regional offices to a company's private, internal network. The VPN secures the private network, using encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted. This type of network is designed to provides a secure, encrypted tunnel in which to transmit the data between the remote user and the private, corporate network.
A virtual private network, or VPN, is an encrypted connection over the Internet from a device to a network. The encrypted connection helps ensure that sensitive data is safely transmitted. It prevents unauthorized people from eavesdropping on the traffic and allows the user to conduct work remotely. VPN technology is widely used in corporate environments.

A VPN extends a corporate network through encrypted connections made over the Internet. Because the traffic is encrypted between the device and the network, traffic remains private as it travels. An employee can work outside the office and still securely connect to the corporate network. Even smartphones and tablets can connect through a VPN.

A virtual private network (VPN) is programming that creates a safe, encrypted connection over a less secure network, such as the public internet. A VPN uses tunneling protocols to encrypt data at the sending end and decrypt it at the receiving end. To provide additional security, the originating and receiving network addresses are also encrypted.

VPNs are used to provide remote corporate employees, gig economy freelance workers and business travelers with access to software applications hosted on proprietary networks. To gain access to a restricted resource through a VPN, the user must be authorized to use the VPN app and provide one or more authentication factors, such as a password, security token or biometric data.

VPN apps are often used by individuals who want to protect data transmissions on their mobile devices or visit web sites that are geographically restricted. Secure access to an isolated network or website through a mobile VPN should not be confused with private browsing, however. Private browsing does not involve encryption; it is simply an optional browser setting that prevents identifiable user data, such as cookies, from being collected and forwarded to a third-party server.

How a VPN works

At its most basic level, VPN tunneling creates a point-to-point connection that cannot be accessed by unauthorized users. To actually create the VPN tunnel, the endpoint device needs to be running a VPN client (software application) locally or in the cloud. The VPN client runs in the background and is not noticeable to the end user unless there are performance issues.

The performance of a VPN can be affected by a variety of factors, among them the speed of users' internet connections, the types of protocols an internet service provider may use and the type of encryption the VPN uses. In the enterprise, performance can also be affected by poor quality of service (QoS) outside the control of an organization's information technology (IT) department
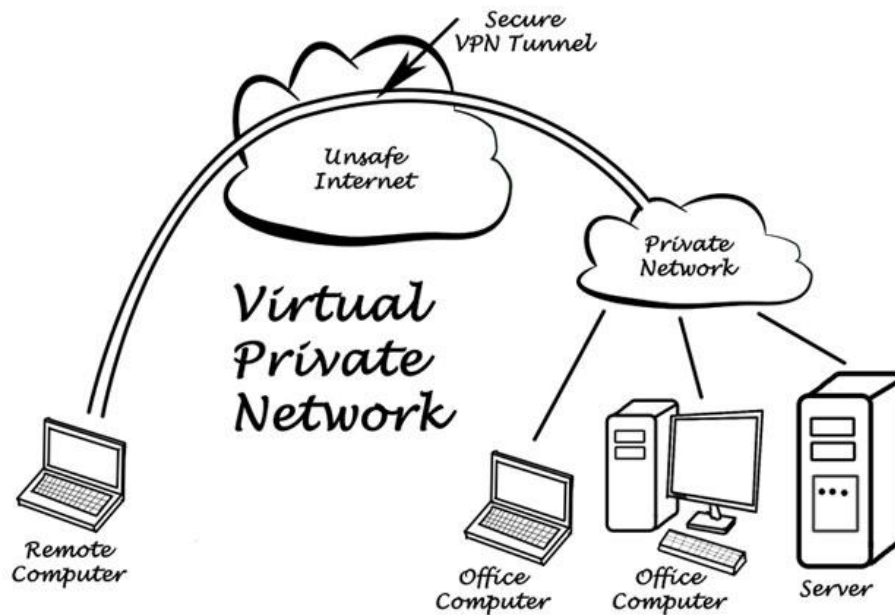
INTERNET SECURITY: SECURE TRANSACTIONS:-

Nowadays the security of the transactions are very important because these days most of the things are happening online.

The transactions happen in the following forms –

- When you go in a market and you use a POS for payment, then a transaction occurs.
- In your mobile phone when you download an android app to order something like the eBay app.
- When you pay something through an online payment service like paypal.com.

Check if You are Doing a Secure Transaction?

Generally a secure transaction happens in an encrypted form which happens between the site that we are connected to and the browser that we are using. It happens through a file in which the website provides its details, which we will deal further in the following sections. A simpler indication is recognizing the difference between a secure and insecure connection of which Https:// is a secured site, while Http:// is not secured.

If you or your users are using Google Chrome, you can push them to always connect securely, if the webpage supports it. Always prefer the HTTPS extension, if you are using a Mozilla Firefox there is an add-on called HTTPS Everywhere. We should do a transaction only through webpages that we know or when they have a good reputation. So, in simple words you should visit those webpages that you trust and even though

you trust, it is recommended to do the transactions through payment gateways like PayPal, so you don't transmit bank account details to third parties.

