

E-COMMERCE AND ERP (CSE VIITH SEMESTER)

PYQ SOLUTION 2021

SOLVED BY DEEPAK KR

Q.1. CHOOSE THE CORRECT ANSWER OF THE FOLLOWING (ANY SEVEN)

(a) Which segment do eBay, Amazon.com belong?

- (i) B2Bs
- (ii) B2Cs**
- (iii) C2Bs
- (iv) C2Cs

Correct option is (ii)

(b) What must a system do to qualify as a true ERP solution?

- (i) Be flexible
- (ii) Be modular and closed
- (iii) Extend with any company
- (iv) All of the above**

Correct option is (iv)

(c) The best product to sell in B2C e-commerce are

- (i) Small products
- (ii) Digital products**
- (iii) Specialty products
- (iv) Fresh products

Correct option is (ii)

(d) SET protocol on internet stands for

- (i) Secure Electronic Transaction**
- (ii) Secure Entertainment Transaction
- (iii) Secure Establish Transaction
- (iv) Secure Electronic Transaction

Correct option is (i)

(e) The percentage of customers who visit a website and actually buy something is called

- (i) Affiliate programs
- (ii) Click-through
- (iii) Spam

(iv) Conversion rate
Correct option is (iv)

(f) Digital cash has which of the following characteristics :

- (i) Anonymity
- (ii) Security
- (iii) Confidentiality
- (iv) All of the above**

Correct option is (iv)

(g) The threat of new entrants is high when it is

- (i) hard of customers to enter the market
- (ii) hard of competitors to enter the market
- (iii) easy of competitors to enter the market**
- (iv) easy of customers to enter the market

Correct option is (iii)

(h) Which form of e-marketplace brings together buyers and sellers from the same industry?

- (i) Horizontal
- (ii) Vertical**
- (iii) Integrated
- (iv) Inclined

Correct option is (ii)

(i) Which is not a function of Erp

- (i) Human Resource Management
- (ii) Financial
- (iii) Warehousing
- (iv) None of these**

Correct option is (iv)

(j) The solution for all business need is

- (i) EDI
- (ii) ERP**
- (iii) SCM
- (iv) None of these

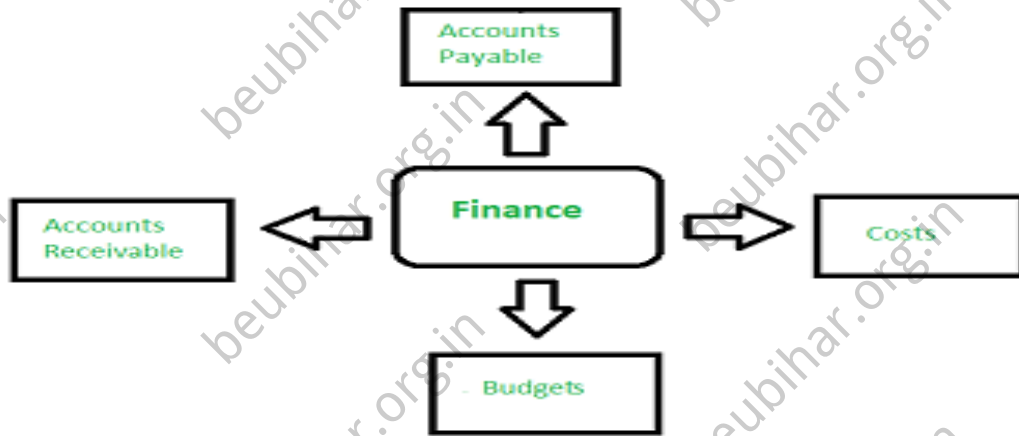
Correct option is (ii)

2(a) Discuss the important components of an ERP systems and differentiate between traditional EDI and open EDI?

Ans:- There are the following five main components of an ERP Systems.

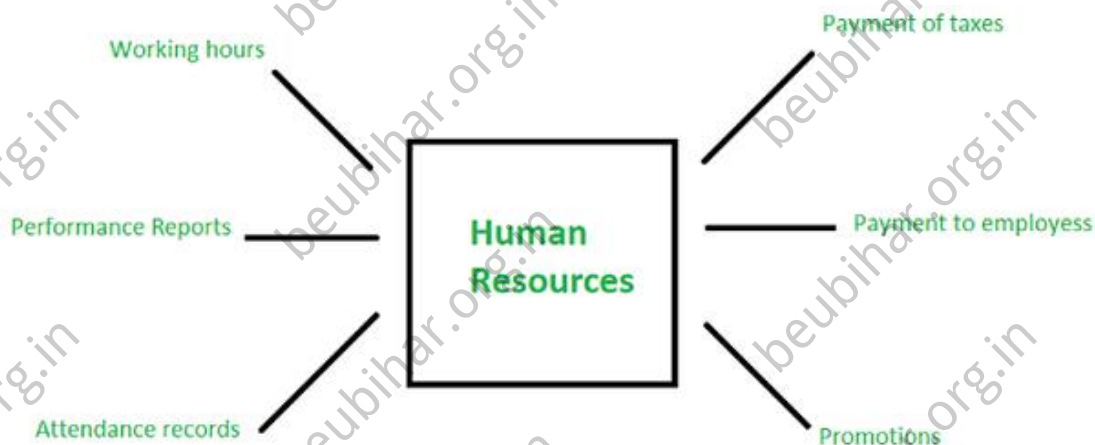
1. Finance
2. Human Resource(HR)
3. Manufacturing and logistics
4. Supply Chain Management(SCM)
5. Customer Relationship Management(CRM)

- **Finance:-** It keeps a track on all your financial data including Accounts receivable, Accounts payable, General ledger, costs, budgets and forecasts. It helps to keep a record of cash flow, lower costs, increase profits and make sure that all the bills are paid on time.



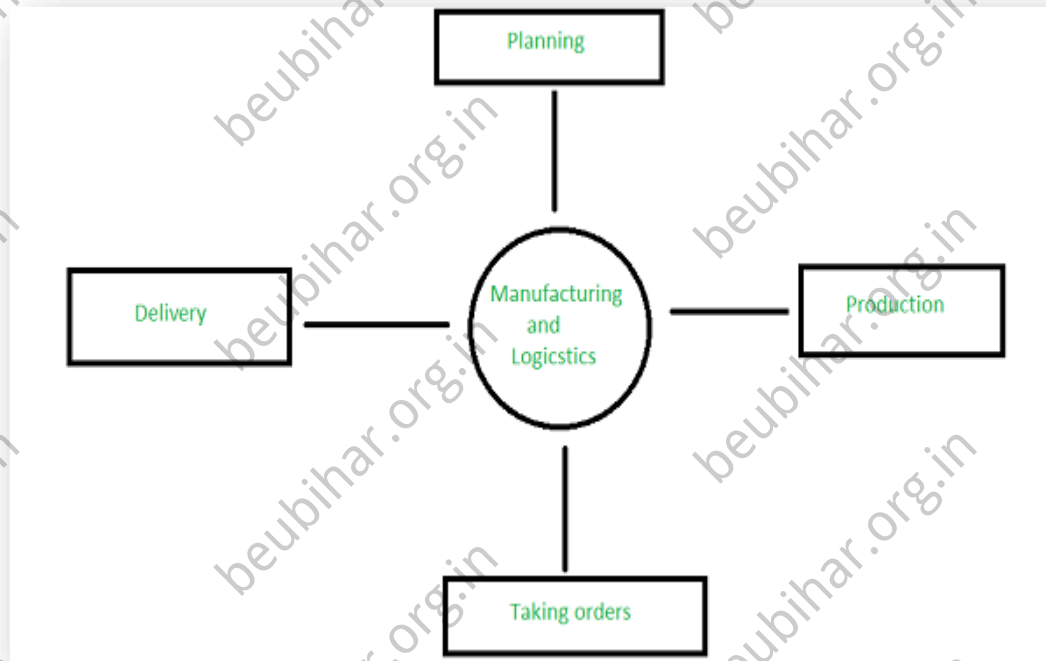
• **DIAGRAM OF FINANCE**

- **Human Resource(HR):-** It is a software handling all personal-related tasks for managers and employees. Employees play a very important role in any organization, without them business would not exist. This component is responsible for automated payments to employees, payment of taxes, generating performance reports, attendance tracking, promotions, deciding working hours and holiday hours of the staff.



