

Q 1. In the first part of guest talks, the problem of lack of standards is mentioned. What is the importance of standards? Why it is difficult to make standards? (10 Marks)

Ans:

Importance of Standards in IoT Devices and Hardware:

- **Interoperability:** Standards ensure that different products and systems can work together seamlessly. For example, USB and HDMI standards allow various devices to connect and communicate effectively.
- **Scalability:** With the exponential growth of IoT devices, scalability becomes a critical concern. Standards provide a framework for designing systems that can scale efficiently, accommodating the increasing number of devices and users.
- **Security:** IoT devices are susceptible to various security threats. Standards define security protocols and best practices, reducing vulnerabilities and enhancing the overall security posture of IoT ecosystems.
- **Efficiency:** IoT devices often operate with limited resources such as CPU, RAM, and storage. Standards help optimize resource usage, ensuring that devices can perform efficiently while conserving energy and prolonging battery life.
- **Quality Assurance:** Standards define specific quality benchmarks, helping manufacturers produce products that meet certain criteria. This, in turn, ensures that consumers receive reliable and high-quality products.

Challenges in Developing Standards for IoT:

- **Diverse Ecosystem:** IoT encompasses a wide range of devices, sensors, communication protocols, and applications. Developing standards that cover this diversity while maintaining compatibility is complex.
- **Rapid Technological Advancements:** IoT technologies are evolving rapidly, with new hardware and communication protocols emerging regularly. Keeping standards up-to-date with these changes is a continuous challenge.
- **Heterogeneous Hardware:** IoT devices come in various form factors and resource constraints. Standards must strike a balance between accommodating these differences while ensuring performance and interoperability.
- **Security Concerns:** Securing IoT devices is a significant challenge, and standards must address evolving security threats and vulnerabilities.

- **Competing Interests:** Various stakeholders, including hardware vendors, software developers, and industry associations, may have differing interests and priorities, making it challenging to reach a consensus on standards.

Q 2. What attributes industry look for in an entry-level candidate? How can you show these attributes? (20 Marks)

Ans:

Attributes the Industry Looks for in an Entry-Level Candidate

- **Growth Mindset:** Demonstrating a willingness to adapt and learn, as well as an openness to feedback and improvement, is highly valued. Showcasing this by sharing instances where one has embraced new challenges and learned from failures can help recruiters know about him/her.
- **Passion for Learning:** Expressing enthusiasm for continuous learning and staying updated with industry trends. Mentioning any personal projects, online courses, or self-study that reflect one's commitment to knowledge acquisition.
- **Active Communication:** Effective communication is key to landing an entry-level job in the industry. Providing examples of situations where candidates effectively communicated ideas, collaborated with others, or presented their work clearly can help them secure a job.
- **Networking Skills:** Showcasing one's ability to build professional relationships and networks and mentioning any involvement in industry events, conferences, or online communities can be a big help.
- **Teamwork:** Emphasizing one's ability to collaborate within a team environment and sharing one's experiences of successful teamwork, conflict resolution, and achieving common goals can be an additional advantage.
- **Professional Development:** Showing that candidate are committed to their career growth and discussing how they applied academic knowledge to real-world business problems through internships, projects, or coursework is a plus.

Demonstrating these Attributes

- **Continuous Learning:** Using online learning platforms like LinkedIn Learning, Pluralsight, Frontend Masters, edX.org, Udacity, or Udemy to build up skills and certifications can help a candidate understand the career path and industry standards.

- **Ongoing Qualifications:** Highlighting any certifications, such as Microsoft Certified: Azure Developer Associate or AWS Certified: Developer Associate, demonstrates one's commitment to professional development.
- **University Education:** Acquiring a university education to provide us with a foundation in concepts and principles, can help us involve in practical projects or coursework that applies to real-world problems.
- **Application of Knowledge:** Sharing examples of how one has translated academic knowledge into tangible solutions or projects that address business challenges is a must. We can showcase our portfolio websites and hosted projects to help recruiters understand that we can be valuable members of a team.
- **Networking Efforts and Volunteering:** Discussing one's participation in industry events, webinars, or forums where one has expanded their professional network and gained insights into industry trends can be helpful. We can also actively participate in volunteering for social impact and experience.

By presenting these attributes and evidence of our efforts, one can make a compelling case to potential employers that he/she possesses the qualities they seek in an entry-level candidate in the industry.

3. Why do tech companies like Illuminance Solutions apply two different cloud services (Azure, AWS) in their projects? (5 Marks)

Ans:

Tech companies like Illuminance Solutions may choose to apply two different cloud services, such as Azure and AWS, in their projects for several reasons:

- **Diverse Client Needs:** Clients may have existing infrastructure or preferences for a specific cloud provider. By offering expertise in both Azure and AWS, companies can cater to a wider range of client needs and preferences.
- **Best-of-Breed Solutions:** Different cloud providers excel in various areas. For example, AWS might have stronger offerings in certain AI and machine learning services, while Azure may have advantages in IoT solutions. Using both allows companies to leverage the strengths of each provider for specific project requirements.
- **Redundancy and Resilience:** Using multiple cloud providers can enhance the redundancy and resilience of a project. If one provider experiences downtime or issues, the other can continue to provide services, reducing the risk of service interruptions.

- **Cost Optimization:** Companies can optimize costs by selecting the most cost-effective cloud provider for specific workloads or services. This approach can help manage project budgets more efficiently.
- **Avoiding Vendor Lock-In:** By using multiple cloud providers, companies can mitigate the risk of vendor lock-in. This gives clients the flexibility to migrate their services to another provider if needed, promoting long-term client satisfaction.

Q 4. How volunteering can help an individual grow in the profession? (15 Marks)

Volunteering can significantly contribute to an individual's professional growth in various ways:

- **Skill Development:** Volunteering provides opportunities to acquire and enhance a wide range of skills, including leadership, communication, project management, and problem-solving. These skills are transferrable and valuable in various professions.
- **Networking:** Volunteering allows individuals to connect with professionals and like-minded individuals in their field or related industries. Building a strong professional network can open doors to new career opportunities, mentorship, and collaborations.
- **Experience:** Volunteering often offers hands-on experience that may not be available in one's current job. This practical experience can boost confidence and make an individual more attractive to employers.
- **Demonstrating Commitment:** Volunteering demonstrates a commitment to one's profession and a willingness to go beyond the minimum requirements. Employers appreciate candidates who show dedication and a passion for their field.
- **Resume Building:** Volunteering experiences can be included on a resume or CV, showcasing an individual's diverse skill set, commitment, and community involvement. This can make a candidate stand out in competitive job markets.
- **Career Change or Advancement:** Volunteering can serve as a bridge to a new career or help individuals advance within their current profession. It provides exposure to different aspects of an industry and can be a stepping stone to paid positions.

Overall, volunteering not only benefits the community or organization being served but also offers individuals a platform to gain skills, network, and demonstrate their dedication to their profession, ultimately contributing to their professional growth and career development.