Lesson 4: Applications

In this lesson, students will explore the different methods of application delivery and the various application architecture models. They will learn about locally installed, local network hosted, and cloud hosted application delivery methods, and discuss the advantages and disadvantages of each. Additionally, students will analyze one-tier, two-tier, three-tier, and n-tier application architecture models, considering their characteristics and implications. Through group discussions and independent practice, students will design a hypothetical application using their chosen delivery method and architecture model, taking into account specific requirements and constraints. The lesson will conclude with a review of the main points covered and an emphasis on the importance of considering the advantages and disadvantages of each method and model when designing applications.

Objectives:

- Explain the different methods of application delivery.

- Describe the various application architecture models.

- Understand the advantages and disadvantages of each method and model.

Materials:

- Whiteboard or blackboard

- Markers or chalk

- Handouts with application delivery methods and architecture models

Bell-Ringer Activity (5 minutes):

- Display the following question on the board: "What are some examples of locally installed applications?"

- Give students a few minutes to think and write down their answers individually.

- Afterward, ask a few students to share their answers with the class.

Introduction (10 minutes):

- Begin by explaining the importance of application architecture and delivery models in the field of computer science.

- Define application delivery methods as the different ways in which applications can be accessed and used by users.

- Define application architecture models as the structures and designs used to develop and organize applications.

- Explain that understanding these concepts is crucial for designing and implementing efficient and effective applications.

Direct Instruction (20 minutes):

- Present the different application delivery methods (locally installed, local network hosted, cloud hosted) and explain each method in detail.

- Discuss the advantages and disadvantages of each method, such as accessibility, security, and maintenance.

- Use examples to illustrate each method and encourage students to ask questions for clarification.

Guided Practice (20 minutes):

- Divide the class into small groups.

- Distribute handouts with application architecture models (one tier, two tier, three tier, n-tier).

- Instruct each group to discuss and analyze the characteristics, advantages, and disadvantages of each architecture model.

- Circulate among the groups to provide guidance and answer any questions.

Independent Practice (25 minutes):

- Ask each group to choose one application delivery method and one application architecture model.

- Instruct them to design a hypothetical application using their chosen method and model.

- Encourage them to consider the specific requirements and constraints of their chosen method and model.

- Provide the necessary resources (paper, markers, etc.) for the groups to create a visual representation of their application design.

Exit Ticket (5 minutes):

- Distribute exit tickets to each student.

- Ask them to briefly summarize one advantage and one disadvantage of a locally installed application.

- Collect the exit tickets before the end of the class.

Closure (5 minutes):

- Review the main points covered in the lesson, including the different application delivery methods and architecture models.

- Emphasize the importance of considering the advantages and disadvantages of each method and model when designing applications.

- Encourage students to continue exploring and learning about application architecture and delivery models in their own time.

Common Core Standards:

- CCSS.ELA-LITERACY.RST.9-10.2: Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

- CCSS.ELA-LITERACY.RST.9-10.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.