

Assessment No. 01

Aim: Case study on Amazon EC2/ Microsoft Azure/ Google Cloud platform.

Introduction to Google Cloud.

Google Cloud Platform is a suite of [public cloud](#) computing services offered by Google. The platform includes a range of hosted services for compute, storage and application development that run on Google hardware. Google Cloud Platform services can be accessed by software developers, cloud administrators and other enterprise IT professionals over the public internet or through a dedicated network connection.



Google Cloud

Google Cloud Platform, offered by [Google](#), is a suite of [cloud computing](#) services that runs on the same infrastructure that Google uses internally for its end-user products, such as [Google Search](#) and [YouTube](#). Alongside a set of management tools, it provides a series of modular cloud services including computing, [data storage](#), [data analytics](#) and [machine learning](#). Registration requires a [credit card](#) or bank account details.

Google Cloud Platform provides [Infrastructure as a service](#), [Platform as a service](#), and [Serverless computing](#) environments.

In April 2008, Google announced [App Engine](#), a platform for developing and hosting web applications in Google-managed data centers, which was the first cloud computing service from the company. The service became generally available in November 2011. Since the announcement of App Engine, Google added multiple cloud services to the platform.

Google Cloud Platform is a part ^[4] of **Google Cloud**, which includes the Google Cloud Platform public cloud infrastructure, as well as **G Suite**, enterprise versions of [Android](#) and [Chrome OS](#), and [application programming interfaces \(APIs\)](#) for [machine learning](#) and enterprise mapping services.



Key Services used by Google cloud are listed below:

- 1) Compute Engine.
- 2) Storage and Databases.
- 3) Networking.
- 4) Big Data.
- 5) Cloud AI.
- 6) Management Tools.
- 7) Identity and Security.
- 8) IOT.
- 9) API Platform.

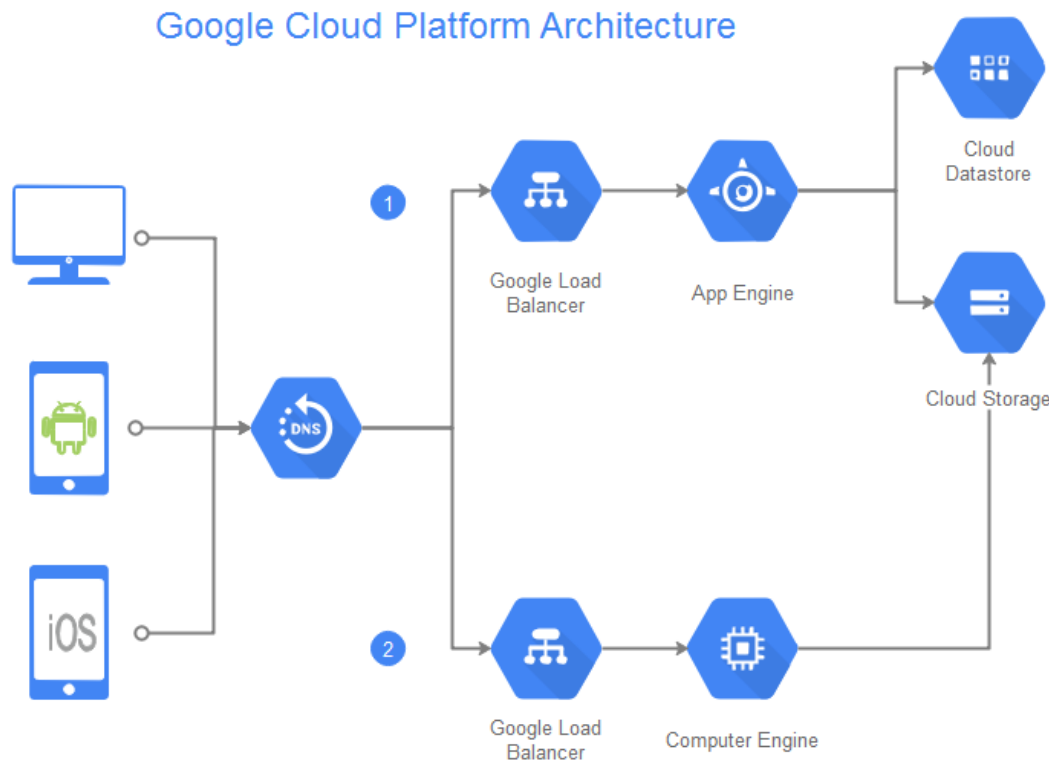
The **core cloud computing products** in Google Cloud Platform include:

Google Compute Engine, which is an infrastructure-as-a-service (IaaS) offering that provides users with virtual machine instances for workload hosting.

Google App Engine, which is a platform-as-a-service (PaaS) offering that gives software developers access to Google's scalable hosting. Developers can also use a software developer kit (SDK) to develop software products that run on App Engine.

Google Cloud Storage, which is a cloud storage platform designed to store large, unstructured data sets. Google also offers database storage options, including Cloud Datastore for NoSQL nonrelational storage, Cloud SQL for MySQL fully relational storage and Google's native Cloud Bigtable database.

Google Container Engine, which is a management and orchestration system for Docker containers that runs within Google's public cloud. Google Container Engine is based on the Google Kubernetes container orchestration engine.



Google Cloud Platform **offers** application development and integration services. For example, Google Cloud Pub/Sub is a managed and real-time messaging service that allows messages to be exchanged between applications. In addition, Google Cloud Endpoints allows developers to create services based on [RESTful APIs](#), and then make those services accessible to Apple iOS, Android and JavaScript clients. Other offerings include Anycast [DNS](#) servers, direct network interconnections, [load balancing](#), monitoring and logging services.


Google Cloud Platform pricing options

Like other public cloud offerings, most Google Cloud Platform services follow a pay-as-you-go model in which there are no upfront payments, and users only pay for the cloud resources they consume. Specific terms and rates, however, vary from service to service.

Google Cloud Platform certification

Google offers training programs and certifications related to Google Cloud Platform, including programs for cloud infrastructure, data and machine learning, application development and G suite administration, as well as an introductory program for its cloud platform. There are three Google cloud certifications an IT professional can earn: a Certified Professional Cloud Architect, a Certified Professional Data Engineer and a Certified Professional G Suite Administrator.

Applications: Google offers options for platform-as-a-service (PaaS), containers, and infrastructure-as-a-service (IaaS).

Product	Your needs	Product features	Typical use cases
 <p>Google App Engine</p> <p>A flexible, zero ops platform for building highly available apps</p>	<ul style="list-style-type: none"> You want to focus on writing code, and never want to touch a server, cluster, or infrastructure. You want to build a highly reliable and scalable serving app or component without doing it all yourself. You value developer velocity over infrastructure control. You want to minimize operational overhead. 	<ul style="list-style-type: none"> A range of curated serving stacks with smart defaults and deep customizability. Support for Java, Python, PHP, Go, Ruby, Node.js, and ASP.NET Core (beta) ... or bring your own app runtime. Integrated SDK, managed services, and local development environment. App versioning with zero-downtime upgrades. Traffic splitting. Automatic high availability with built-in auto-scaling. 	<ul style="list-style-type: none"> Web sites. Mobile app and gaming backends. RESTful APIs. Internal Line of Business (LOB) apps. Internet of things (IoT) apps.

Competition to Google Cloud Platform

The popularity of Amazon Web Services' public cloud makes it easy to overlook other large, competitive infrastructure as a service options, such as Google Cloud Platform. Most people are familiar with Google's cloud offerings through its online productivity software, Google Apps, which has been rebranded as G-Suite. However, its Google Cloud Platform services make it a serious cloud service competitor due to its infrastructure as a service option, known as Google Compute Engine, and platform as a service option, known as Google App Engine.

Advantages over others

Google Cloud Platform operates from redundant data centers in five regions, with several others set to open by 2017. The technology builds on the same infrastructure and data centers used for Google's consumer services, such as search, Gmail, Maps and YouTube. Because of this, few companies match Google's scale at building, optimizing and managing hyperscale infrastructure.

Like Amazon Web Services (AWS), Google Cloud Platform has connected, but geographically distributed, infrastructure deployed in regions and [availability zones](#); the former is a group of data centers in close proximity to enable automatic, site-level redundancy, while zones are widely separated regions that are isolated and independent. Google Cloud Platform reduces latency and [improves performance](#) through the synchronization of data between regions.

Room for improvement

Under [the leadership](#) of former VMware CEO Diane Greene, Google Cloud Platform is beefing up monitoring, logging, automation, identity management and networking features to attract enterprise customers. Additionally, Google Cloud Platform is focusing on application containerization by making a technology that Google itself has long used to streamline deployments and improve infrastructure efficiency available to public cloud users.

Google Certification

Become Google Cloud Certified and show the world that you can design, develop, manage and administer application infrastructure and data solutions on Google Cloud technology. The Google Cloud Certified designation means you've demonstrated the necessary skills to leverage Google Cloud technology in a way that transforms businesses and meaningfully impacts the people and customers they serve.

