Final Term Paper (Spring - 2020)
Cloud Computing

Name:	saqib khan	ID #:13158

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Instructor: M Omer Rauf

Note: Attempt all Questions. Answers should be in your own words. Plagiarism will not be tolerated, if detected, it will lead to failure.

Question No. 1:   (20)

    a. Explain in detail network and cloud-based storage.

Ans 1:
Network:

Definition:
A **network** is defined as a group two or more than two computers or mobiles phones are connected with each other to share data, resources, such as CDs, USB, Printers, allow electronics communication , email send, messages, and also exchange files. The network are made or connected through cable, radio waves, satellites, telephone line and infrared light beams.

There are many types of computer networks, including the following: local-area networks LAN: The computers are geographically close together that is in the same building

Benefits of Networks:

      1 It help to communicate the user with each other through network.
      2 It allows us to share data and resources.
      3 It allows to get more job opperunities
      4 Make it possabile to get every question answer
      5 Make it possible to track and monitor the use of resources.
      4 Make it possible to store data in a centralize location where the server located.

5 It helps up in reducing the required numbers of devices.
6 It allows us to implement the security policies.
7 It allow to help other
8 Connections
9 It allows multiple user to works on a single project.

Purpose of a Network:

1. **Data Sharing.**
2. **Resources Sharing.**
3. **Application Sharing.**

1. Data Sharing:

Networking are allows us to share or send data b/w connected devices like computer, mobile phone, printers etc. Now if there was no networking concept the sharing data b/w different devices are too difficult.

For Example

We want to share or send data to other computer which we do data sharing on daily basis. If there is no network the data between two computers are done by the following method.

- If we want to send data to other computer we used external devices like CD, DVD, USB, Bluetooth.
- Move that external devices to other computer which we want to send data.
- The receiver computer read or copy the data from that external devices.

if we work in a large organization the sharing of data occur 100 or more than 100 times which are difficult to do this.

For it networking are best solution to share data b/w connected devices in large amount of data we can send easily.

2. Resource sharing:

Networking allows us to share devices among the computers. By sharing the devices, we can reduce the number of required components in the network. We can share a single printer in a whole network. The most frequently used shared network environment objects are files, data, multimedia and hardware resources like printers, fax machines and scanners

3. Application Sharing:

Network allows us to share data and resources but it also allows us to share the application within a network. One application is installed on a server side where as other are installed on a clients side. Both are used by sending and receiving a data b/t each other. Generally, the shared application or document will be running on a host computer, and remote access to the shared content will be provided to other users by the host user.

Devices which are used for network are given below:

a. Hub.
b. Routers.
c. Bridges.
d. Interface Cards.
e. Switches.
f. Firewalls.

Cloud-Based Storage:

Cloud storage is a cloud computing model that stores data on the internet through the company which allow the cloud computing and also manage and operate that data storage as a service. The cloud provider allows or delivered the cloud server on demand with capacity and cost within time and eliminates purchasing and managing your data storage. It allows us to access our data anytime and anywhere in all over the world by providing the internet connection.

Benefits of Cloud Storage:

1 Total Cost of Ownership:

In a cloud storage their as no such hardware devices to purchase.
We can only purchase the cloud storage by adding or removing the capacity by demand which we offer. It make quick change, high performance. If the data access frequency are low it can move automatically move to lower cost tires.

2 Time to Deployment:

When the development team is ready to implement, infrastructure should never slow it down. Cloud storage enables IT to quickly send the right amount

of storage, right when it's needed. This allows IT to focus on solving complex application problems rather than having to manage storage systems.'

3 Utility billing.

Since customers only pay for the capacity they're using, cloud storage costs can decrease as usage drops. This is in stark contrast to using an in-house storage system, which will likely be over configured to handle anticipated growth; so, a company will pay for more than it needs initially, and the cost of the storage will never decrease

4 Global availability:

Cloud storage is typically available from any system anywhere at any time; one does not have to worry about operating system capability or complex allocation processes

Cloud Storage Requirement:

5 Durability.
6 Availability.
7 Security.

Type of Cloud Storage:

- Object Storage.
- File Storage.
- Public cloud
- Private cloud
- Hybrid cloud
- Block Storage.

Example:

- icloud.
- Google drive.
- Drop Box.
- Microsoft One drive.

Question No. 2:   (20)

a. Explain in detail web application and multitenant technology.

Ans 2: part: a.

Definition:

A web application is a computer application program that used web browsers and web technology to perform the task by providing the internet service. Web technologies like URL, HTTP, HTML, XML etc.

Types of web application:

- Static web.

- Dynamic web.