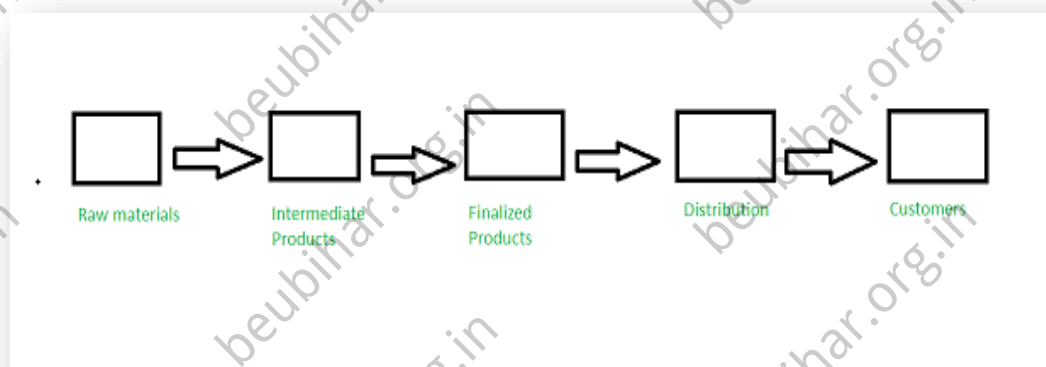
• **Diagram of working of Human Resource(HR)**

- **Manufacturing and logistics:-** It is a group of applicants for planning, production, taking orders and delivering the products to the customers. It provides you a view of the demanded and achieved levels which is very important to check whether you are achieving your targets or not.



- **Diagram of working of Manufacturing and logistics**

- **Supply Chain Management(SCM):-** A supply chain management is a network of facilities that perform the procurement of the materials and transformation of these materials into intermediate and finalized products and distribution of these products to the customers. Planning, Manufacturing, Marketing, Distribution and the purchasing organizations through a supply chain operate independently. These organizations have their own goals and objectives.



- **Customer Relationship Management(CRM):-** This component interacts with the customers using data analysis to study large amount of information. They target the audience and observe what is beneficial for them. The component gathers customer data from multiple channels.

There the following difference between traditional EDI and open EDI:-

<u>Feature</u>	<u>Traditional EDI</u>	<u>Open EDI</u>
Communication Network	Value-Added Networks (VANs)	Internet
Data Format	Strictly adheres to EDI standards (X12, EDIFACT)	More flexible, supports EDI standards and non-standard formats (CSV, XML)
Implementation Complexity	Complex and expensive setup	Easier and faster to implement
Scalability	Limited scalability, requires changes for new trading partners	Highly scalable, easier to onboard new partners
Cost	Higher upfront costs for VANs and software	Lower costs due to use of internet and potentially cloud-based solutions
Security	Generally secure due to closed VAN environment	Requires robust security measures on the open internet

2.(b) Discuss how writing an e-business plan differs from writing a traditional business plan. Discuss the pros and cons of an e-business plan.

Ans:- While both traditional and e-business plans share the core goal of outlining a business's path to success, there are some key differences in their focus and content:

1. Market and Competition:

- **Traditional:** Focuses on local competitors and market trends within a specific geographic area.
- **E-business:** Analyses the global online market landscape, including online competitors, e-commerce trends, and digital marketing strategies.

2. Marketing and Sales Strategy:

- **Traditional:** Details traditional marketing channels like print ads, local events, and promotions.
- **E-business:** Expands on digital marketing strategies, including SEO, content marketing, social media marketing, and e-commerce platform optimization.

3. Operations and Logistics:

- **Traditional:** Focuses on physical inventory management, staffing for a brick-and-mortar store, and local suppliers.
- **E-business:** Highlights fulfilment strategies (warehousing, drop shipping), e-commerce platform management, and digital payment processing.

4. Technology and Security:

- **Traditional:** May have a limited technology section focusing on point-of-sale systems or basic inventory management software.
- **E-business:** Dedicates a significant portion to technology infrastructure, website development, data security measures, and potential integrations with other platforms.

5. Financial Projections:

- **Traditional:** Focuses on costs associated with physical space, local advertising, and employee payroll.
- **E-business:** Includes projections for website development, online marketing campaigns, e-commerce platform fees, and potentially technology staff.

Pros

- **Clarity and Focus:** Writing a plan forces you to clearly define your business concept, target market, and competitive landscape. This clarity helps you make strategic decisions and identify potential roadblocks.
- **Securing Funding:** A well-crafted e-business plan is a critical tool for convincing investors or lenders of the viability of your idea. It demonstrates your understanding of the market, financial projections, and path to profitability.
- **Improved Communication:** The planning process helps you communicate your vision effectively to potential partners, collaborators, or even future employees.
- **Adaptability and Growth:** An e-business plan is a living document. As your business evolves, you can revisit and revise the plan to reflect changes in the market, technology, or your own goals.
- **Increased Discipline:** The process of creating a plan forces you to think critically about various aspects of your business, promoting a more disciplined approach to operations.

Cons

- **Time Commitment:** Creating a detailed e-business plan can be time-consuming, especially for early-stage ventures.
 - **Market Fluctuations:** The online landscape can be dynamic. Rapid changes in technology or consumer behaviour might require frequent updates to your plan.
 - **Over-reliance on the Plan:** Don't get bogged down in the details. Be prepared to adapt your plan based on real-world data and market feedback.
 - **Difficulty Predicting the Future:** Financial projections are inherently estimates. Unexpected events can impact your sales and revenue goals.
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- **Competition and Imitation:** Sharing your detailed plan with potential investors or partners could expose your ideas to copycats.

3.(a) Explain how SSL protocol is used for secure transaction. Explain the advantage of E-Commerce.

Ans:- Security Socket layer provides security to the data that is transferred between web browser and server. SSL encrypts the link between a web server and a browser which ensures that all data passed between them remain private and free from attack.