Gain industry recognition

Validate your technical expertise

Take your career to the next level

Google Cloud Platform not only allowed us access to one of the largest networks in the world, but also ensures customers have less downtime as we can now utilize live migrations of virtual machines. Today we want to dive deeper into some of the advantages of using Google Cloud Hosting for your business.

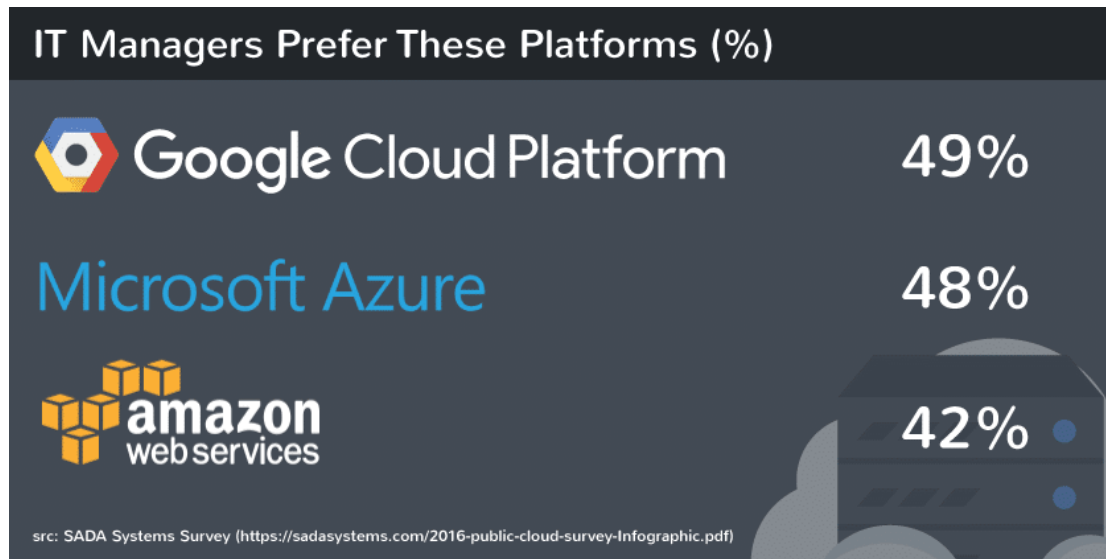
Google Cloud Hosting Advantages

Now let's take a look at some of the top advantages to using Google Cloud Hosting and why we think it is currently the best solution on the market as it pertains to pricing, performance, stability, scalability, backups, and security.

- [Better Pricing Than Competitors](#)
- [Private Global Fiber Network](#)
- [Live Migration of Virtual Machines](#)
- [Improved Performance](#)
- [State of the Art Security](#)
- [Dedication to Continued Expansion](#)
- [Redundant Backups](#)

Survey

SADA Systems recently [surveyed 200+ IT managers](#) about their use of public cloud services, and found that **84% of IT managers surveyed are using public cloud infrastructure today**, as opposed to corporate data centers. "All signs point to public cloud adoption growing and enterprise IT becoming more comfortable with the prospect of running their most sensitive data on public cloud infrastructure," says Tony Safoian, president and CEO at SADA Systems.



GCP Highlights.

Google Cloud Platform - GCP is fastest growing public Cloud Platform Services in the world. Last year Google has recorded 150% growth rate. Google in 2018 investing heavily in extending GCP services across the globe.

Google has committed many more data centers, Point of presence or edge locations around the world in 2018.

GCP is already prominent in Data Analytics, and Machine Learning offerings proven so many years and has added Storage, Compute platform, Database, Security and many more public cloud services for enterprises around the world.

Google has private fibre optic cable around the world. They have innovative data centers built to scale enterprise infrastructure and platform services requirements.

Assessment No. 02

AIM: Study and implementation of storage as a Service

Software used: Google Drive

Theory: Storage as a Service

Storage as a service (SaaS) is a business model in which a company leases or rents its storage infrastructure to another company or individuals to store data. Small companies and individuals often find this to be a convenient methodology for managing backups, and providing cost savings in personnel, hardware and physical space.

A company providing SaaS may be called a storage service provider (SSP). Storage as a service can also be referred to as hosted storage.

Examples: Google Drive.

Google Drive is a file storage and synchronization service developed by Google. Launched on April 24, 2012, Google Drive allows users to store files on their servers, synchronize files across devices, and share files. In addition to a website, Google Drive offers apps with offline capabilities for Windows and macOS computers, and Android and iOS smartphones and tablets. Google Drive encompasses Google Docs, Sheets and Slides, an office suite that permits collaborative editing of documents, spreadsheets, presentations, drawings, forms, and more. Files created and edited through the office suite are saved in Google Drive.

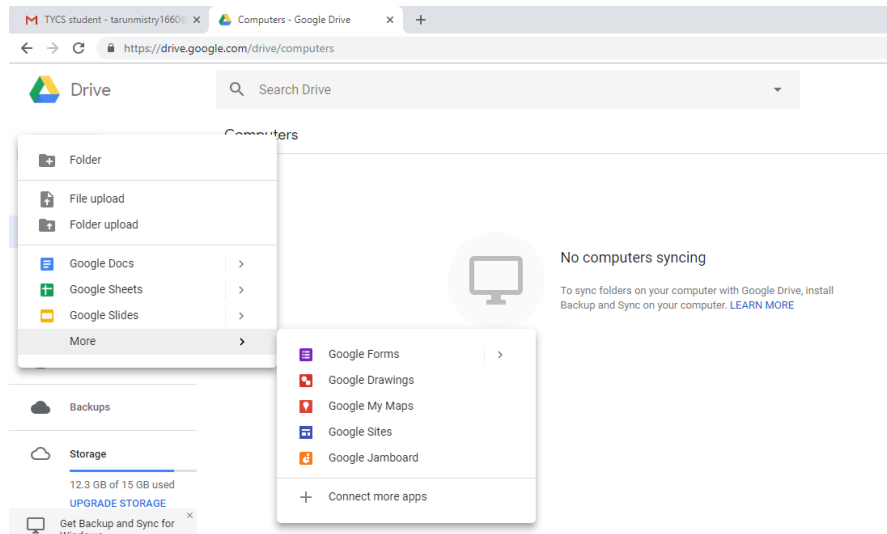
Google Drive offers users with 15 gigabytes of free storage through Google One. Google One also offers 100 gigabytes, 200 gigabytes, 2 terabytes, 10 terabytes, 20 terabytes, and 30 terabytes offered through optional paid plans. Files uploaded can be up to 5 terabytes in size. Users can change privacy settings for individual files and folders, including enabling sharing with other users or making content public. On the website, users can search for an image by describing its visuals, and use natural language to find specific files, such as "find my budget spreadsheet from last December".

Procedure and Output:

Step 1: Login to Gmail account

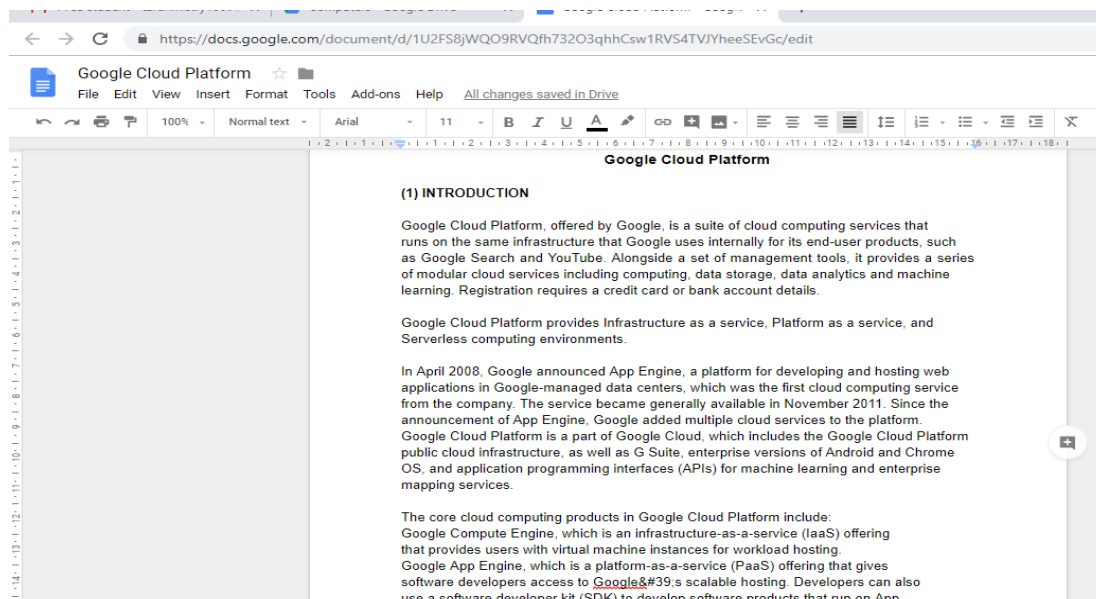
Step 2: Click on Google apps. Select Google Drive.

Step 3: Click on New.

