**Exercise 1**

**Lesson 1: Cloud Computing**

1. **Compare Cloud and On-premise Computing?**

* **Cloud computing is data which can be accessed through online servers which are located away from the premise whereas, On- premise computing are where servers based on the premise and access data remotely without online connection.**

1. **What is Cloud Computing?**

**“Cloud computing is a model for enabling ubiquitous,**

**convenient, on-demand network access to a shared pool of**

**configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider**

**interaction.”**

1. **What are the benefits of cloud computing?**

**Advantages**

* **Cloud computing provides a pay-as-you-go or consumption-based pricing model.**

* **This consumption-based model brings with it many benefits, including:**
* **No upfront infrastructure costs**

* **No need to purchase and manage costly infrastructure that you may not use to its fullest**

* **The ability to pay for additional resources only when they are needed**

* **The ability to stop paying for resources that are no longer needed**

1. **Mention the Layers of PaaS Architecture.**

* **Development framework. - PaaS lets developers create applications using built-in software components. Cloud features such as scalability, high-availability, and multi-tenant capability are included, reducing the amount of coding that developers must do.**
* **Analytics or business intelligence. Tools provided as a service with PaaS allow organizations to analyze and mine their data. They can find insights and patterns, and predict outcomes to improve business decisions such as forecasting, product design, and investment returns.**

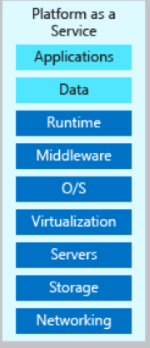
1. **What are the Cloud Service Models?**

* **On- premise**
* **Infrastructure as a Service**
* **Platform as a Service**
* **Service as a Service**

1. **Mention the Reliability and Availability of Cloud Computing.**

* A holistic approach to service reliability and availability of cloud computingReliability and Availability of Cloud Computing provides IS/IT system and solution architects, developers, and engineers with the knowledge needed to assess the impact of virtualization and cloud computing on service reliability and availability. It reveals how to select the most appropriate design for reliability diligence to assure that user expectations are met.Organized in three parts (basics, risk analysis, and recommendations), this resource is accessible to readers of diverse backgrounds and experience levels. Numerous examples and more than 100 figures throughout the book help readers visualize problems to better understand the topic and the authors present risks and options in bulleted lists that can be applied directly to specific applications/problems.Special features of this book include:Rigorous analysis of the reliability and availability risks that are inherent in cloud computingSimple formulas that explain the quantitative aspects of reliability and availabilityEnlightening discussions of the ways in which virtualized applications and cloud deployments differ from traditional system implementations and deploymentsSpecific recommendations for developing reliable virtualized applications and cloud-based solutionsReliability and Availability of Cloud Computing is the guide for IS/IT staff in business, government, academia, and non-governmental organizations who are moving their applications to the cloud. It is also an important reference for professionals in technical sales, product management, and quality management, as well as software and quality engineers looking to broaden their expertise.

1. **Explain the Common storage of PaaS Architecture.**

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1. **Why Hybrid Clouds are so important?**

* Some advantages of a hybrid cloud are:
* You can keep any systems running and accessible that use out-of-date
* hardware or an out-of-date operating system
* You can take advantage of economies of scale from public cloud providers
* for services and resources where it's cheaper, and then supplement with your own equipment when it's not
* You can use your own equipment to meet security, compliance, or legacy scenarios where you need to completely control the environment

1. **List the platforms which are used for large scale cloud computing.**

The following platforms are used for large-scale cloud computing:

* Apache Hadoop
* MapReduce

1. **Mention the different types of models used for deployment in Cloud Computing.**

* **On- premise**
* **Infrastructure as a Service**
* **Platform as a Service**
* **Service as a Service**

1. **Explain the Security management in terms of Cloud Computing.**

* The advantages of the distributed security authentication method based on the Micro Cloud have are listed as below:
* 1) The user’s authentication speed is fast. Using the signature and authentication to solve the problem of security, it can also register to the Embedded Cloud Branch Server in case the Internet failure.
* 2) The user’s database is stored in the central server not in the Embedded Cloud Branch Server. Reduce the amount of Micro cloud platform, improving the processing efficiency of Micro cloud platform.
* 3) The methods of the user’s registration are flexible. The user register can not only through the Embedded Cloud Branch Server but also through the Internet.
* a) Set up
* Our Cloud platform is based on the cloud branch server and taking multiple cloud branch servers as nodes. The cloud branch server is connected to the central server through the network.
* b) Register and Login in to the Embedded Cloud Branch Server
* The users register and login in to the Embedded Cloud Branch Server by the cloud branch server, and the cloud branch server receives the user’s registration information in real time. The Embedded Cloud Branch Server receives the user’s name and password etc. After verifying the registration information, the Embedded Cloud Branch Server generates the encrypted database file which contains the user’s information. At mean time the Embedded Cloud Branch Server removes all the unencrypted user’s information.
* c) Encrypt
* The Embedded Cloud Branch Server generates the encrypted registration file on the base of the user’s register and login in information and uploads to the central server.
* d) Generate a HASH Signature File
* The central server receives the user’s register’s information from the Embedded Cloud Branch Server and store the information to the database, at the same time generating a HASH signature file containing all the user’s information.
* e) Download Information to the Embedded Cloud Branch Server
* The central server download the HASH signature file which containing all user’s information to the cloud branch server.
* f) Signature and Authentication to the Embedded Cloud Branch Server
* The user authenticates and login in to the Embedded Cloud Branch Server, Embedded Cloud Branch Server using HASH algorithm to signature and authenticate.

1. **Mention the name of some large cloud providers and databases.**

* **ICloud**
* **Google Drive**
* **One Drive**
* **Drop Box**

1. **Mention the different datacenters deployment of cloud computing.**

* Public **Cloud**. ...
* Hybrid **Cloud**. ...
* Infrastructure as a Service (IaaS) ...
* Platform as a Service (PaaS) ...
* Software as a Service (Saa

1. **List down the three basic functioning clouds in cloud computing.**

* Business value: ...
* Service deployment: ...
* Self-service deployment

1. **Explain AWS.**

* Amazon Web Services (**AWS**) is a secure cloud services platform, offering compute power, database storage, content delivery and other functionality to help businesses scale and grow.