Secure Socket Layer Protocols:

- SSL record protocol
- Handshake protocol
- Change-cipher spec protocol
- Alert protocol

SSL Protocol Stack:

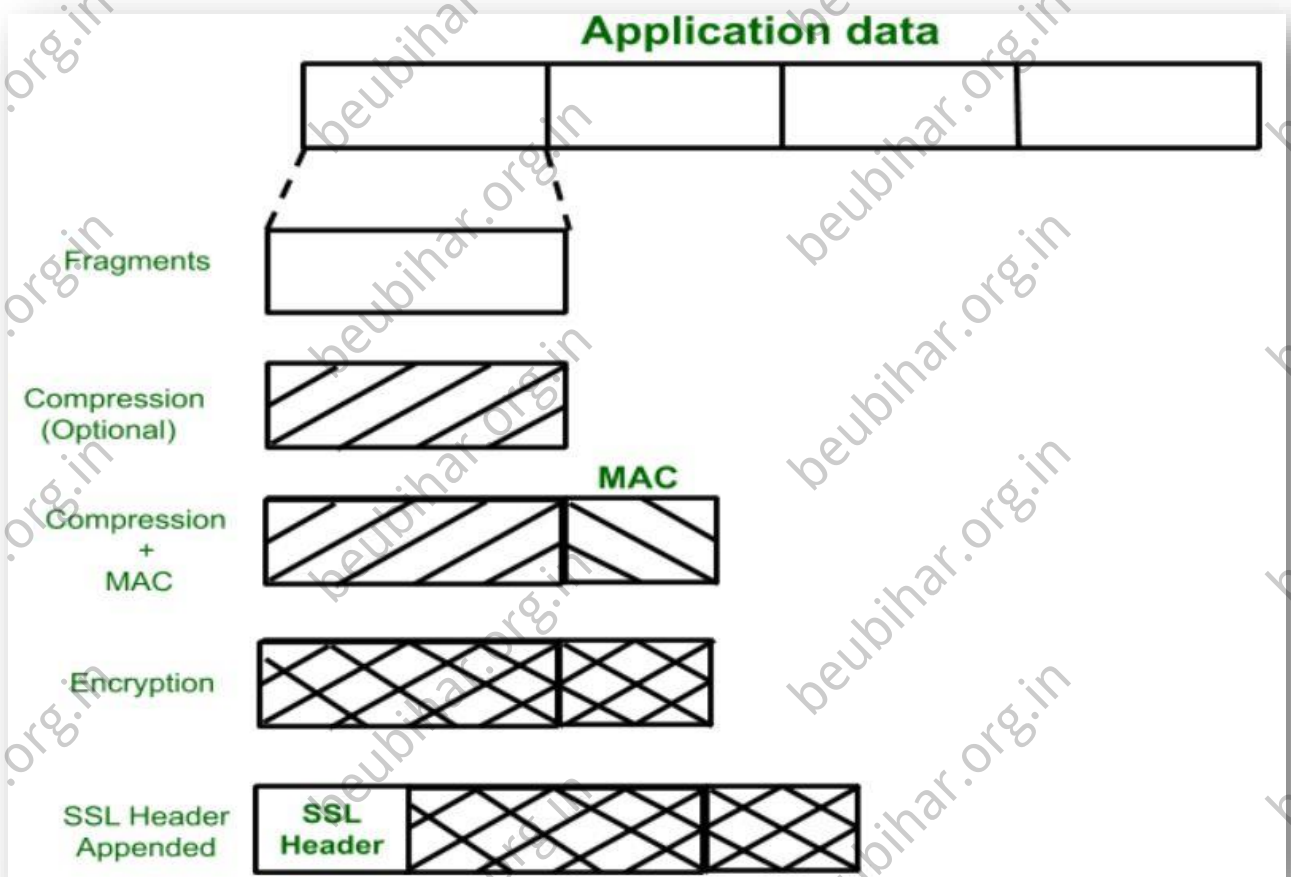
Handshake Protocol	Change Cipher Spec Protocol	Alert Protocol	HTTP
SSL Record Protocol			
TCP			
IP			

SSL Record Protocol:

SSL Record provides two services to SSL connection.

- Confidentiality
- Message Integrity

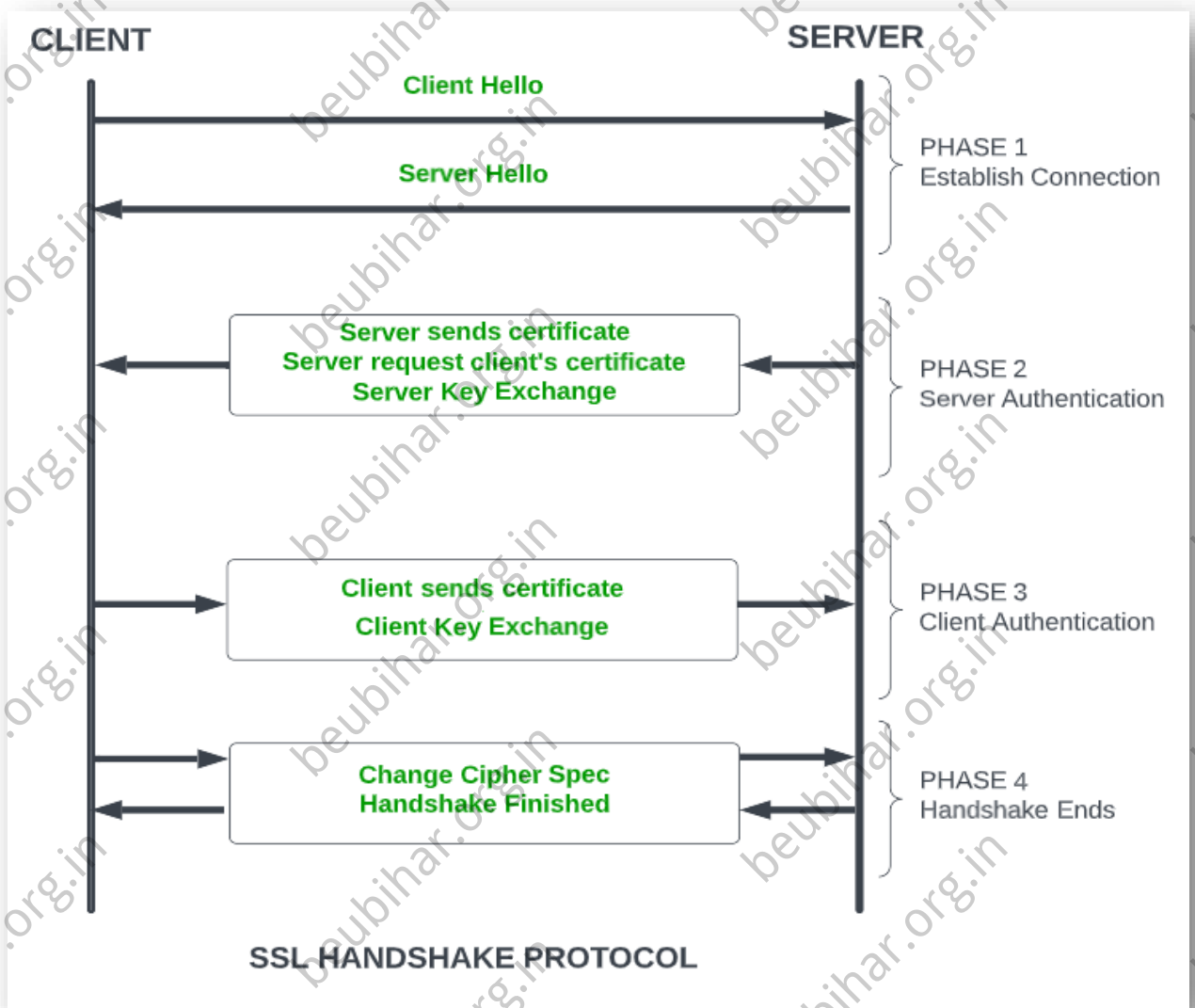
In the SSL Record Protocol application data is divided into fragments. The fragment is compressed and then encrypted MAC (Message Authentication Code) generated by algorithms like SHA (Secure Hash Protocol) and MD5 (Message Digest) is appended. After that encryption of the data is done and in last SSL header is appended to the data.