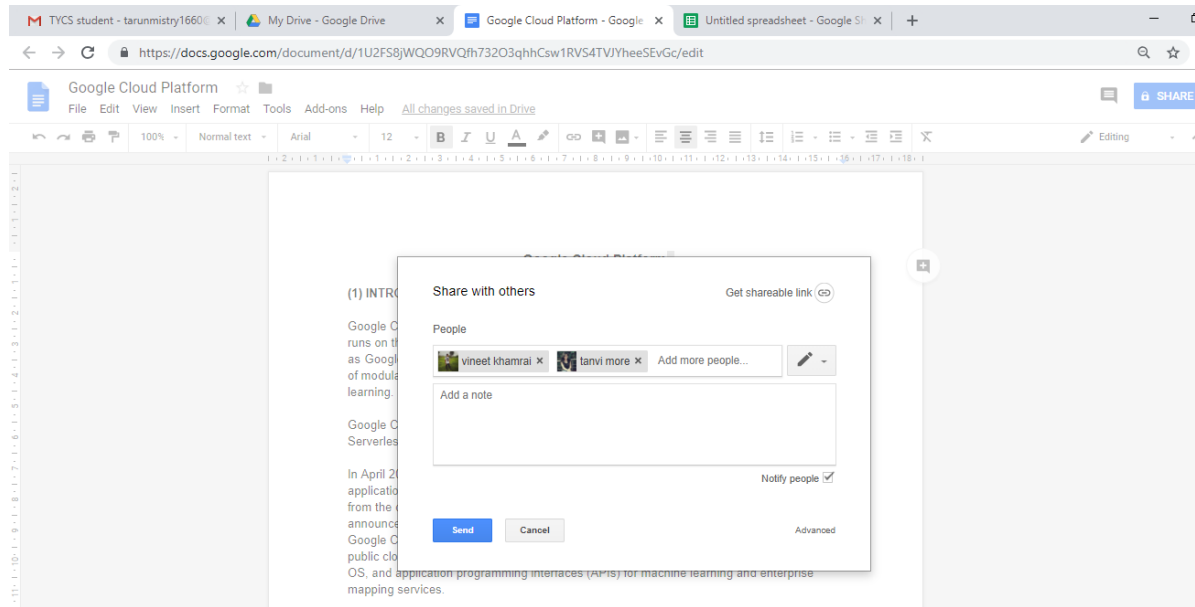


Step 4: Select Google Docs. Create a Document.

(1) Google Docs



Step 5: Share the document.



Step 6: Click on New. Select Google Spreadsheet. Create a Sheet & enter some data.

(2) Google Spreadsheet

The screenshot shows a Google Spreadsheet titled 'Database'. The menu bar includes File, Edit, View, Insert, Format, Data, Tools, Add-ons, and Help. The spreadsheet contains a table with the following data:

SR NO.	Name	Contact NO	Address
1	tarun	123456789	dahisar
2	tanvi	987654321	kandivalli
3	neel	132465798	mira road
4	vineet	124578963	borivali
5	inesh	123698745	borivali
6	pooja	321654987	bikaner
7	rohit	987456321	dahisar
8	plyu	654789123	kandivalli
9	guru	123987456	borivalli
10	avani	369852147	dahisar

Step 7: Click on New. Select Google Forms. Create a form on your suitable topic containing 5 or more questions.

(3) Google Forms

The screenshot shows a Google Form titled "Cloud Computing Form" with a purple header. The form is in edit mode, showing two questions. The first question is "Type of Cloud Application used/heard?" with a dropdown menu set to "Checkboxes". It has four options: "Google Cloud Platform", "Microsoft Azure", "Amazon AWS", and "Add option or ADD 'OTHER'". The second question is "According to you, which is the best Cloud computing tool?" with three radio button options: "Google Cloud Platform", "Microsoft Azure", and "Amazon AWS". The form has a "SEND" button in the top right corner and a "Required" toggle switch at the bottom right of the first question.

Conclusion: Google docs provide an efficient way for storage of data. It fits well in Storage as a Service (SaaS). It has varied option to create to create document, presentation & spreadsheets. It saves document automatically after a few seconds and can be shared anywhere on the internet at the click of a button.

Assessment No. 03

AIM: Installation and configuration of virtualization using KVM.

Software used: Ubuntu operating system open source KVM

Objective: To understand the concept of virtualization and KVM architecture and configuration.

Theory:

Procedure and Output:

Step 1: Execute the command

➤ **sudo apt update**

```
tycs@ubuntu:~$ sudo apt update
[sudo] password for tycs:
Hit:1 http://security.ubuntu.com/ubuntu bionic-security InRelease
Hit:2 http://us.archive.ubuntu.com/ubuntu bionic InRelease
Hit:3 http://us.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu bionic-backports InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
405 packages can be upgraded. Run 'apt list --upgradable' to see them.
tycs@ubuntu:~$ sudo grep -c "svm\|vmx" /proc/cpuinfo
[sudo] password for tycs:
0
```

Step 2: Execute the command

- **sudo apt-get install qemu-kvm virt-manager**
- **sudo apt-get install libvirt-bin virt-manager**
- **sudo apt-get install bridge-utils virt-manager**

```
tycs@ubuntu:~$ sudo apt-get install bridge-utils virt-manager
Reading package lists... Done
Building dependency tree
Reading state information... Done
bridge-utils is already the newest version (1.5-15ubuntu1).
bridge-utils set to manually installed.
virt-manager is already the newest version (1:1.5.1-0ubuntu1.1).
0 upgraded, 0 newly installed, 0 to remove and 402 not upgraded.
```

```
tycs@ubuntu:~$ sudo apt-get install libvirt-bin virt-manager
Reading package lists... Done
Building dependency tree
Reading state information... Done
virt-manager is already the newest version (1:1.5.1-0ubuntu1.1).
The following NEW packages will be installed:
  libvirt-bin
0 upgraded, 1 newly installed, 0 to remove and 402 not upgraded.
Need to get 0 B/5,796 B of archives.
After this operation, 120 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Selecting previously unselected package libvirt-bin.
(Reading database ... 129150 files and directories currently installed.)
Preparing to unpack .../libvirt-bin_4.0.0-1ubuntu8.6_amd64.deb ...
Unpacking libvirt-bin (4.0.0-1ubuntu8.6) ...
Setting up libvirt-bin (4.0.0-1ubuntu8.6) ...
```

```
tycs@ubuntu:~$ sudo apt-get install qemu-kvm virt-manager
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  augeas-lenses bridge-utils cpu-checker dmeventd ebttables
  gir1.2-appindicator3-0.1 gir1.2-gtk-vnc-2.0 gir1.2-libosinfo-1.0
  gir1.2-libvirt-glib-1.0 gir1.2-spiceclientglib-2.0
  gir1.2-spiceclientgtk-3.0 ibverbs-providers ipxe-qemu
  ipxe-qemu-256k-compatible-efi-roms libaio1 libaugeas0 libcacard0
  libdevmapper-event1.02.1 libfdt1 libgovirt-common libgovirt2
  libgtk-vnc-2.0-0 libibverbs1 libiscsi7 liblvm2app2-2
```

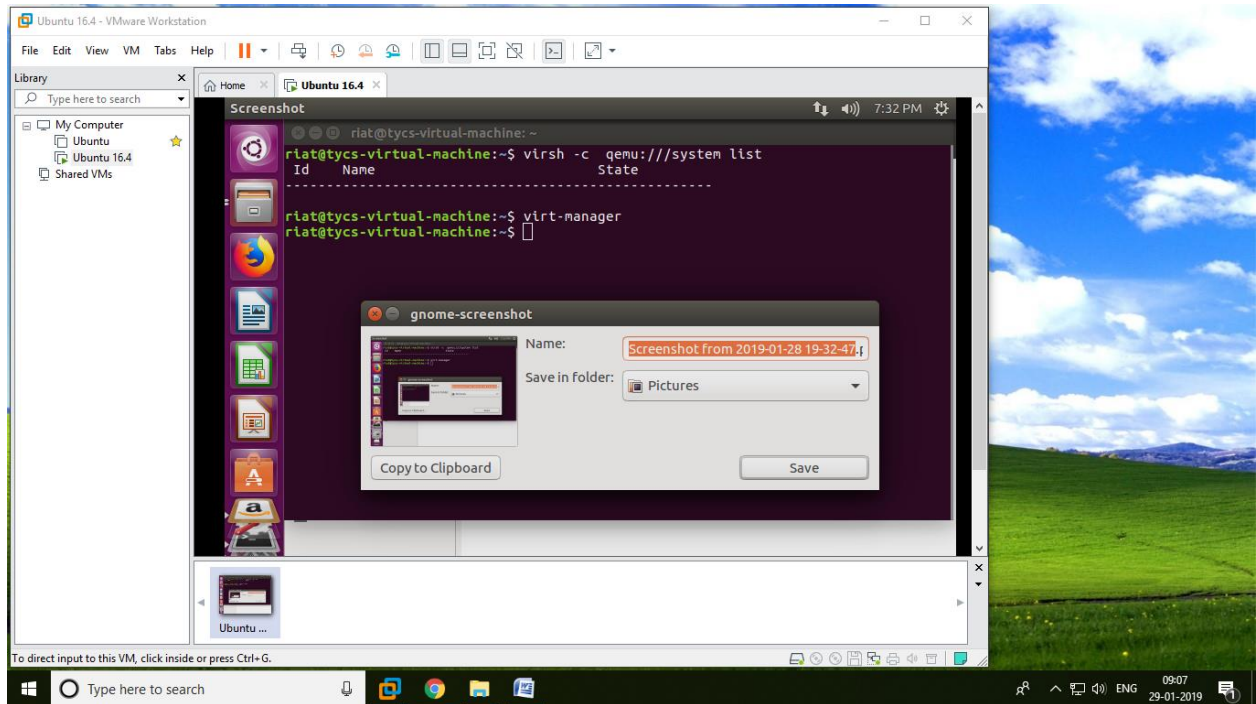
Step 3: Execute the command

- **sudo adduser riat**
- **sudo adduser riat libvirtd**

```
tycs@ubuntu:~$ sudo adduser riat
Adding user `riat' ...
Adding new group `riat' (1001) ...
Adding new user `riat' (1001) with group `riat' ...
Creating home directory `/home/riat' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for riat
Enter the new value, or press ENTER for the default
  Full Name []: Ubuntu Virtual Machine
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
Is the information correct? [Y/n] y
```

