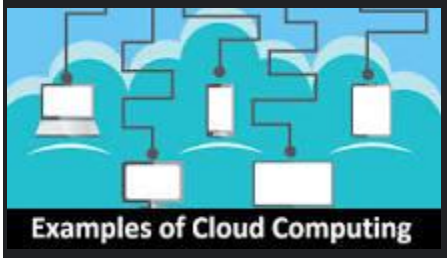
CLOUD BASICS:

What is cloud computing with example?



Cloud computing is a technology that uses the internet for storing and managing data on remote servers, and then access data via the internet. ... One such example is **Google cloud** – It is a suite of public cloud services offered by Google. All the application development run on Google hardware.

https://onacloudoftheirown.wordpress.com/2016/01/29/cloud-computing-as-easy-as-5-4-3/

once read exercise one

EXERCISE 3:

AIM:
To Create Virtual Machine online using Amazon web service.

Virtual Machine:
A virtual machine (VM) is a virtual environment that works like a computer within a computer. It runs on an isolated partition of its host computer with its own resources of CPU power, memory, an operating system (e.g., Windows, Linux, macOS), and other resources. This allows end-users to run applications on VMs and use them as they normally would on their workstation.
Virtualization uses software to simulate virtual hardware that allows multiple VMs to run on a single machine. The physical machine is known as the host while the VMs running on it are called guests.
This process is managed by software known as a hypervisor. The hypervisor is responsible for managing and provisioning resources—like memory and storage—from the host to guests. It also schedules operations in Virtual Machines, so they don't overrun each other when using resources. VMs only work if there is a hypervisor to virtualize and distribute host resources.

Advantage:
Resource and cost efficiency
Organizations use virtualization to host multiple VMs on one server. Let's say an organization wants to deploy several applications. Instead of investing in extra servers, they can deploy VMs on one server for each application—the same outcome at a fraction of the cost. This improves cost-efficiency since the physical hardware is utilized to its maximum capacity.

Scalability
Adding a VM is as simple as cloning copies of existing VMs in the physical machine. Organizations can respond better to fluctuations in load, which helps stabilize performance. This is faster and more efficient compared to installing different operating systems on physical servers.

Security
VM environments are isolated from the host operating system, which boosts security as vulnerabilities like malware don't impact the underlying hardware. This makes VMs ideal for testing new applications or software changes before they enter production.

PROCEDURE:
1. Enter the EC2 Dashboard
2. Create and Configure Your Virtual Machine
3. Click Launch Instance to Amazon EC2 console
4. Click Select to Microsoft Windows Server 2012 R2 Base
5. Click Review and Launch at the bottom of the page
6. Create a Key Pair and Launch Your Instance
7. Connect to Your Instance
8. Select the Windows Server instance you just created and click Connect
9. When prompted log in to the instance, use the Username and Password you generated in to connect to your virtual machine.
10. Terminate Your Windows VM
11. Back on the EC2 Console, select the box next to the instance you created. Then click the Actions button, navigate to Instant State, and click Terminate.
12. Confirm termination - select Yes, Terminate.

RESULT:
Thus, the given virtual machine using Amazon Web Service is created successfully.

EXERCISE 4:

AIM:
To create a Virtual Machine by installing Oracle VirtualBox and add Window or Linux as Guest OS.

PROCEDURE:
1.Download and Install Oracle Virtual Box or VM Ware.
2.Click A New Button to Create New Virtual Machine.
3.Before Creating New Virtual box install the iso file of either window or Linux so on.
4.Enter the Required files like Name type and version according to the needs such as you want to install windows, Linux.
5.After that click next button until it shows the prompt where you can choose the location and click finish button.
6.Now your virtual machine is created and select that window in virtual machine and go to setting.
7.And in storage setting import that iso file and click ok.
8.Atlast it will show a similar display while your installing normal windows.
9.After passing all the steps you can see new virtual windows in the screen.

RESULT:
Thus, the creation of a Virtual Machine by installing Oracle Virtual box and add Window as Guest OS executed successfully.

EXERCISE 5:

AIM:
To create a Virtual Machine by installing Oracle VirtualBox and add Window or Linux as Guest OS and install C compiler to run C program in it.