Handshake Protocol:

Handshake Protocol is used to establish sessions. This protocol allows the client and server to authenticate each other by sending a series of messages to each other. Handshake protocol uses four phases to complete its cycle.

- **Phase-1:** In Phase-1 both Client and Server send hello-packets to each other. In this IP session, cipher suite and protocol version are exchanged for security purposes.
- **Phase-2:** Server sends his certificate and Server-key-exchange. The server ends phase-2 by sending the Server-hello-end packet.
- **Phase-3:** In this phase, Client replies to the server by sending his certificate and Client-exchange-key.
- **Phase-4:** In Phase-4 Change-cipher suite occurs and after this the Handshake Protocol ends.



SSL Handshake Protocol Phases diagrammatic representation

Change-cipher Protocol:

This protocol uses the SSL record protocol. Unless Handshake Protocol is completed, the SSL record Output will be in a pending state. After the handshake protocol, the Pending state is converted into the current state. Change-cipher protocol consists of a single message which is 1 byte in length and can have only one value. This protocol's purpose is to cause the pending state to be copied into the current state.

1 byte

Alert Protocol:

This protocol is used to convey SSL-related alerts to the peer entity. Each message in this protocol contains 2 bytes.

Level
(1 byte)

Alert
(1 byte)

There are many advantages to e-commerce, including:

- **Increases Sales and Revenue**

E-commerce always helps to increase sales and revenue as it widens the market by reaching out to new customers. It also allows businesses to offer discounts and incentives that are not possible in a physical store.

- **Reduces Costs**

E-commerce also helps reduce business costs as it eliminates the need for a physical store and sales staff. It also reduces inventory costs and transportation costs.

- **Eliminates Geographic Barriers**

E-commerce also eliminates geographic barriers, as customers can buy goods and services from anywhere in the world.

- **Improves Customer services**

This is because e-commerce allows businesses to offer 24/11 customer service, which is not possible in a physical store. It also allows customers to compare prices and products from different retailers easily.

- **Increases Efficiency**

Efficiency is increased as orders can be placed and processed quickly and easily through an e-commerce website. This eliminates the need for paperwork and reduces the chances of human error.

3.(b) Justify your answer by giving a suitable example that 'market segmentation is very much important in e-commerce'.

Ans:- Market segmentation is very much important in E-Commerce.

I want to give an example that Imagine We run an e-commerce store selling laptops. A one-size-fits-all approach wouldn't work. Here's how segmentation helps:

- **Customer Needs:** You can segment by customer needs:
 - **Gamers:** They prioritize powerful graphics cards, high refresh rate displays, and upgradable components.
 - **Content Creators:** They need strong processors for video editing, ample RAM for multitasking, and high-resolution displays.
 - **Students:** They might prioritize affordability, portability, and long battery life.
 - **Business Professionals:** They might need features like security chips, durability, and compatibility with specific software.

By segmenting, you can tailor product descriptions, highlight relevant features, and showcase user testimonials from similar customer groups.

- **Price Sensitivity:** Segmentation allows you to cater to different price points. Budget-conscious students wouldn't be interested in high-end gaming laptops, and vice versa.
- **Technical Knowledge:** You can adjust the level of technical detail in your product descriptions based on the segment. Gamers might understand jargon about processors and graphics cards, whereas students might need simpler explanations.
- **Marketing Channels:** You can advertise on different platforms depending on the segment. Social media gaming communities might be ideal for reaching gamers, while professional networking sites could be better for business laptops.

Benefits:

- **Increased Conversions:** By speaking directly to a customer's needs and budget, you can increase the conversion rate (visitors who turn into buyers).
- **Reduced Customer Acquisition Cost (CAC):** Targeted marketing reduces wasted ad spend and attracts more qualified leads.

- **Improved Customer Lifetime Value (CLTV):** Understanding your customers allows for better post-purchase communication and upselling opportunities, increasing customer loyalty and repeat business.

In this scenario, market segmentation allows you to present the right product to the right customer at the right price point, maximizing your online sales potential.

4.(a)The public is highly concerned with the safety of e-payment. What are the specific measures put forward in the guidance in this respect?

Ans:- There are likely multiple guidelines addressing e-payment security, but here are some common measures you'd find:

Data Security:

- **Encryption:** The guidance would likely mandate the use of strong encryption standards like AES-256 to scramble data during transmission, making it unreadable by anyone intercepting it.
- **Tokenization:** Sensitive data like credit card numbers may be replaced with tokens (random numbers) during transactions. This reduces the risk of compromising actual financial information even if a hacker breaches a system.

Authentication:

- **Multi-Factor Authentication (MFA):** This requires users to verify their identity with more than just a password, often using a combination of something they know (password), something they have (phone with a code), or something they are (fingerprint).
- **Strong Password Policies:** The guidance might recommend minimum password lengths, character complexity requirements, and regular password changes to enhance login security.

Fraud Prevention:

- **Fraud Monitoring:** E-payment systems likely employ sophisticated algorithms to monitor transactions for suspicious activity, such as unusual purchase patterns or transactions from unfamiliar locations.
- **Address Verification Service (AVS):** This system verifies the billing address provided by the user against the information on file with the card issuer, helping to identify potential misuse.

Consumer Protection:

- **Dispute Resolution Mechanisms:** The guidance might outline clear procedures for customers to report unauthorized transactions and recover their funds.
- **Data Breach Notification:** In case of a security breach, e-payment providers may be required to notify affected customers promptly.

Compliance Standards:

- **PCI DSS (Payment Card Industry Data Security Standard):** This globally recognized standard outlines best practices for organizations that handle cardholder information. The guidance would likely emphasize adherence to PCI DSS to ensure a secure environment.

By implementing these measures, e-payment systems aim to build trust with consumers and provide a secure platform for online transactions.

4.(b) Explain the architectural framework of electronic commerce.

Ans:- The architectural framework of electronic commerce, also known as e-commerce architecture, refers to the overall structure and organization of the various components that make an online store function. It defines how these components interact to deliver a seamless experience for both customers and businesses. Here's a breakdown of the key layers:

1. Presentation Layer:

This is the user interface (UI) that customers interact with. It's what you see and navigate on an e-commerce website or mobile app. This layer focuses on displaying product information, shopping carts, checkout processes, and user accounts. It can be built using various technologies like HTML, CSS, and Javascript.

2. Business Logic Layer:

This layer sits behind the scenes and handles the core functionalities of the e-commerce platform. It processes customer requests, manages product information, handles shopping carts, calculates taxes and shipping, and interacts with other layers to fulfill orders. This layer might involve programming languages like Python, Java, or PHP.