- E-Commerce web.

- Portal web apps.

- Animated.

- Content management system.

Three-Tires Model of web application:

1. Presentation Layer.

2. Application layer.

3. Data link Layer.

1. Presentation Layer:

Presentation layer are the top layer of web application and display information in the form of GUI(Graphical User Interface). It is also called frontend layer of application and the interface that the end user will interact through the web based application. It is developed on web development framework like HTML, CSS, and JavaScript, JQuery.

2. Application Layer:

Application layer are also called middle or intermediate level, business or logic level. This layer are placed below form presentation layer. Application layer are control the main functionality of application by performing detailed processing. This layer are developed or coded in programming language like Java, Python, C, C++, C#, R .NET etc.

3. Data link layer:

Data link layer are also called database layer because in this layer database servers which are used to store and retrieved information. In this layer data management are independent from application server but its can accessed by a program like Mongo Database, Oracle, MySQL, and Microsoft SQL server.

Example:

- Facebook.

- Instagram.

- Gmail.

- Daraz.com.

- OLX.com

Multitenant technology:

Multi-tenant applications allow isolation for simultaneous users. Each user's data and configuration remain private to other users. The users can edited or customize the user interface, data model, business process and also control the access of many user application. The Cloud Computing Multi tenant Technology means that multiple customers of a cloud vendor are using the same computing resources. Despite the fact that they share resources cloud customers are not aware of each other and their data is kept totally separate. Multi tenancy is a crucial component of cloud computing without it cloud services would be far less practical. Multi tenant architecture is a feature in many types of public cloud computing including Software as a Service, Platform as a Service and Infrastructure as a Service

Common Characteristics of Multi-tenant Applications Include:

- Data Security.

- Recovery

- Usage isolation.

- Scalability.

- Data tire isolation.

b. Explain in detail cloud security threats.
Ans 2: part: b.

Cloud Security Threats:

Cloud security threats refers to attackers or hacker who access and utilize your cloud computing resources or information to the end users, companies and other cloud providers.

Security Risk of cloud computing:

1. **Data Breach threats :**

   Data breach threats exists regardless of whether data is stored internally or on cloud. Some cloud services may be more vulnerable to potential attacks and the hijacking of data due to new methods of attack such as *Man-in-the-Cloud*. This takes advantage of synchronization services to access and extract data, compromise files or attack end-users.

2. **Data Loss:**

   Data loss is occurring due to man-include disasters as a result of human error or system fault. It is also happens by the attack of hacker to access your data and used it for their own purpose. Data loss means all of your data have been loss which you have collective for many years.

3. **Denial of service(DoS):**

   Denial of Service (DoS) attacks can turn off your cloud services, making them temporarily or block unavailable to users. This can be done by flooding the system with extensive traffic, which the server cannot buffer, or crashes by taking advantage of bugs, error.

4. **Insufficient Authorization based attack:**

   It is a situation when a user gets direct access to IT resources which are supposed to be accessed by trusted users only. Happens when a broad access is provided to the IT resources and due to erroneously.

5. **hackers**

   Even if your employees don't use default, unsecured passwords, hackers can still "guess" credentials, get access to your cloud using your staff account, and, as a result, steal your data to your business processes in public. This is called "account hijacking."

Question No. 3:   (10)

    a. Briefly describe following.
         a. Advantages and disadvantages of cloud computing.
         b. Collaborative meeting in cloud.

Ans 3: Part : a.

Advantage and disadvantage of cloud computing:

1. Advantage:
advantage of cloud computing:

- Easy Implementation.
- No hardware required.
- Accessibility.
- Cost per head
- Cost Reduction.
- Flexibility for growth.
- Efficiency recovery.
- Security.
- Reliability.

2. Disadvantage:
disadvantage of cloud computing:

- No Longer in control.
- May no get all the features.
- Doesn't mean you should do away with servers.
- No Redundancy.
- Bandwidth issues.
- Downtime.
- Internet Connectivity.
- Lacks of support.

Ans 3: Part: b.

Collaborative meeting in cloud:

It can be performed by using the software hosted on cloud. allows anyone in your organization to video collaboration experiences from mobile, desktop, or room systems, with services and solutions they can use at home or in the office. Users

can meet any way they want, instantly, or by scheduling a meeting. The organizations can
Cannot support a cost effective virtual meeting so instead of virtual meeting they used face to face meetings.

Features of Collaborative Meeting:
- Streaming video to allow to communicate face to face.
  - Messenger.
  - Zoom Meeting.
  - What's app
  - Google class room.
- Used whiteboard or multimedia to control the presentation.
- Share Application.
- Meeting recoding.