Step 4: Reboot and Execute the command

- **virsh -c qemu:///system list**
- **virt-manager**



Conclusion: We have successfully installed and configured virtualization using KVM.

Assessment No. 04

AIM: Study of Cloud Security Management.

Software used: Amazon AWS and Internet.

Theory:

Amazon AWS

- Amazon Web Services (AWS) is a subsidiary of Amazon that provides on-demand cloud computing platforms to individuals, companies and governments, on a paid subscription basis.
- The technology allows subscribers to have at their disposal a virtual cluster of computers, available all the time, through the Internet.
- AWS's version of virtual computers emulate most of the attributes of a real computer including hardware (CPU(s) & GPU(s) for processing, local/RAM memory, hard-disk/SSD storage); a choice of operating systems; networking; and pre-loaded application software such as web servers, databases, CRM, etc.
- Each AWS system also virtualizes its console I/O (keyboard, display, and mouse), allowing AWS subscribers to connect to their AWS system using a modern browser. The browser acts as a window into the virtual computer, letting subscribers log-in, configure and use their virtual systems just as they would a real physical computer.
- They can choose to deploy their AWS systems to provide internet-based services for themselves and their customers.

Cloud Security Management

- Cloud computing security or, more simply, cloud security refers to a broad set of policies, technologies, applications, and controls utilized to protect virtualized IP, data, applications, services, and the associated infrastructure of cloud computing. It is a sub-domain of computer security, network security, and, more broadly, information security.

Procedure and output:

Step 1: Go to aws.amazon.com → Click on create an AWS Account & Fill the details accordingly.



Contact Information

All fields are required.

Please select the account type and complete the fields below with your contact details.

Account type ⓘ
☐ Professional ☒ Personal

Full name

Phone number

Country/Region

* If you select India, your country/region selection cannot be changed after creating the account

Address

City

State / Province or region

Postal code

Amazon Internet Services Pvt. Ltd. Customer Agreement
Customers with an India contact address are now required to contract with Amazon Internet Service Private Ltd. (AISPL). AISPL is the local seller for AWS infrastructure services in India.

☒ Check here to indicate that you have read and agree to the terms of the [AISPL Customer Agreement](#)

[Create Account and Continue](#)

Step 2: Payment info (Debit/Credit Card) → Close the Browser → Login to aws.amazon.com → Click on MyAccount → AWS Management Console → Enter your E-mail ID → Next

Amazon Web Services Sign-In

Sign in ⓘ

Email address of your AWS account
 Or to sign in as an IAM user, enter your account ID or account alias instead.

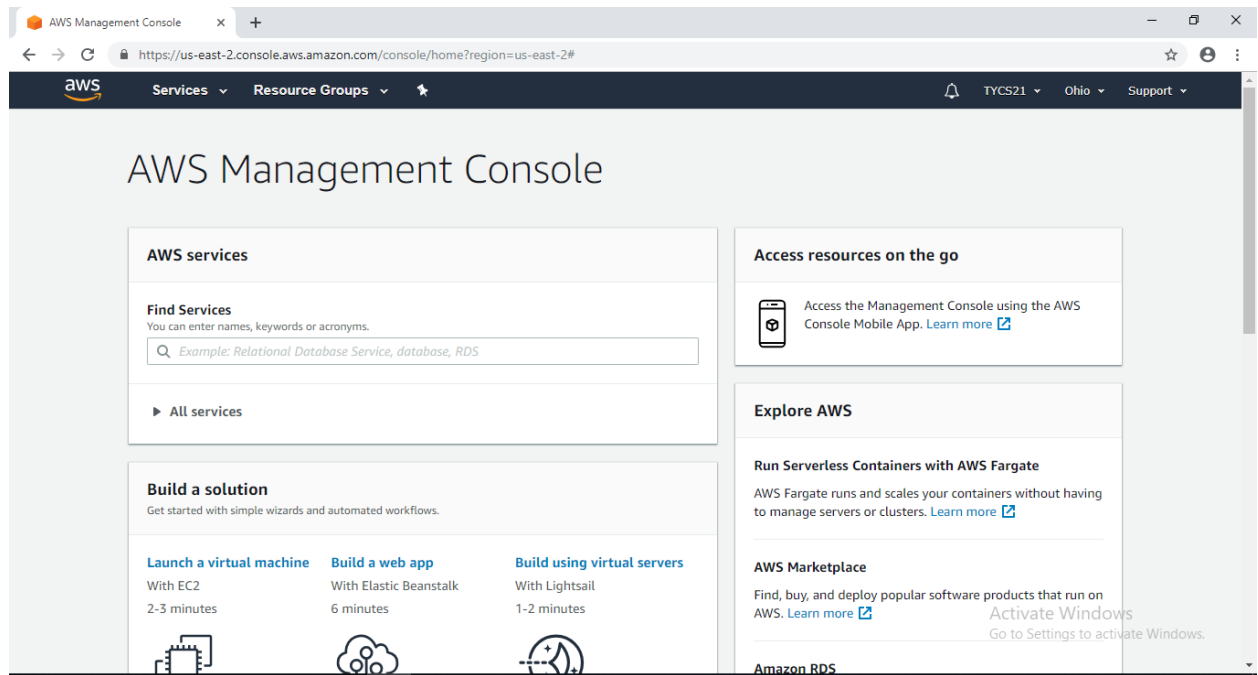
[Next](#)

[New to AWS?](#)
[Create a new AWS account](#)

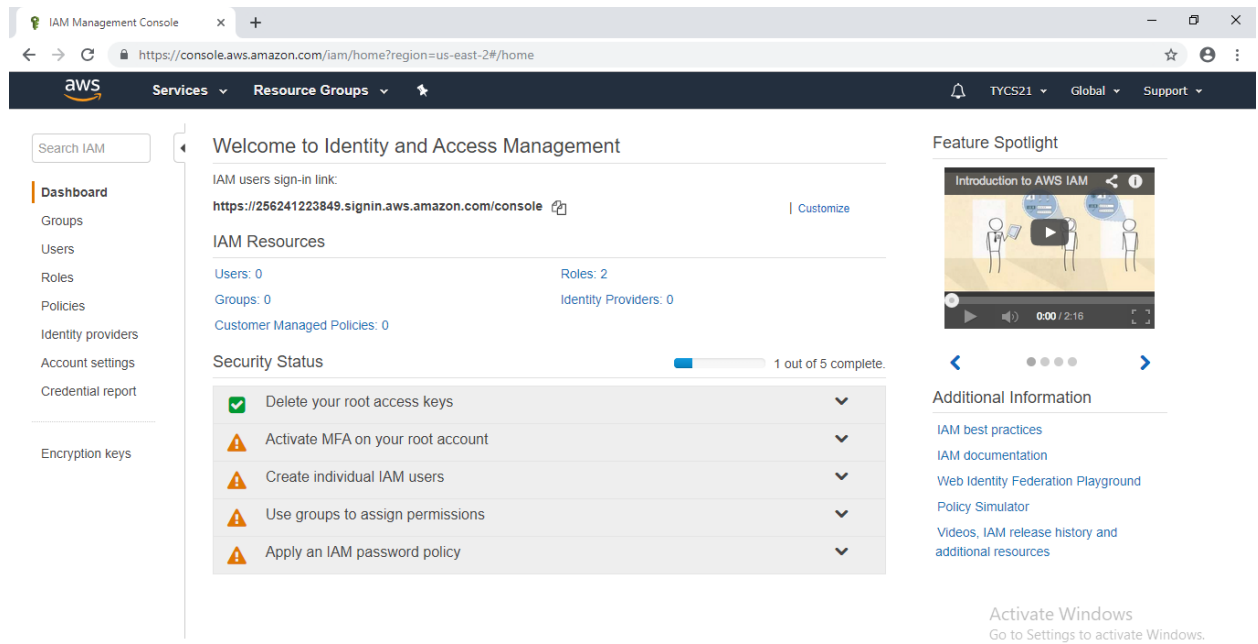
AWS Accounts Include 12 Months of Free Tier Access
 Including use of Amazon EC2, Amazon S3, and Amazon DynamoDB
Visit aws.amazon.com/free for full offer terms.

