**Unit-2**

1. In what ways getHostName() differs from getCannonicalHostName()?

= Here’s a difference that how getHostName() is different from getCannonicalHostName():

* **getHostName()**:
  + - Retrieves the hostname using a basic reverse DNS lookup or local system configuration (e.g., hosts file).
    - Returns a hostname that may be an alias, a short name, or the first name provided by DNS.
    - Minimal DNS resolution; often relies on cached or locally available data.
    - If no hostname is resolved, it returns the IP address as a string (e.g., "192.168.1.1").
    - Faster due to lighter DNS queries and reliance on cached results.
    - Less reliable for unique identification, as it may return non-standard or aliased names.
    - For "[www.example.com](http://www.example.com)", it might return "www" or an alias like "web1.example.com".
* **getCanonicalHostName()**:
  + - Performs a thorough DNS lookup to resolve the canonical (authoritative) hostname.
    - Returns the Fully Qualified Domain Name (FQDN), ensuring the official and unique name of the host.
    - More extensive DNS resolution, potentially querying multiple records to find the canonical name.
    - If DNS resolution fails, it may return the IP address or the same result as getHostName().
    - Slower than getHostName() due to additional DNS queries for canonical resolution.
    - More reliable for consistent and authoritative host identification, critical for security or networking.
    - For "[www.example.com](http://www.example.com)", it consistently returns "[www.example.com](http://www.example.com)" as the FQDN.