Q1: Explain with Example How Domain Name System (DNS) Works

**Introduction to DNS**

The Domain Name System (DNS) is a critical component of the internet infrastructure. They translates domain names, those are easy for humans to remember, into IP addresses, computers use that to communicate with each other.

**How DNS Works**

Here's a step-by-step explanation of how DNS works:

1. **User Request**: A user types a URL into their web browser, such as [www.example.com](http://www.example.com/).
2. **DNS Query**: The browser sends requests to a DNS resolver ( provided by the operating system or internet service provider) to resolve the domain name into an IP address.
3. **DNS Resolver**: The DNS resolver breaks down the domain name into its components (e.g., subdomain, domain, top-level domain) and queries a DNS server for the IP address associated with the domain.
4. **DNS Server Hierarchy**:
   * **Root DNS Servers**: These are the first point of contact. They direct the query to the appropriate top-level domain (TLD) servers.
   * **TLD Servers**: These handle queries for specific TLDs (e.g., .com, .net). They direct the query to the authoritative name servers for the domain.
   * **Authoritative Name Servers**: These servers are responsible for the domain and provide the IP address associated with it.
5. **Response**: When IP address is found, it is returned to the DNS resolver, which then provides it to the user's browser.
6. **Connection**: Browsers uses IP addresses to connect to the server hosting the website, then the user can view the content.

**Example**

Let's say you want to visit [www.google.com](http://www.google.com/):

* **User Request**: You type [www.google.com](http://www.google.com/) into your browser.
* **DNS Query**: Your browser sends a request to a DNS resolver.
* **DNS Resolver**: The resolver queries a root DNS server, which directs it to a .com TLD server.
* **TLD Server**: The .com server directs the query to Google's authoritative name servers.
* **Authoritative Name Server**: Google's servers return the IP address associated with [www.google.com](http://www.google.com/), such as 216.58.194.174.
* **Response**: The IP address is returned to your browser.
* **Connection Established**: Browser connects to the server at 216.58.194.174, and you see Google's homepage.

**Introduction**

Setting up an e-commerce portal for ABC Gift Company involves several key steps to ensure a successful online presence in the Australian and New Zealand markets.

**Step-by-Step Guide**

**1. Market Research and Planning**

* **Identify Target Audience**: Understand the demographics and preferences of potential customers in Australia and New Zealand.
* **Competitor Analysis**: Analyze existing e-commerce platforms selling similar products in these markets.
* **Business Model**: Decide on the business model (B2B, B2C, or both).

**2. Domain Name and Hosting**

* **Domain Name Registration**: Register a domain name that reflects the brand (e.g., abcgifts.com.au).
* **Web Hosting**: Choose a reliable web hosting service that supports e-commerce platforms and has good uptime and customer support.

**3. E-commerce Platform Selection**

* **Platform Options**: Consider popular e-commerce platforms like Shopify, WooCommerce, or Magento.
* **Customization**: Ensure the platform allows for customization to fit the brand's identity and user experience requirements.

**4. Product Catalog and Content**

* **Product Listings**: Create detailed and high-quality product listings with images and descriptions.
* **Content Strategy**: Develop a content strategy that includes blog posts, product guides, and customer testimonials.

**5. Payment and Shipping Integration**

* **Payment Gateways**: Integrate secure payment gateways like PayPal, Stripe, or local options like Afterpay.
* **Shipping Options**: Set up shipping options that cater to both Australian and New Zealand markets, including estimated delivery times and costs.

**6. Security and Compliance**

* **SSL Certificate**: Install an SSL certificate to ensure secure transactions.
* **Compliance**: Ensure compliance with local laws and regulations, such as consumer protection laws and tax requirements.

**7. Marketing Strategy**

* **SEO**: Optimize the website for search engines to improve visibility.
* **Social Media**: Utilize social media platforms for marketing and customer engagement.
* **Email Marketing**: Develop an email marketing strategy to retain customers and promote new products.

**8. Launch and Maintenance**

* **Testing**: Conduct thorough testing before launch to ensure all features are working correctly.
* **Post-Launch Review**: Monitor performance, gather feedback, and make necessary adjustments to improve the user experience and conversion rates.