About Amazon.com Sign In
Amazon Web Services uses information from your Amazon.com account to identify you and allow access to Amazon Web Services. Your use of this site is governed by our

Activate Windows
 Go to Settings to activate Windows.



Step 3: Services → IAM(Identity & Access Management).



Step 4: Creating User → Add User → Username - Demo1 → Access type - Check into Programmatic access

Add user

1 2 3 4 5

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name* Demo1

[Add another user](#)

Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

Access type* ☒ **Programmatic access**
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.

☐ **AWS Management Console access**
Enables a **password** that allows users to sign-in to the AWS Management Console.

* Required

[Cancel](#) [Next: Permissions](#)

Step 5: Creating Group → Enter Group Name – tycs → Select policies – AdministratorAccess & AmazonAPIGatewayAdministrator → Click on Create Group.

Create group

Create a group and select the policies to be attached to the group. Using groups is a best-practice way to manage users' permissions by job functions, AWS service access, or your custom permissions. [Learn more](#)

Group name TYCS

[Create policy](#) [Refresh](#)

Filter policies Search Showing 424 results

	Policy name	Type	Used as	Description
<input checked="" type="checkbox"/>	AdministratorAccess	Job function	None	Provides full access to AWS services and resources.
<input type="checkbox"/>	AlexaForBusinessDevic...	AWS managed	None	Provide device setup access to AlexaForBusiness services
<input type="checkbox"/>	AlexaForBusinessFullAc...	AWS managed	None	Grants full access to AlexaForBusiness resources and acc...
<input type="checkbox"/>	AlexaForBusinessGate...	AWS managed	None	Provide gateway execution access to AlexaForBusiness se...
<input type="checkbox"/>	AlexaForBusinessRead...	AWS managed	None	Provide read only access to AlexaForBusiness services

[Cancel](#) [Create group](#)

Step 6: Check on Group Name- tycs → Click on Next Tags → Click on Next → Click on Create User.

Add user

1 2 3 **4** 5

Review

Review your choices. After you create the user, you can view and download the autogenerated password and access key.

User details

User name	Demo1
AWS access type	Programmatic access - with an access key
Permissions boundary	Permissions boundary is not set

Permissions summary

The user shown above will be added to the following groups.

Type	Name
Group	TYCS

Tags

Cancel Previous **Create user**

Step 7: Check on Demo1 → Click on Demo1.

Summary

Search IAM

Dashboard
Groups
Users
Roles
Policies
Identity providers
Account settings
Credential report
Encryption keys

User ARN arn:aws:iam::428117991377:user/Demo1

Path /

Creation time 2019-02-11 08:08 UTC+0530

Permissions Groups (1) Tags Security credentials Access Advisor

▼ Permissions policies (2 policies applied)

Add permissions [Add inline policy](#)

Policy name	Policy type
Attached from group	
AdministratorAccess	AWS managed policy from group tycs
AmazonAPIGatewayAdministrator	AWS managed policy from group tycs
Permissions boundary (not set)	

aws.amazon.com/iam/privacy/ © 2008 - 2019, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Step 8: Click on Add Permissions → Attach existing policies → Check on AdministratorAccess & AmazonAPIGatewayAdministrator.

Add permissions to Demo1

Grant permissions

Use IAM policies to grant permissions. You can assign an existing policy or create a new one.

Filter policies Showing 424 results

	Policy name	Type	Used as	Description
<input checked="" type="checkbox"/>	AdministratorAccess	Job function	Permissions policy (1)	Provides full access to AWS services and resources.
<input type="checkbox"/>	AlexaForBusinessDeviceS...	AWS managed	None	Provide device setup access to AlexaForBusiness services
<input type="checkbox"/>	AlexaForBusinessFullAccess	AWS managed	None	Grants full access to AlexaForBusiness resources and access to ...
<input type="checkbox"/>	AlexaForBusinessGateway...	AWS managed	None	Provide gateway execution access to AlexaForBusiness services
<input type="checkbox"/>	AlexaForBusinessReadOnl...	AWS managed	None	Provide read only access to AlexaForBusiness services

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Step 9: Click on Next:Review → Click on Add Permission.

Search IAM

Users > Demo1

Summary

User ARN: am:aws:iam::428117991377:user/Demo1
 Path: /
 Creation time: 2019-02-11 08:08 UTC+0530

Permissions Groups (1) Tags Security credentials Access Advisor

Permissions policies (4 policies applied)

Policy name	Policy type
Attached directly	
AdministratorAccess	AWS managed policy
AmazonAPIGatewayAdministrator	AWS managed policy
Attached from group	
AdministratorAccess	AWS managed policy from group tyca
AmazonAPIGatewayAdministrator	AWS managed policy from group tyca
Permissions boundary (not set)	

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Step 10: Click on AdministratorAccess.

The screenshot shows the AWS IAM console interface. On the left is a navigation menu with options like Dashboard, Groups, Users, Roles, Policies (selected), Identity providers, Account settings, Credential report, and Encryption keys. The main area displays the 'AdministratorAccess' policy summary. It includes the Policy ARN (arn:aws:iam::aws:policy/AdministratorAccess) and a description: 'Provides full access to AWS services and resources.' Below this are tabs for Permissions, Policy usage, Policy versions, and Access Advisor. The 'Permissions' tab is active, showing a 'Policy summary' button and a message: 'A summary for this policy cannot be generated. You can still view or edit the JSON policy document.' A JSON snippet is visible, showing the policy version '2012-10-17' and a statement with 'Effect': 'Allow' and 'Action': '*'.

Step 11: Click on Security Credentials → Click on Create Access Key.

The screenshot shows the AWS IAM console 'Add user' page. A success message indicates that users were successfully created. Below the message is a 'Download .csv' button. A table lists the created users and their access keys. The table has columns for 'User', 'Access key ID', and 'Secret access key'. One user, 'Demo1', is listed with an access key ID of 'AKIAJTU3IGSF7NYOQ2HQ' and a secret access key represented by asterisks and a 'Show' link. At the bottom right, there is a watermark for 'Activate Windows'.

User	Access key ID	Secret access key
✓ Demo1	AKIAJTU3IGSF7NYOQ2HQ	***** Show

Create access key

Success

This is the **only** time that the secret access keys can be viewed or downloaded. You cannot recover them later. However, you can create new access keys at any time.

Download .csv file

Access key ID	Secret access key
AKIAICBSLF6SQQ4REH2Q	ypIQWuSkWqziqAM87hiOdPuqV4RSjtVS4ZHpkJRV Hide

Close

Step 12: Click on Manage under Assigned MFA device → Check on Virtual MFA device → Scan the QR Code on your Mobile using (**Google Authenticator App**) → Enter the Two consecutive MFA Code which generates on your device. → Click on assign MFA.

Set up virtual MFA device

- Install a compatible app on your mobile device or computer
See a [list of compatible applications](#)
- Use your virtual MFA app and your device's camera to scan the QR code

Alternatively, you can type the secret key. [Show secret key](#)
- Type two consecutive MFA codes below

MFA code 1

MFA code 2

Cancel Previous **Assign MFA**

CONCLUSION: We have studied how to secure the cloud and its data. Amazon AWS provides the best security with its extended facilities and services like MFA device. It also gives user the ability to add your own permissions and policies for securing data in more encrypted form.

Assessment No. 05

AIM: Write a program for web feed.

Software used: Visual Studio 2010, RSS Builder.

Objective: To understand the concept of form and control validation.

Theory:

What is RSS?

It is a format to share data, defined in the [1.0 version](#) of XML. You can deliver information in this format et one can get this information, and information from other various sources, in this format. Information provided by a website in an XML file is called an RSS feed.

Recent browsers can read directly RSS files, but a special **RSS reader** or **aggregator** may be used too.

History

Created by Netscape in 1999. The first version is 0.90. Followed by the 0.91 version that has been improved by the Userland company in 2000.

In 2000 the version 1.0 based on RDF was created by O'Reilly and further maintained by the RSS-DEV group, and named **RDF Site Summary**.

RSS 2.0 was defined by Dave Winer (previously worker at Userland) at Harvard University in 2002.

This page is based on the **Really Simple Syndication**, 2.01 specification from Harvard.

Why use RSS?

To get information or news provided by websites in a format computers can process. To display it on a website or to read it yourself.

And for the provider of the content, this allows it to send news about its site.

RSS, how it works?

The RSS system to publish articles and news over the web is very simple:

1. There are firstly some web pages, one want to be displayed by other websites.
This set of pages is the RSS feed.
2. An XML file that defines the RSS feed. This file holds URL, title and summary of each page to display.
3. A person which want to read the feed on its computer. He (she) uses an RSS reader or its browser and just adds the feed with the proper command of its software.
4. Or another website that wants to display the feed. It has to load the RSS file from the provider, to extract URL of pages, and display titles and summaries. This may be performed by a PHP script.
5. When someone visits the website of the receiver, the script is launched, it recalls the RSS file from the provider's website and displays a list of news from extracted data.
6. By a click on a line of the list, visitors display a page from the provider.

