English for Computing

Spring 1404   Homework 2

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Question 1)

Part A)

1. the smallest unit of data within a table, the value assigned to an attribute of a tuple
2. the single central cable (bus) that connects to all the devices on the network and transfers data among them
3. removing less important parts of data to reduce the size of files
4. hardware components that allow the user to enter data and commands into a computer

Part B)

As we know, when designing a database, the attributes must be atomic; meaning they should not be capable of been broken down into smaller pieces of data. Considering that, the given attribute must be altered with these attributes: First Name, Middle Name (if needed), Last Name, Email Address. First Name and Last Name must be NOT NULL and Email Address is better be considered a multi-value attribute.

Part C)

A great solution would be **MP4 (H.264)**. This widely used format removes redundant data to decrease the required memory and bandwidth, while keeping acceptable video quality. With that said, suggesting proper compression format requires much more evidence and information about the limitations and priorities of the academy. It all comes down to a trade-off between quality and memory space/internet bandwidth.

Part D)

Just like the previous questions, coming up with a practical answer to this question requires more familiarity with the academy, its resources and capabilities. But generally speaking, star topology can be advantageous, compared to bus topology. It can improve network performance by allowing direct communication between devices without interference and preventing data traffic congestion as multiple devices communicate simultaneously. It can also provide higher fault tolerance. Because bus topology has a single point of failure, while in star topology, each device operates independently; leading to higher network reliability.

Question 2)

Part A)

1. Reinforcement learning (RL)
2. Procedural content generation (PCG)
3. Behavior tree
4. Generative AI

B)

1. B
2. A
3. C
4. D

C)

1. B

D)

1. **False**: Procedural content generation creates different levels by using randomness or algorithms that take the action of the player as input.
2. **True:** Generative AI can adapt stories and dialogues based on player behavior, providing personalized narratives.

Question 3)

1) B: human intelligence

2) A: To name one of the disciplines among others that are used in building machines with artificial intelligence.

3) C: used to be considered as a yardstick for defining artificial intelligence

4) D: Fundamental

5) D: Chess-playing computer