3. Data Layer:

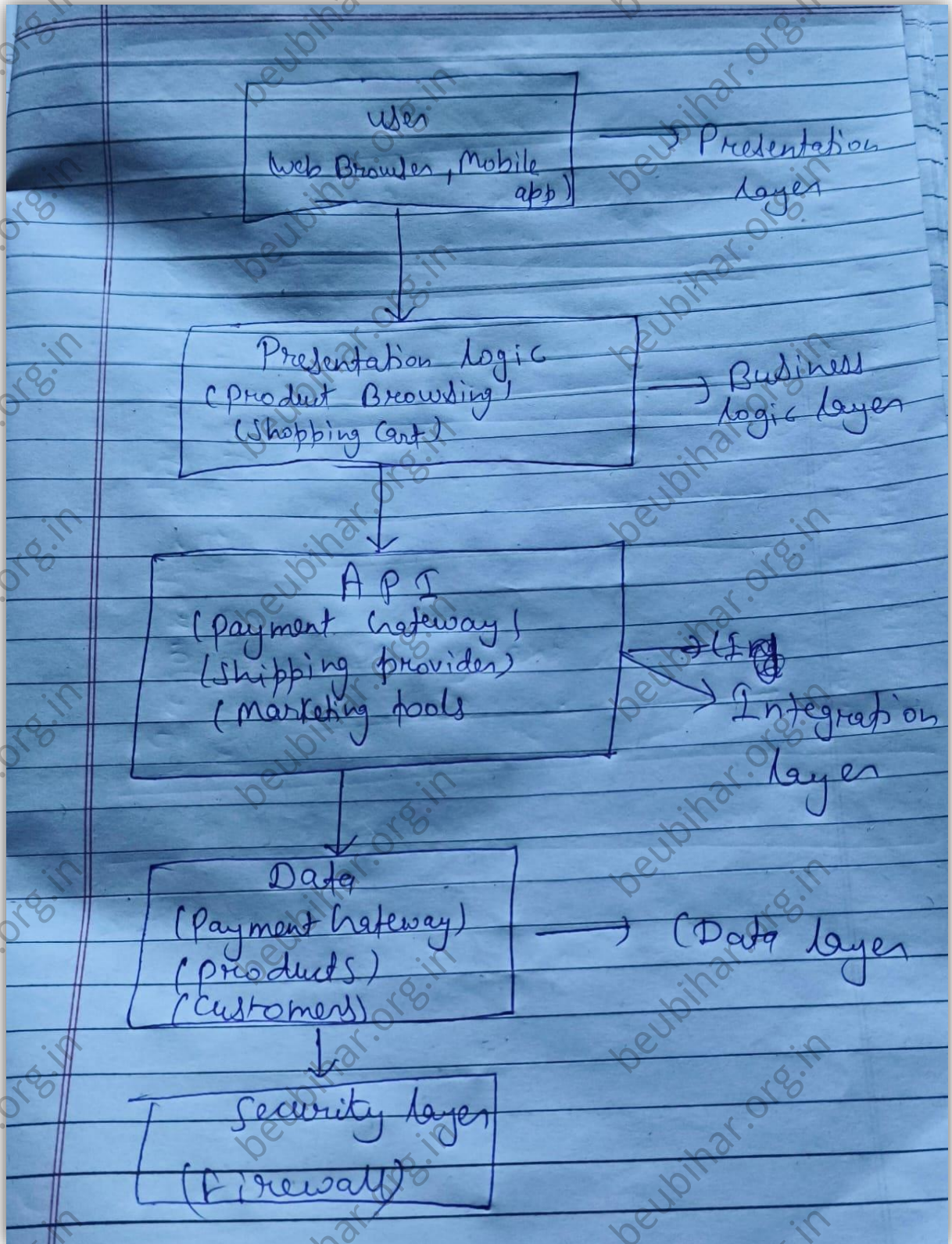
This layer stores all the critical data for the e-commerce system. This includes product information (descriptions, prices, images), customer data (accounts, addresses, purchase history), order details, and inventory levels. Databases like MySQL or PostgreSQL are commonly used for data storage.

4. Integration Layer:

This layer acts as the glue between different components within the architecture. It facilitates communication between the presentation layer, business logic layer, and data layer. It can also handle integrations with external systems like payment gateways, shipping providers, and marketing automation tools.

5. Security Layer:

Security is paramount in e-commerce. This layer focuses on protecting sensitive customer data like credit card information and ensuring secure transactions. It employs techniques like encryption, authentication protocols, and firewalls to safeguard the system from cyber threats.



- Diagram of architectural framework of electronic commerce.

Q.5(a). With the help of any example of website, explain the perspectives of the buyers and sellers in a B2B e-commerce website.

Ans:- Let's look at Udaan [udaan.com], a major B2B e-commerce platform in India focused on wholesale supplies.

Buyer Perspective (e.g., a Kirana Grocery Store Owner):

- **Bulk Ordering and Discounts:** Udaan allows the shopkeeper to order supplies in bulk at wholesale prices, significantly reducing their procurement costs compared to traditional wholesale markets.
- **Wide Product Variety:** They can find a vast selection of groceries, FMCG (Fast-Moving Consumer Goods), and other everyday items from various brands on a single platform.
- **Convenient Ordering and Delivery:** Udaan offers a user-friendly platform for placing orders and scheduling deliveries, saving them time and effort compared to physically visiting wholesale markets.
- **Payment Flexibility:** Udaan might provide various payment options, including cash on delivery or credit facilities, catering to the needs of small businesses.

Seller Perspective (e.g., a Consumer Goods Manufacturer):

- **Reaching Kirana Networks:** Udaan connects manufacturers directly to a large network of Kirana stores across India, bypassing traditional distribution channels and increasing their sales reach.
- **Reduced Distribution Costs:** Selling directly through Udaan eliminates the need for intermediaries, potentially reducing overall distribution costs for the manufacturer.
- **Demand Forecasting and Inventory Management:** Udaan's sales data can help manufacturers forecast demand and optimize their inventory levels, improving efficiency and reducing stockouts.
- **Brand Promotion and Visibility:** Manufacturers can showcase their products on Udaan, increasing brand awareness among a large base of potential buyers.

In essence, Udaan, like other B2B marketplaces in India, creates a win-win situation. Kirana stores benefit from convenient access to wholesale supplies at competitive prices. Manufacturers gain wider market reach, reduce distribution costs, and leverage valuable sales data for better business decisions.

Q.5.(b) How many types of payments are there for m-commerce? Explain in detail each of them.

Ans:- M-commerce offers a variety of convenient payment methods for making purchases on your mobile device. Here are some of the most common types:

1. Digital Wallets:

- These are secure virtual containers on your smartphone that store your credit card, debit card, loyalty card, and other payment information. Popular examples include Apple Pay, Google Pay, and Samsung Pay.
- **Benefits:**
 - Highly secure with tokenization (replacing actual card details with a unique identifier) and fingerprint or facial recognition for authentication.
 - Extremely convenient - one-tap checkout without manually entering card details.
 - May offer additional features like loyalty program integration and special deals.
- **Drawbacks:**
 - Requires a compatible smartphone and operating system.
 - Not all stores and apps accept digital wallets yet.

2. Mobile Carrier Billing:

- This method allows you to add the purchase cost to your monthly mobile phone bill.
- **Benefits:**
 - Convenient - no need to enter card details or create new accounts.
 - May offer a sense of security as you're not sharing financial information directly with the merchant.
- **Drawbacks:**
 - Limited spending limits depending on your mobile plan.
 - May incur additional carrier fees on your phone bill.
 - Not all merchants or apps offer this option.

3. Direct Debit Payments:

- This method authorizes the merchant to electronically withdraw the purchase amount directly from your bank account.

- **Benefits:**

- Secure - avoids sharing card details with the merchant.
- May be preferred for larger purchases you want to spread out over your monthly bank statement.

- **Drawbacks:**

- Requires setting up direct debit authorization with the merchant beforehand.
- Not as widely available as other payment methods.

4. In-App Payment Systems:

- Some apps have their own built-in payment systems, allowing you to store your payment information or link your account with a payment service provider.

- **Benefits:**

- Convenient and streamlined checkout process within the app.
- May offer loyalty points or rewards specific to the app.

- **Drawbacks:**

- Payment information is stored within the app, so security depends on the app's own measures.
- Limited to use within that specific app.