Structure of an RSS document

It is an XML file and the global container is the "RSS" tag for the 2.0 format.

The file holds one channel at least, this is the website that provides the information.

The channel provides some articles or data. These are web pages from the same site, or from other sites.

Procedure & output:

Step 1: Download and install RSS builder

Step 2: Open RSS Builder Application & fill the following information.

The screenshot shows the RSS Builder application window titled "RSS Builder - rss.xml". The interface includes a menu bar (File, Topic, View, Settings, Help) and a toolbar with icons for file operations and a PayPal donate button. The main area is divided into several panels:

- Feed Properties:**
 - Title: W3School
 - Website URL: http://www.w3schools.com
 - Copyright: 1999-2019
 - Language: en-us - English - United States (dropdown)
 - Editor: author@w3school.com
 - Webmaster: webmaster@w3school.com
 - Description: This is a feed for w3school.
- Image Properties:**
 - Image URL: (empty text box)
 - Width: (empty text box)
 - Height: (empty text box)
- Style Sheet:**
 - Type: text/xsl (dropdown)
 - Link: (empty text box)
- Topic Properties:** (Active tab)

Topic Title	Date
New RSS Feed	Mon, 18 Feb 2019 08:06:12

 - Title: New RSS Feed
 - Link GUID: http://w3schools.com
 - Category: General
 - Comments: http://w3schools.com/comments.aspx
 - Author: author@w3school.com
 - Publish Date: Mon, 18 Feb 2019 08:06:12 (dropdown) GMT Offset: 5 (spinner)
 - Description: HTML Editor


```
<strong>A new feed was added to the list i.e W3School</strong>
```

At the bottom left, there is a "Done" button.

Save the RSS feed in the folder with name rss.xml.

Step 3: Open Visual Studio 2010 → File menu → New WebSite → Select Visual C# → Open New ASP.NET Website → E:\TYCS CLOUD33\WebSite1

Step 4: Copy the rss.xml to E:\TYCS CLOUD33\WebSite1.

CODE:**rss.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<rss version="2.0">
  <channel>
    <generator>RSS Builder by B!Soft</generator>
    <title>W3School</title>
    <link>http://www.w3schools.com</link>
    <description>This is a feed for w3school.</description>
    <language>en-us</language>
    <managingEditor>author@w3school.com</managingEditor>
    <webMaster>webmaster@w3school.com</webMaster>
    <copyright>1999-2019</copyright>
    <item>
      <title>New RSS Feed</title>
      <pubDate>Mon, 18 Feb 2019 08:06:12 +0500</pubDate>
      <link>http://w3schools.com</link>
      <author>author@w3school.com</author>
      <comments>http://w3schools.com/comments.aspx</comments>
      <category>General </category>
      <description><![CDATA[<strong>A new feed was added to the list i.e
W3School</strong>]]></description>
    </item>
  </channel>
</rss>

```

Default.aspx

```

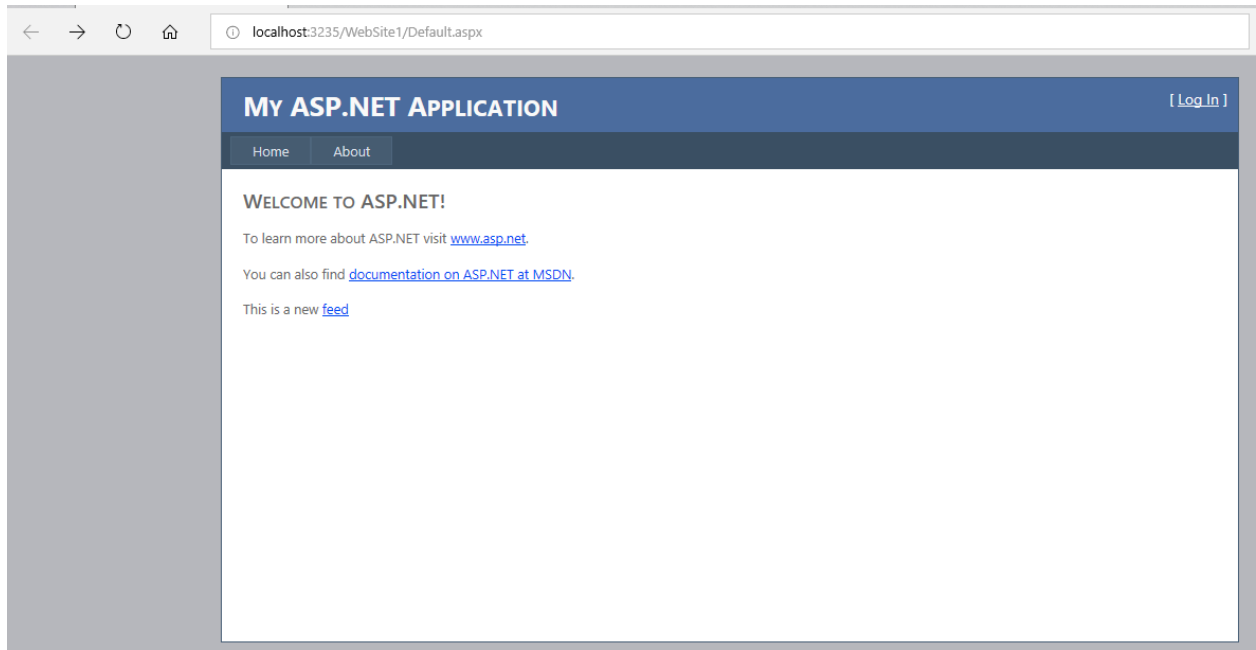
<% @ Page Title="Home Page" Language="C#" MasterPageFile="~/Site.master"
AutoEventWireup="true"
CodeFile="Default.aspx.cs" Inherits="_Default" %>

<asp:Content ID="HeaderContent" runat="server" ContentPlaceHolderID="HeadContent">
</asp:Content>
<asp:Content ID="BodyContent" runat="server" ContentPlaceHolderID="MainContent">
  <h2>
    Welcome to ASP.NET!
  </h2>
  <p>
    To learn more about ASP.NET visit <a href="http://www.asp.net" title="ASP.NET
Website">www.asp.net</a>.
  </p>
  <p>
    You can also find <a
href="http://go.microsoft.com/fwlink/?LinkID=152368&amp;clid=0x409"
title="MSDN ASP.NET Docs">documentation on ASP.NET at MSDN</a>.
  </p>

```