PROCEDURE:
1.Download and Install Oracle Virtual Box or VM Ware.
2.Click A New Button to Create New Virtual Machine.
3.Before Creating New Virtual box install the iso file of either window or Linux so on.
4.Enter the Required files like Name type and version according to the needs such as you want to install windows, Linux.
5.After that click next button until it shows the prompt where you can choose the location and click finish button.
6.Now your virtual machine is created and select that window in virtual machine and go to setting.
7.And in storage setting import that iso file and click ok.
8.Atlast it will show a similar display while your installing normal windows.
9.After passing all the steps you can see new virtual windows in the screen.
10.Install C Compiler in that virtual OS.
11.Create a file with extension .c and execute it to get output.

RESULT:
Thus, the creation of a Virtual Machine by installing Oracle Virtual box and add Window as Guest OS executed successfully and executed C program and op is verified.

EXERCISE 6:

AIM:
To install and understand the features of Own Cloud.

PROCEDURE:
I. Own Cloud:
==>With Own Cloud you can host a private cloud for data synchronization, file storage, and file sharing.
==>You can use Own Cloud as an alternative to commercial services like Drop Box or Box.
II. Own Cloud has plenty of compelling features:
Versioning
Encryption
Drag and drop upload
Theming
III. Install the LAMP Stack:
1.Install the LAMP stack with a single command
2.When the installation is complete, enable and start Apache
3.Start and enable the MySQL database
4.Set a MySQL admin password and secure the installation
5.Install PHP and all the required PHP packages
6.Restart Apache to enable any changes
IV. Create the Own Cloud Database:
1.Access the MariaDB console
2.create your Own Cloud database
3.Create a new user with the necessary privileges, including a strong and unique password.
4.Flush your database's privileges
5.Finally, exit the database console
V. Download Own Cloud:
==>Download Own Cloud. As of writing this guide, the latest version is 10.5.0.
VI. Create an Apache Configuration File:
1.Create an Apache configuration file using the Nano text editor
2.Paste the following text into the new file.
3.Save and close the file by typing Ctrl + O and then, Ctrl + X.
4.Enable the rewrite, mime, and unique id Apache modules.
5.Restart the Apache server.
VII. Configure Own Cloud:
1.Open a web browser and navigate to your site's domain
2.Type a username and password for the admin user.
3.The database information section is now available. Enter the following information:
Database User: Own cloud user
Database password: the password you set for the Own Cloud database user
Database: Own cloud database
Localhost: leave as the default

RESULT:
Thus, the Own Cloud setup installed successfully.

EXERCISE 7:

AIM:
To create a developer account in CRM

CRM:
Customer relationship management (CRM) is a technology for managing all your company's relationships and interactions with customers. The goal of CRM is to improve business relationships. A CRM system helps companies stay connected to customers, streamline processes, and improve profitability.
A customer relationship management (CRM) solution helps you find new customers, win their business, and keep them happy by organising customer and prospect information in a way that helps you build stronger relationships with them and grow your business faster. CRM systems start by collecting a customer's website, email, telephone, social media data, and more, across multiple sources and channels. It may also automatically pull in other information, such as recent news about the company's activity, and it can store personal details, such as a client's personal preferences on communications. The CRM tool organises this information to give you a complete record of individuals and companies overall, so you can better understand your relationship over time.
Therefore, an organization is advised to have a developer account in CRM. It brings clarity in each action made by the company

PROCEDURE:
1.Create new application e.g., "student"
2.Name the label and create a plural name e.g., "Student details"
3.Click on create app and go to my app page
4.Create a new customer object by searching for object using find operation
5.After creating objects create the input fields
6.Using apex code insert the values to the fields of object
7.Create a visual force page and visual force tabs to view the results.

RESULT:
Thus, the developer account in CRM has been created and executed successfully.

EXERCISE 8:

AIM:
To create a Warehouse application in SalesForce.com
WAREHOUSE:
First of the Data Warehouse electronic method of organizing, analysing, and reporting information.
WMS:
A warehouse management system (WMS) is a software application that helps control and manage the day-to-day operations in a warehouse.
SALESFORCE:
Salesforce is the world's #1 customer relationship management (CRM) platform. We help your marketing, sales, commerce,
service and IT teams work as one from anywhere — so you can keep your customers happy everywhere.SalesForce.com best
known for its CRM also provides a big and growing framework for cloud computing and applications. With Force.com you
can build apps faster, you can create applications without the concern of buying hardware or installing software.