5. QR Code Payments:

- This method involves scanning a QR code displayed at checkout with your smartphone camera, which then directs you to a secure payment page to complete the transaction.

- **Benefits:**

- Fast and contactless - ideal for in-store purchases.
- Often used by smaller merchants who might not have traditional payment terminals.

- **Drawbacks:**

- Requires a good internet connection to scan the QR code and complete the payment.
- Not as widely used as other methods yet.

6. Cash on Delivery (COD):

- This traditional method allows you to pay for the order with cash when it is delivered.

- **Benefits:**

- Preferred option for those who are uncomfortable with online payments.
- No need to enter financial information online.

- **Drawbacks:**

- May incur additional COD fees.
 - Not all online merchants offer COD as a payment option.
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6.(a) Explain with proper diagram, how an online credit card transaction works.

Ans:- **Online Credit Card Transaction Process**

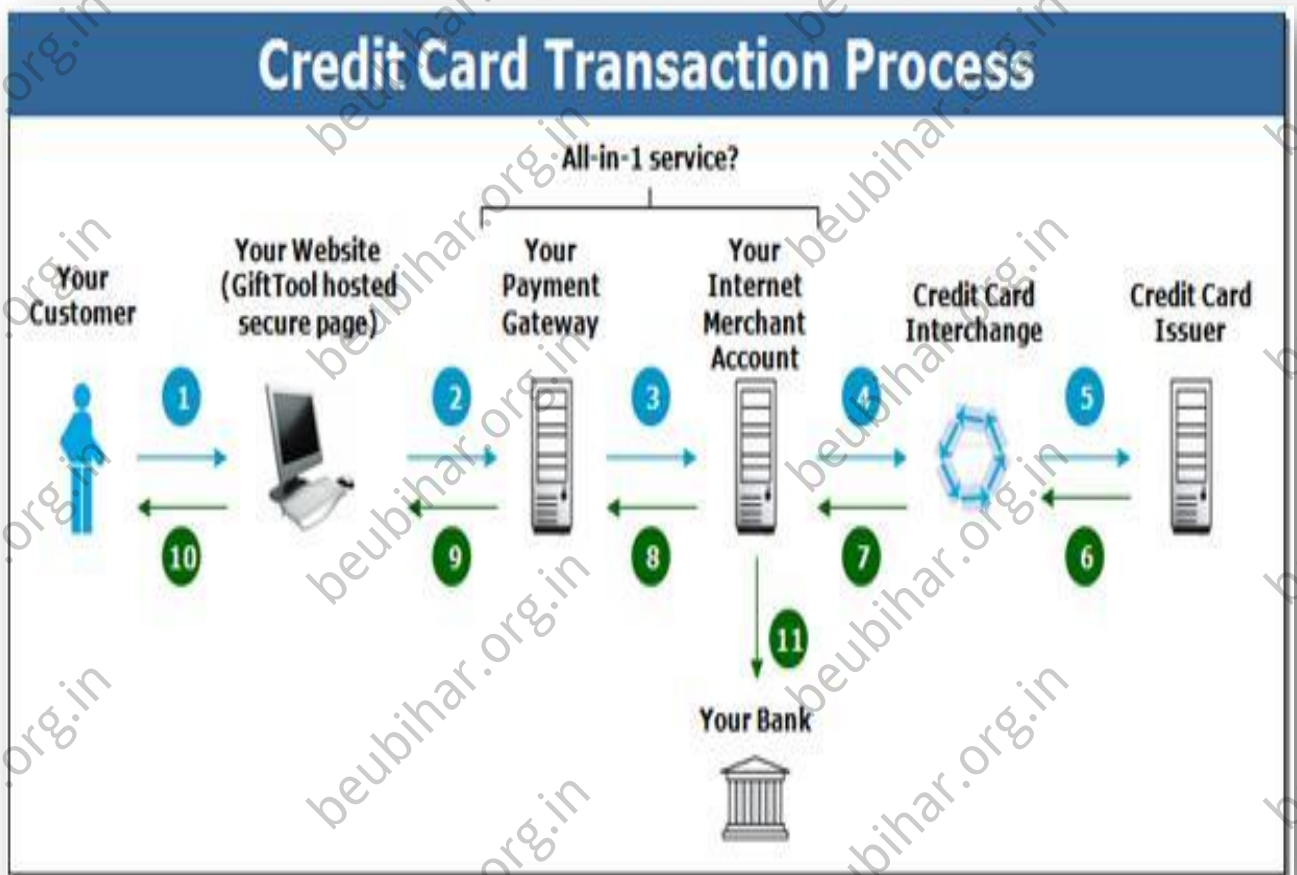
Imagine you're buying a new pair of headphones online. Here's what happens behind the scenes when you use your credit card to pay:

1. **Customer Places Order:** You enter your credit card information on the merchant's website. This information typically includes your card number, expiration date, and CVV (security code).
2. **Merchant Captures Details:** The merchant's website securely transmits your card details to their payment processor. They **don't** store your full credit card number themselves.
3. **Payment Processor Forwards Request:** The payment processor acts as an intermediary between the merchant and your bank. They encrypt your card details and send a request for authorization to the appropriate card network (e.g., Visa, Mastercard).
4. **Card Network Sends Request to Issuing Bank:** The card network (Visa or Mastercard in this case) routes the authorization request to your issuing bank (the bank that issued your credit card).
5. **Issuing Bank Verifies Information:** Your bank checks various factors, including:
 - Available funds in your account
 - Validity of the card number and expiration date
 - CVV code match
 - Fraudulent activity checks (e.g., location of purchase compared to your usual spending patterns)
6. **Issuing Bank Sends Authorization Response:** Based on their verification, your bank sends an authorization response (approval or decline) back to the card network.
7. **Card Network Sends Response to Processor:** The card network relays the authorization response from your bank to the payment processor.
8. **Payment Processor Sends Response to Merchant:** The payment processor receives the authorization response and informs the merchant of the transaction status (approved or declined).
9. **Merchant Receives Response (Approved):**
 - If approved, the merchant typically displays a confirmation message on their website.
 - They may initiate the order fulfilment process (packing and shipping your headphones).

10. **Merchant Captures Funds (Later):** The payment processor doesn't actually transfer the funds immediately. They typically wait for a batch settlement (daily or hourly) before collecting funds from the issuing bank and depositing them into the merchant's account.

11. **Customer Receives Statement:** At the end of your billing cycle, your bank will send you a credit card statement that includes this transaction and any applicable charges (interest, fees).

Here's a diagram illustrating the process:



In the Diagram:

- **Customer:** The person making the online purchase.
- **Merchant Website:** The website where the customer enters their credit card information.
- **Payment Processor:** The company that handles the secure online payment transaction.
- **Card Network:** The network that your credit card is associated with (e.g., Visa, Mastercard).
- **Issuing Bank:** The bank that issued your credit card.

- **Authorization Request:** The request sent from the payment processor to the issuing bank to verify the card details and check for available funds.
- **Authorization Response:** The response sent back from the issuing bank to the payment processor indicating approval or decline of the transaction.

6.(b) Explain briefly the role of e-commerce in the Supply Chain Management with suitable examples.

Ans:- E-commerce acts as a digital engine for Supply Chain Management (SCM), optimizing processes and enhancing efficiency. Here's how:

1. Boosting Efficiency:

- **Automated Ordering:** E-commerce platforms automate order processing. Customers place orders online, eliminating manual work and errors for businesses.
- **Real-Time Communication:** E-commerce facilitates instant communication between businesses, suppliers, and customers. This improves coordination and reduces delays throughout the supply chain.