```
<p>This is a new <a href="rss.xml">feed</a></p>  
</asp:Content>
```

Output:



Conclusion: The program for Web Feed was executed successfully.

Assessment No. 06

AIM: Study and Implementation of Single-Sign-On (SSO)

Software used:

Objective: To Understand the Concept of SSO Use Advantages of SSO.

Theory:

Single-Sign-On (SSO)

- Single sign-on (SSO) is a property of access control of multiple related, yet independent, software systems.
- With this property, a user logs in with a single ID and password to gain access to a connected system or accomplished using the Lightweight Directory Access Protocol (LDAP) and stored LDAP databases on (directory) servers.
- A simple version of single sign-on can be achieved over IP networks using cookies but only if the sites share a common DNS parent domain.
- Conversely, single sign-off is the property whereby a single action of signing out terminates access to multiple software systems.

Application:

- As different applications and resources support different authentication mechanisms, single sign-on must internally store the credentials used for initial authentication and translate them to the credentials required for the different mechanisms.
- For clarity, it is best to refer to systems requiring authentication for each application but using the same credentials from a directory server as Directory Server Authentication and systems where a single authentication provides access to multiple applications by passing the authentication token seamlessly to configured applications as single sign-on.
- An increasing number of federated social logons, like Facebook Connect do require the user to enter consent choices at first registration with a new resource and so are not always single sign-on in the strictest sense.
- SSO shares centralized authentication servers that all other applications and systems use for authentication purposes and combines this with techniques to ensure that users do not have to actively enter their credentials more than once.

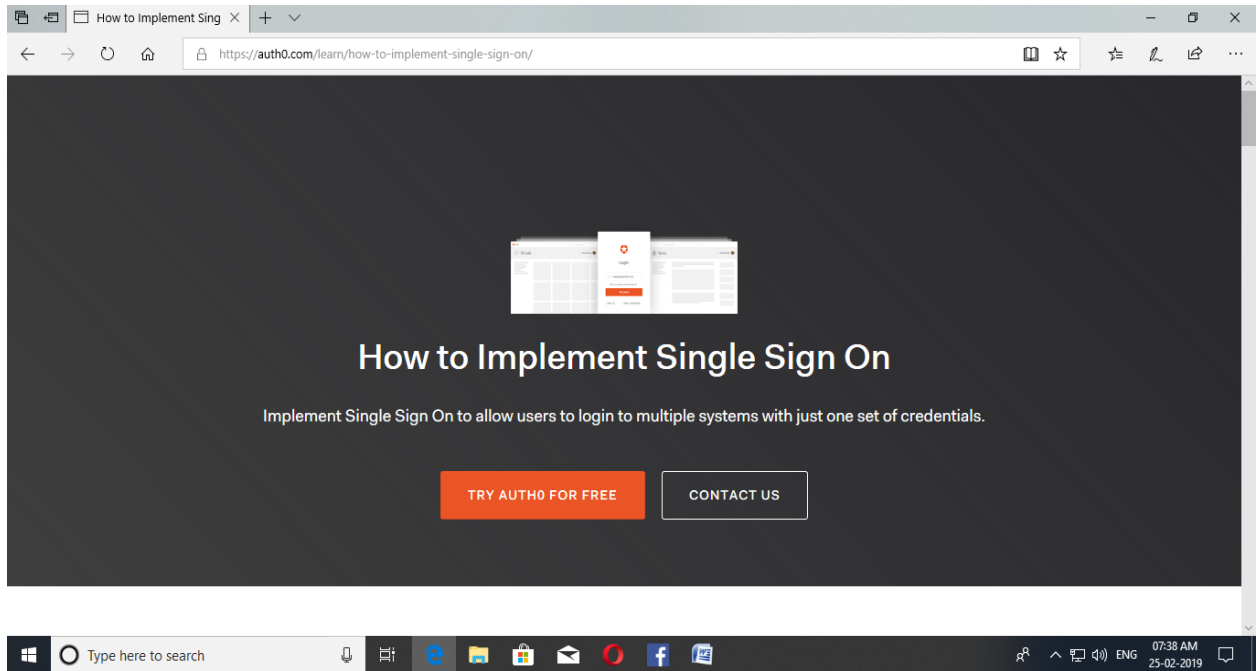
Advantage:

➤ **Benefits of using single sign-on include:**

- Mitigate risk for access to 3rd-party sites (user passwords not stored or managed externally)
- Reduce password fatigue from different username and password combinations
- Reduce time spent re-entering passwords for the same identity
- Reduce IT costs due to lower number of IT help desk calls about passwords

Procedure and output:

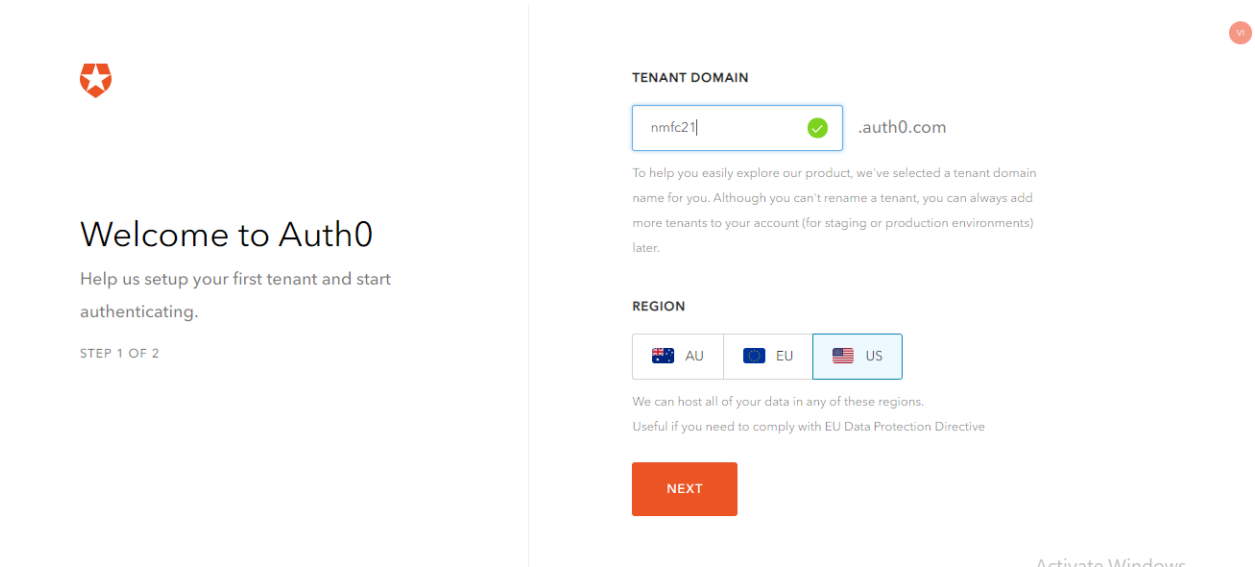
Step 1: Go to link- <https://auth0.com/learn/how-to-implement-single-sign-on/>



Step 2: Enter your mail-id and password and click on Sing-up.

A screenshot of the Auth0 'Sign Up' page. On the left, there is promotional text: 'Try the world's #1 authentication-as-a-service platform for free!', 'Let Auth0 handle the complexities of secure authentication so you can focus on building your app!', and a list of features including '7,000 free active users & unlimited logins', 'Passwordless', 'Lock for Web, iOS & Android', 'Up to 2 social identity providers', and 'Unlimited Serverless Rules'. It also states 'Built for developers' and 'Powered for the enterprise'. On the right, the 'Sign Up' form is shown with fields for 'Email' (containing 'siddhesh007k@gmail.com') and 'Password' (masked with dots). Below the form, there is a checkbox for 'I agree to the terms of service' and a large orange 'SIGN UP' button. At the bottom, there are two social login options: 'SIGN UP WITH GITHUB' and 'SIGN UP WITH GOOGLE'.

Step 3: Enter your tenant domain name and click next.



Welcome to Auth0

Help us setup your first tenant and start authenticating.

STEP 1 OF 2

TENANT DOMAIN

nmfc21 .auth0.com

To help you easily explore our product, we've selected a tenant domain name for you. Although you can't rename a tenant, you can always add more tenants to your account (for staging or production environments) later.

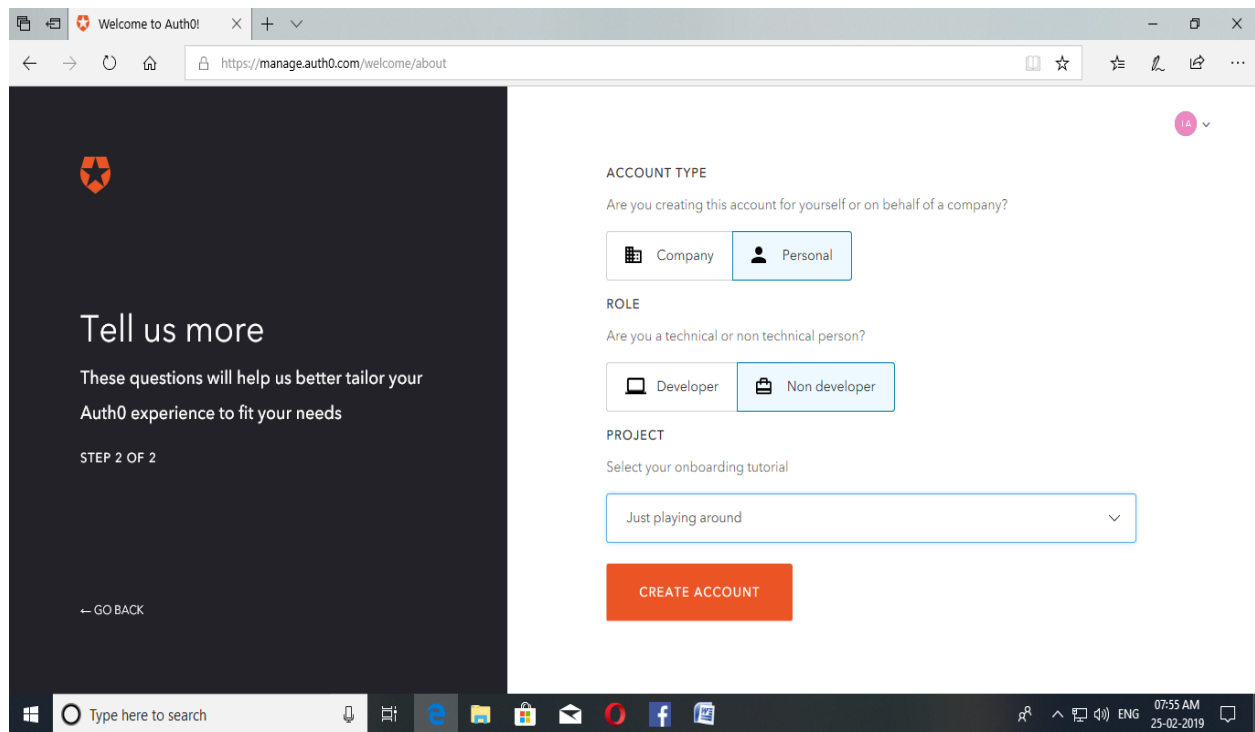
REGION

AU EU US

We can host all of your data in any of these regions. Useful if you need to comply with EU Data Protection Directive

NEXT

Step 4: Select Account Type as Personal, Role as – Non-Developer & Project as – Just playing around. And then create account.



Tell us more

These questions will help us better tailor your Auth0 experience to fit your needs

STEP 2 OF 2

ACCOUNT TYPE

Are you creating this account for yourself or on behalf of a company?

Company Personal

ROLE

Are you a technical or non technical person?

Developer Non developer

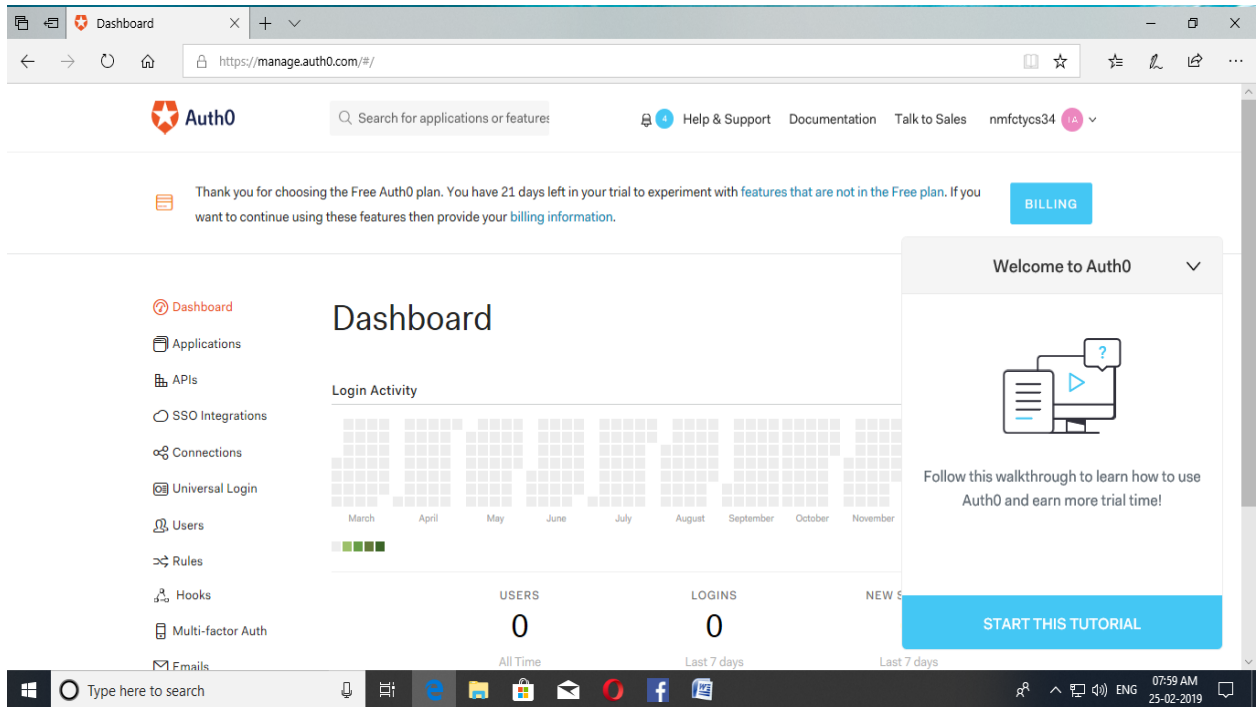
PROJECT

Select your onboarding tutorial

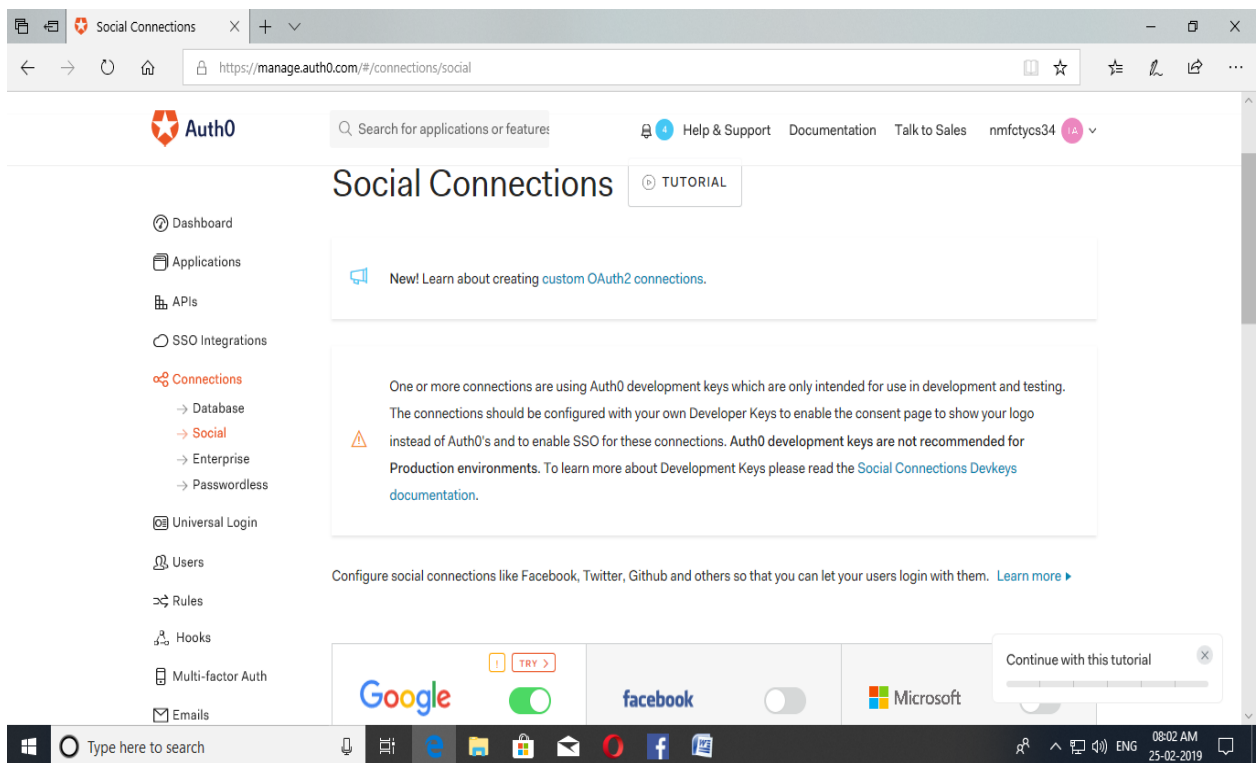
Just playing around

CREATE ACCOUNT

Step 5: You will get redirected to your Dashboard.

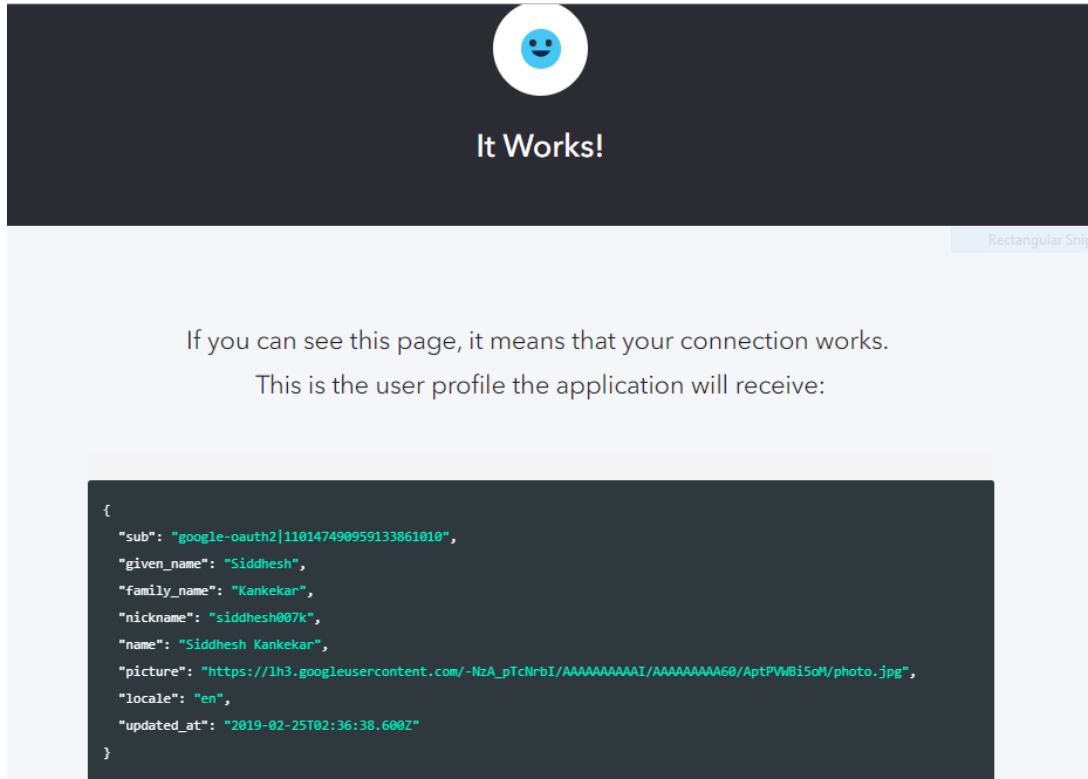


Step 6: Go to Connections → Social



Step 7: Select your account.

Output:



Conclusion: We have successfully studied and implemented SSO (Single-Sign-On).