INTERNET BEHAVIOURS THAT IMPACT YOUR PRIVACY:-

You've heard time and time again that online privacy and security is important, but do you actually do something about it? Most of us practice bad Internet hygiene and don't even realize it, so don't forget to avoid doing the following:

1. Using the Same Credentials for Multiple Accounts

Sure, it's easy to remember and get things done online when you use the same credentials across your accounts. But if a cybercriminal is able to gain access into your one accounts, they'll most likely get into the other ones as well.

2. Staying Logged into Websites

Not logging out of websites and having them remember your credentials is indeed convenient. However, it also leaves your online accounts and personal information vulnerable to anyone who uses or hacks into your device.

3. Using Services without Reading their Terms & Conditions

Never click "agree" until you understand what you're getting yourself into. You wouldn't want to legally grant companies and service providers access to all kinds of data. Then sell this information to the highest bidder!

4. Opening Suspicious Attachments or Downloading Malicious Files

You should be careful when opening attachments in emails or on social media as they could contain malware and viruses. Similarly, it always downloads files from trusted sources because it may result in virus infection.

10 WAYS TO PROTECT YOUR PRIVACY AND SECURITY ON THE INTERNET:-

If you've made it this far, you've probably got a better idea of what Internet privacy concerns affect users. Now, you may be wondering "how do I protect my privacy online?" Well, here are some measures that should be followed:

1. Secure Your Web Browser

Your browser is the main program you use to go online, so make sure that you take the necessary steps to secure it. After all, cybercriminals can take advantage of loopholes in browsers to access the personal data on your device. To protect your online privacy and security, we'd recommend that you follow the recommendations in our ultimate browser security guide.

2. Use a Virtual Private Network (VPN)

Using a VPN is the best way to protect your Internet privacy. Not only does it change your IP address and assign you a new one based on the VPN server you're connected to, but it also protects your incoming and outgoing traffic with military-grade encryption.

As a result, your online activities and personal information stay secure and private from snoopers. PureVPN is regarded as the best VPN when it comes to online privacy and security, and for all the right reasons.

3. Keep Your Software Up-to-Date

If you leave vulnerabilities in your software, chances are that the bad guys will exploit them! Keep your operating system, browser, as well as other software (like Adobe Flash and Java) up to date to ensure that you don't miss out on new features and security fixes. If you find it a hassle to manually apply updates, you can always use tools to automate your software updates.

4. Install an Anti-virus Program & Activate Firewall

You can keep your safe from harmful content on the Internet with a few simple precautions. A strong anti-virus program will keep your device free from all types of malware, such as spyware, viruses, Trojans, etc. You should also activate your firewall to keep unwanted network traffic at bay. The good news is that most operating systems come with it built-in.

5. Delete Cookies at Browser Exit

You should delete cookies regularly as they're used by websites, advertisers, and other third parties to track you online. While you can clear your cookies manually, you're better off configuring your browser to automatically delete them at the end of the browsing session. If you don't know how to, follow our guide to deleting browsing cookies automatically at browser exit.

6. Adjust Your Settings on Google, Facebook, etc.

Take advantage of the options that are available to you. Big Internet companies such as Facebook and Google usually give you options to opt-out of some, if not all, of their personalization and tracking. For example, you can manage your ads preferences on Facebook from here, while Google allows you to turn off ads personalization from here.

7. Use HTTPS to Secure Your Online Connection

If you are on a website that uses HTTPS, it's likely that any personal data flowing between you and the website is probably being monitored by trackers or potentially intercepted and stolen by malicious hackers. These entities are commonly referred to as man-in-the-middle.

An HTTPS or Secure Sockets Layer (SSL) encrypts your online communication with that website. If you are on any website especially a shopping website, you should ensure that you have an HTTPS connection. For the utmost online privacy and security, you should resort to a VPN service.

8. Defuse Threats When Backing up to the Cloud

In today's era, we constantly back up our pictures and other files on the cloud. Backing up on the cloud comes packed with its own privacy issues. Anyone could intercept your internet connection and view the data you are backing up or downloading from the cloud.

To defuse this threat, it's advised that you use state-of-the-art AES 256-bit encryption that will secure your internet connection, meaning you can download and upload sensitive information without worrying about anyone tapping in on your private data.

9. Secure Online Communications

Most of your online communications platforms are unsecure. While numerous messaging apps offer end-to-end encryption, security experts advise adding an additional layer of encryption to your online communication.

As far as emails and messaging on chat apps are concerned, you should opt for reputable services such as Signal, Telegram, etc. When it comes to emails, use secure mail services.

10. Share Online Files Securely

Securely share files with anyone on the web by password protecting them. With a password protecting your PDF or any other file, you can rest assured that it is only viewed by the intended recipient.