Example: Imagine a large electronics retailer. Their e-commerce platform automatically receives and processes online orders for TVs. This eliminates the need for manual data entry and ensures faster order fulfilment. They can also use the platform to communicate with suppliers regarding stock availability and delivery schedules.

2. Optimizing Inventory Management:

- **Data-Driven Insights:** E-commerce platforms provide valuable sales data. Businesses can analyse this data to forecast demand for specific products and optimize inventory levels. This reduces the risk of stockouts and overstocking.
- **Automated Replenishment:** E-commerce systems can be set up to automatically trigger purchase orders when inventory falls below a certain point. This ensures a smooth flow of goods without manual intervention.

Example: An online sporting goods store can track real-time sales data to see which soccer cleats are most popular during different seasons. Based on this data, they can adjust inventory levels and automatically reorder popular cleats before the next sales surge.

3. Expanding Reach and Reducing Costs:

- **Online Marketplaces:** Platforms like Alibaba connect businesses with a vast network of suppliers globally. This eliminates reliance on traditional distributors, potentially leading to lower procurement costs.
- **Global Markets:** E-commerce allows businesses to sell their products to a worldwide audience. They can bypass geographical limitations and reach a much larger customer base compared to traditional brick-and-mortar stores.

Example: A small coffee bean roaster can list their specialty coffee blends on an e-commerce marketplace like Amazon. This allows them to reach coffee enthusiasts worldwide, increasing their sales potential and eliminating the costs associated with physical store locations.

4. Enhancing Customer Experience:

- **Order Tracking and Visibility:** E-commerce platforms provide features like order tracking, allowing customers to see the status of their deliveries in real-time. This transparency builds trust and improves customer satisfaction.
- **Customer Feedback:** E-commerce platforms allow customers to leave reviews and ratings. Businesses can analyse this feedback to understand customer preferences and improve their product offerings or services.

Example: An online clothing store can offer real-time tracking information on customer orders. Customers can see exactly where their package is in the delivery process, reducing anxiety and creating a more positive shopping experience.

Q.7(a) Explain the ways and means of protecting online websites operations from hackers.

Ans:- Here are some key ways and means to protect online websites from hackers:

Security Measures:

- **Strong Passwords and Authentication:** Enforce strong password policies for all user accounts, including complex characters, length requirements, and regular password changes. Implement multi-factor authentication

(MFA) for added security, requiring a secondary verification step beyond just a password.

- **Secure Software and Updates:** Use reputable website development frameworks and content management systems (CMS) with a good track record of security. Crucially, keep all software, plugins, and themes updated to address any known vulnerabilities.
- **Web Application Firewalls (WAF):** Consider implementing a WAF, which acts as a security filter that monitors incoming traffic and blocks malicious attempts to exploit vulnerabilities in your website's code.
- **Regular Security Testing:** Conduct regular vulnerability scans and penetration testing to identify and address weaknesses in your website's security posture.
- **Secure Data Storage:** Store sensitive user data, such as passwords and credit card information, securely using encryption methods.

Access Controls and Monitoring:

- **Limited User Access:** Grant access to website functionalities and sensitive data only to authorized users based on the principle of least privilege. This minimizes the potential damage if a hacker gains access to a particular account.
- **User Activity Monitoring:** Monitor user activity logs to identify suspicious behaviour that might indicate a hacking attempt.
- **Regular Backups:** Implement a regular backup schedule for your website's data and store backups securely off-site. This allows you to restore your website quickly in case of a security breach or other data loss event.

Best Practices and Awareness:

- **Secure Coding Practices:** For developers, follow secure coding practices to avoid common vulnerabilities that hackers might exploit.
- **Employee Training:** Educate employees about cybersecurity best practices, including password hygiene, phishing email awareness, and the importance of reporting suspicious activity.
- **Stay Informed:** Keep yourself updated on the latest hacking trends and vulnerabilities to proactively address potential threats.

Additional Considerations:

- **SSL/TLS Certificates:** Use Secure Sockets Layer (SSL) or Transport Layer Security (TLS) certificates to encrypt communication between your website and users' browsers. This protects sensitive data transmission from eavesdropping.
- **DDoS Protection:** Consider implementing DDoS (Distributed Denial-of-Service) protection measures to mitigate attacks that aim to overwhelm your website with traffic and make it inaccessible to legitimate users.

Q.7(b) What is the functionality of antivirus programs? How are viruses detected and fixed?

Ans:- Antivirus programs act as guardians for your computer system, protecting it from malicious software (malware), particularly viruses.

Here's a breakdown of their key functionalities:

1. Threat Detection:

- **Signature-Based Detection:** Antivirus programs maintain a vast database of digital fingerprints or signatures of known malware. They constantly scan your files, programs, and even incoming data streams for matches to these signatures. If a match is found, it's flagged as a potential threat.

2. Threat Neutralization:

- **Quarantine:** Upon detecting a threat, the antivirus program might isolate the infected file by placing it in quarantine. This prevents the malware from spreading and causing further damage to your system.
- **Removal:** In some cases, the antivirus program might be able to disinfect the infected file and restore it to its original, healthy state.
- **Deletion:** If the file is corrupted beyond repair or the threat is too severe, the antivirus program might resort to deleting it altogether to contain the threat.

3. Real-time Protection:

- Most antivirus programs run silently in the background, continuously scanning your system for new threats. They may also monitor your internet activity, such as browsing and email downloads, to identify and block potential malware infiltration attempts.

4. Software Updates:

- Antivirus programs are only effective if they stay up-to-date. They regularly receive updates from their developers, including new virus signatures and improved detection methods. These updates are crucial for keeping pace with the ever-evolving landscape of malware threats.

Antivirus programs employ a two-pronged approach to detect and address viruses on your computer:

1. Virus Detection:

- **Heuristic Analysis:** Modern antivirus programs go beyond just signature matching. They use heuristic analysis, which involves examining a program's behaviour. If a program exhibits suspicious activities, such as:
 - Trying to modify critical system files without authorization (like rewriting core Windows settings).
 - Rapidly replicating itself across your system (characteristic of some malicious worms).
 - Attempting to access or transmit data to unauthorized locations (potential data theft).Based on these red flags, the program might isolate or quarantine the suspicious file for further investigation.

2. Virus Neutralization (Actions Taken After Detection):

- **Quarantine:** Upon detecting a threat, the antivirus program might isolate the infected file by placing it in a quarantined zone. This essentially cuts off the virus's access to other parts of your system, preventing it from spreading and causing further damage. Imagine the antivirus program putting the suspicious program in a holding cell for further investigation.

- **Removal:** In some cases, if the antivirus program detects a known virus with a readily available cure, it might be able to disinfect the infected file. This involves removing the malicious code from the file and restoring it to its original, harmless state.
 - **Deletion:** If the file is corrupted beyond repair or the threat is too severe (e.g., a complex ransomware attack), the antivirus program might resort to deleting the infected file altogether to contain the threat. This is a last resort, as it might mean losing valuable data.
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Q.8(a) Write in detail about how tourism industry can gain advantage in its economics using e-commerce.

