

Lecture-15: Cloud Computing, APIs, and JSON

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Cloud Computing and Service Models:

- Cloud computing is a technology that delivers computing services over the internet.
- It provides resources like servers, storage, databases, networking, software, analytics, and more.

Services Models:

1. IAAS (Infrastructure as a Service):
 - Provides virtualized computing resources over the internet.
 - Users rent IT infrastructure on a pay-as-you-go basis.
2. PAAS (Platform as a Service):
 - Offers a platform that includes an operating system, programming language, and runtime environment.
 - Developers can build, deploy, and manage applications without worrying about underlying infrastructure.
3. SAAS (Software as a Service):
 - Delivers software applications over the internet on a subscription basis.
 - Eliminates the need to install and run software on individual computers.

APIs - Application Programming Interfaces:

- APIs allow different software applications to communicate with each other.
- They define the methods and data structures that developers can use to interact with the application.

API Usage and Interaction:

- APIs handle requests and responses, acting as intermediaries between clients and servers.
- Similar to placing an order in a restaurant and getting a response from the kitchen.
- APIs make data accessible and available in a structured way.

API Security and Keys:

- API keys are used to authenticate requests and ensure data security.
- Sensitive data is managed using API keys, which should be kept confidential.
- API keys are crucial for protecting data integrity and preventing unauthorized access.

Encoding and Decoding JSON:

- JSON (JavaScript Object Notation) is a lightweight data interchange format.
- Data is encoded in JSON format using `JSON.stringify()`.
- JSON data can be decoded back into its original format using `JSON.parse()`.

Understanding cloud computing, APIs, and JSON is essential for building modern web applications and leveraging cloud services effectively.