ATTACKS ON COMPUTER SYSTEM OR TYPES OF CYBER ATTACKS:-

A cyber-attack is an exploitation of computer systems and networks. It uses malicious code to alter computer code, logic or data and lead to cybercrimes, such as information and identity theft. We are living in a digital

era. Now a day, most of the people use computer and internet. Due to the dependency on digital things, the illegal computer activity is growing and changing like any type of crime. Cyber-attacks can be classified into the following categories:

Web-based attacks

These are the attacks which occur on a website or web applications. Some of the important web-based attacks are as follows-

1. Injection attacks

It is the attack in which some data will be injected into a web application to manipulate the application and fetch the required information.

Example- SQL Injection, code Injection, log Injection, XML Injection etc.

2. DNS Spoofing

DNS Spoofing is a type of computer security hacking. Whereby a data is introduced into a DNS resolver's cache causing the name server to return an incorrect IP address, diverting traffic to the attacker?s computer or any other computer. The DNS spoofing attacks can go on for a long period of time without being detected and can cause serious security issues.

3. Session Hijacking

It is a security attack on a user session over a protected network. Web applications create cookies to store the state and user sessions. By stealing the cookies, an attacker can have access to all of the user data.

4. Phishing

Phishing is a type of attack which attempts to steal sensitive information like user login credentials and credit card number. It occurs when an attacker is masquerading as a trustworthy entity in electronic communication.

5. Brute force

It is a type of attack which uses a trial and error method. This attack generates a large number of guesses and validates them to obtain actual data like user password and personal identification number. This attack may be used by criminals to crack encrypted data, or by security, analysts to test an organization's network security.

6. Denial of Service

It is an attack which meant to make a server or network resource unavailable to the users. It accomplishes this by flooding the target with traffic or sending it information that triggers a crash. It uses the single system and single internet connection to attack a server. It can be classified into the following-

Volume-based attacks- Its goal is to saturate the bandwidth of the attacked site, and is measured in bit per second.

Protocol attacks- It consumes actual server resources, and is measured in a packet.

Application layer attacks- Its goal is to crash the web server and is measured in request per second.

7. Dictionary attacks

This type of attack stored the list of a commonly used password and validated them to get original password.

8. URL Interpretation

It is a type of attack where we can change the certain parts of a URL, and one can make a web server to deliver web pages for which he is not authorized to browse.

9. File Inclusion attacks

It is a type of attack that allows an attacker to access unauthorized or essential files which is available on the web server or to execute malicious files on the web server by making use of the include functionality.

10. Man in the middle attacks

It is a type of attack that allows an attacker to intercepts the connection between client and server and acts as a bridge between them. Due to this, an attacker will be able to read, insert and modify the data in the intercepted connection.

System-based attacks

These are the attacks which are intended to compromise a computer or a computer network. Some of the important system-based attacks are as follows-

1. Virus

It is a type of malicious software program that spread throughout the computer files without the knowledge of a user. It is a self-replicating malicious computer program that replicates by inserting copies of itself into other computer programs when executed. It can also execute instructions that cause harm to the system.

2. Worm

It is a type of malware whose primary function is to replicate itself to spread to uninfected computers. It works same as the computer virus. Worms often originate from email attachments that appear to be from trusted senders.

3. Trojan horse

It is a malicious program that occurs unexpected changes to computer setting and unusual activity, even when the computer should be idle. It misleads the user of its true intent. It appears to be a normal application but when opened/executed some malicious code will run in the background.

4. Backdoors

It is a method that bypasses the normal authentication process. A developer may create a backdoor so that an application or operating system can be accessed for troubleshooting or other purposes.

5. Bots

A bot (short for "robot") is an automated process that interacts with other network services. Some bots program run automatically, while others only execute commands when they receive specific input. Common examples of bots program are the crawler, chatroom bots, and malicious bots.

SECURITY THREATS AND TRENDS:-

- Ransomware and malware
- Data breaches
- Online child exploitation material
- Distributed denial-of-service attacks
- Payment card fraud
- Cryptocurrency
- Cryptojacking
- Bitcoin popularity
- Social Engineering
- Spam and RDP attacks

- Encrypted communications
- Convergence: 'Cyber' and Terrorism

CORPORATE EMAIL POLICY:-

A corporate email policy is a management document that formally outlines how employees can use electronic communication. employees represent the company whenever they use their corporate email address. They must not:
- Sign up for illegal, unreliable, disreputable or suspect websites and services.
- Send unauthorized marketing content or solicitation emails.
- Register for a competitor's services unless authorized.
- Send insulting or discriminatory messages and content.
- Intentionally spam other people's emails, including their coworkers.

company has the right to monitor and archive corporate emails.

Appropriate use of corporate email

Employees are allowed to use their corporate email for work-related purposes without limitations. For example, employees can use their email to:
- Communicate with current or prospective customers and partners.
- Log in to purchased software they have legitimate access to.
- Give their email address to people they meet at conferences, career fairs or other corporate events for business purposes.
- Sign up for newsletters, platforms and other online services that will help them with their jobs or professional growth.