Ans:- The tourism industry has traditionally relied on travel agencies, tour operators, and physical brochures to reach customers. However, the rise of e-commerce has revolutionized how people plan and book their vacations. By embracing e-commerce, tourism businesses can unlock a wealth of economic benefits:

1. Increased Visibility and Global Reach:

- **24/7 Online Presence:** E-commerce platforms allow tourism businesses to showcase their offerings to a global audience around the clock. This eliminates geographical limitations and transcends traditional marketing channels.
- **Targeted Marketing:** Online platforms provide tools for targeted marketing campaigns based on demographics, interests, and travel preferences. This allows tourism businesses to reach their ideal customer base more effectively.
 - **Example:** A boutique hotel in Bali can create targeted online ads displayed to users searching for luxury beach getaways in Southeast Asia.

2. Streamlined Booking and Payment Processes:

- **Online Booking Systems:** E-commerce platforms allow tourists to book flights, accommodation, tours, and activities directly from the comfort of their homes. This simplifies the booking process, removes the need for intermediaries, and potentially increases conversion rates.
- **Secure Online Payments:** Secure online payment gateways like PayPal or Stripe enable tourists to pay for their bookings seamlessly using credit

cards or other digital payment methods. This eliminates the hassle of cash transactions and provides peace of mind.

- **Example:** An adventure travel company can offer online booking for their white-water rafting tours with integrated secure payment processing, allowing customers to book and pay instantly.

3. Improved Efficiency and Reduced Costs:

- **Reduced Reliance on Travel Agencies:** E-commerce empowers tourism businesses to reach customers directly, potentially reducing dependence on travel agencies and their associated commissions.
- **Real-time Inventory Management:** Online booking systems provide real-time inventory data for hotels, tours, and other offerings. This allows businesses to manage their resources efficiently and avoid overbooking or missed opportunities.
 - **Example:** A small family-run B&B can use an e-commerce platform to manage their room availability in real-time, ensuring they don't turn away potential guests due to outdated information.

4. Enhanced Customer Experience and Personalization:

- **Interactive Content and Virtual Tours:** E-commerce platforms allow tourism businesses to showcase their offerings through high-quality photos, videos, and even virtual tours. This provides potential guests with a more immersive and engaging experience before they book.
- **Personalized Recommendations:** Some platforms offer recommendation engines that suggest relevant travel options based on a user's past bookings and search history. This personalization improves customer satisfaction and potentially leads to higher booking conversions.
 - **Example:** A travel agency can utilize an e-commerce platform that recommends all-inclusive vacation packages to users who have previously booked similar trips.

5. Data-Driven Insights and Marketing Strategies:

- **Customer Data Collection:** E-commerce platforms allow tourism businesses to collect valuable customer data on booking trends, preferences, and demographics.

- **Data Analytics:** By analysing this data, businesses can gain valuable insights into their customer base and tailor their marketing campaigns and offerings more effectively.
 - **Example:** A cruise line can analyse booking data to identify popular destinations and age groups for their cruises. This information can be used to develop targeted marketing campaigns and curate specific cruise packages.

Q.8(b) What is firewall? State the function of firewall in e-commerce explaining with suitable example?

Ans:- A firewall acts as a security guard for your computer network, specifically in e-commerce, protecting it from unauthorized access and malicious activity. Imagine your e-commerce store as a physical store. A firewall is like a security guard at the entrance, checking everyone who comes in and making sure only authorized people with legitimate business enter.

Here's how a firewall functions in e-commerce:

- 1. Monitoring Traffic:** The firewall constantly monitors all incoming and outgoing traffic on your e-commerce website. This traffic includes data packets containing information like customer login details, product information, and payment data.
- 2. Filtering Traffic:** The firewall acts like a filter, comparing each data packet against a set of predetermined security rules. These rules define what kind of traffic is allowed and what is blocked.
- 3. Allowing Legitimate Traffic:** Traffic that adheres to the security rules, such as customers browsing products or adding items to their cart, is allowed to pass through the firewall and reach your website's servers.
- 4. Blocking Malicious Traffic:** The firewall blocks any traffic that violates the security rules. This might include:
 - **Hacking attempts:** Hackers might try to exploit vulnerabilities in your website to steal customer data or disrupt your operations. The firewall can identify and block such attempts.

- **Malicious software (malware):** Malware can be embedded in downloads or disguised as legitimate files. The firewall can help prevent malware from entering your network and infecting your systems.
- **Unauthorized access attempts:** If someone tries to access your website or server without proper authorization, the firewall can block their attempt.

Example:

Imagine a customer placing an order on your e-commerce website. The order details, including their name, address, and credit card information, are sent as a data packet. The firewall intercepts this packet and checks it against the security rules. If everything looks legitimate (e.g., the customer is coming from a valid IP address and using a secure connection), the firewall allows the packet to pass through and reach your server, where the order can be processed.

However, if the firewall detects something suspicious, such as the credit card information coming from a known blacklisted IP address, it will block the packet and prevent the potentially fraudulent transaction from taking place. This helps safeguard your e-commerce store from financial losses and protects customer data privacy.

Q.9. Write short notes on the following:

(b) B2C vs C2B

Ans:- There are the following differences between B2C and C2B

<u>Aspect</u>	<u>B2C</u>	<u>C2B</u>
Definition	Businesses sell products or services directly to consumers.	Consumers offer products or services to businesses or other consumers.
Direction of Transaction	Business → Consumer	Consumer → Business or Consumer
Initiator of Transaction	Business initiates transactions by offering products or services for sale.	Consumer initiates transactions by offering products or services for sale or by soliciting bids from businesses.
Examples	Online retail stores, e-commerce platforms, subscription services.	Freelancing platforms, crowdsourcing platforms, user-generated content platforms (e.g., YouTube, blogging).

<u>Aspect</u>	<u>B2C</u>	<u>C2B</u>
Revenue Source	Businesses generate revenue from consumer purchases.	Consumers generate revenue by selling products or services to businesses or other consumers.
Control	Businesses control pricing, marketing, and distribution channels.	Consumers have more control over pricing and may negotiate terms with businesses.
Market Size	Typically involves a larger market size with a broad consumer base.	Market size may vary depending on the demand for specific consumer offerings.
Examples	Amazon, Walmart, Nike.	Upwork, Fiverr, Airbnb.

9.(c) E-advertising vs E-branding

Ans:- There are the following difference between E-advertising and E-branding

<u>Aspect</u>	<u>E-advertising</u>	<u>E-branding</u>
Definition	Promotional messages or advertisements delivered electronically to target audiences to promote products or services.	Strategies and activities aimed at building and enhancing the brand image, reputation, and identity through digital channels.
Focus	Primarily focuses on driving immediate sales or conversions.	Focuses on long-term brand building and fostering customer loyalty.
Goals	Increase website traffic, generate leads, boost sales, and drive immediate action from consumers.	Build brand awareness, establish brand credibility, foster brand loyalty, and create emotional connections with consumers.
Emphasis	Transactional and promotional messaging with a direct call-to-action (CTA).	Relationship-building and storytelling to convey brand values, personality, and identity.
Metrics	Click-through rate (CTR), conversion rate, cost per acquisition (CPA), return on ad spend (ROAS).	Brand awareness metrics (e.g., reach, impressions), engagement metrics (e.g., likes, shares, comments), brand sentiment, customer lifetime value (CLV).
Tactics	Search engine marketing (SEM), display advertising, social media advertising, email marketing, pay-per-click (PPC) advertising.	Content marketing, social media management, influencer marketing, online reputation management, community building.
Time Frame	Short-term focus with immediate results and measurable ROI.	Long-term focus with results that may take time to manifest and may be harder to measure directly.
Examples	Google Ads, Facebook Ads, sponsored content, email newsletters.	Creating branded content, social media engagement campaigns, influencer partnerships, online community building.