POCEDURE:
1.Click on Setup button next to app name in top right corner.
2.In the bar, which is on the left side, go to Build → select Create → select Apps from the drop-down menu.
3.Choose Custom App.
4.Enter the App Label. Student Force is the label of my app. Click on Next.
5.Choose a profile picture for your app. Click Next.
6.Choose the tabs you deem necessary. Click Next.
7.Select the different profiles you want the app to be assigned to. Click Save.

RESULT:
Thus, the first SalesForce.com application created successfully.

EXERCISE 9:

AIM:
To study and install Apache Hadoop framework.

Hadoop:
Hadoop is an open-source framework for large-scale data processing. Hadoop enables companies to retain and make use of all the data they collect, performing complex analysis quickly and storing results securely over several distributed servers.
Traditional large-scale data processing was performed on several large computers. The advantage of this approach was that the increase in the size of the servers had no effect on the overall system architecture. The disadvantage was that scaling up was expensive.
Using a Hadoop framework, large-scale data processing can respond to increased demand by "scaling out": if the data set doubles, you distribute processing over two servers; if the data set quadruples, you distribute processing over four servers. This eliminates the strategy of growing computing capacity by throwing more expensive hardware at the problem.

Modules in Hadoop:
Hadoop common
Hadoop distributed file system
Hadoop YARN
Hadoop MapReduce
Cassandra
Resources needed for Installation:
Host
Host OS
Supported browser
4GB RAM minimum

Installation steps:
1.Open oracle VM virtual box manager
2.Change auto capture preference
3.Import sandbox appliance
4.Import virtual appliances
5.Turn on the sandbox and click on start
6.A console opens and displays the necessary instruction for sandbox
7.Use the browser open URL shown in the console.

RESULT:
Thus, the Apache Hadoop Installation was studied successfully.

EXERCISE 10:

AIM:
To Configure a single node cluster using Hadoop framework and write a map reduce application

MAP REDUCE:
-MapReduce is a programming framework that allows us to perform distributed and parallel processing on large data sets in a distributed environment.
-MapReduce consists of two distinct tasks — Map and Reduce.
-As the name MapReduce suggests, reducer phase takes place after the mapper phase has been completed.
-So, the first is the map job, where a block of data is read and processed to produce key-value pairs as intermediate outputs.
-The output of a Mapper or map job (key-value pairs) is input to the Reducer., The reducer receives the key-value pair from multiple map jobs.
-Then, the reducer aggregates those intermediate data tuples (intermediate key-value pair) into a smaller set of tuples or key-value pairs which is the final output.

PRCEDURE:
Step 1: Installing Java, is the primary requirement for running Hadoop on any system, so make sure you have Java installed on your system.
Step 2: Creating Hadoop User, we recommend creating a normal (nor root) account for Hadoop working. So, create a system account using following command.
Step 3: Downloading Hadoop 2.6.0,Now download Hadoop 2.6.0 source archive file using below command. You can also select alternate download mirror for increasing download speed.
Step 4: Configure Hadoop Pseudo-Distributed Mode, first we need to set environment variable uses by Hadoop. Hadoop has many of configuration files, which need to configure as per requirements of your Hadoop infrastructure. Now format the name node using commands.
Step 5: Start Hadoop Cluster, Let's start your Hadoop cluster using the scripts provides by Hadoop. Just navigate to your Hadoops bin directory and execute scripts one by one.
Step 6: Access Hadoop Services in Browser, Hadoop Name Node started on port 50070 default. Access your server on port 50070 in your favourite web browser.

MAP-REDUCE ALGORITHM :
-The input data can be divided into n number of chunks depending upon the amount of data and processing capacity of individual unit.
-Next, it is passed to the mapper functions. Please note that all the chunks are processed simultaneously at the same time, which embraces the parallel processing of data.
-After that, shuffling happens which leads to aggregation of similar patterns.
-Finally, reducers combine them all to get a consolidated output as per the logic.
-This algorithm embraces scalability as depending on the size of the input data, we can keep increasing the number of the parallel processing units.

RESULT:
Thus, the Map Reducer application executed successfully.