

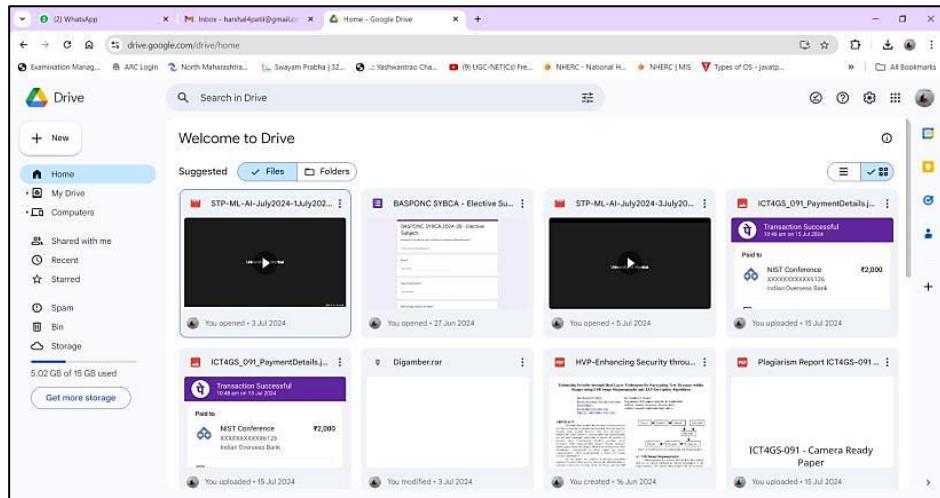
Practical 1. Working on Google Drive to make Spreadsheets and Notes.

1. Working on Google Drive to make Spreadsheets

• Step-by-Step Guide for Google Spreadsheets

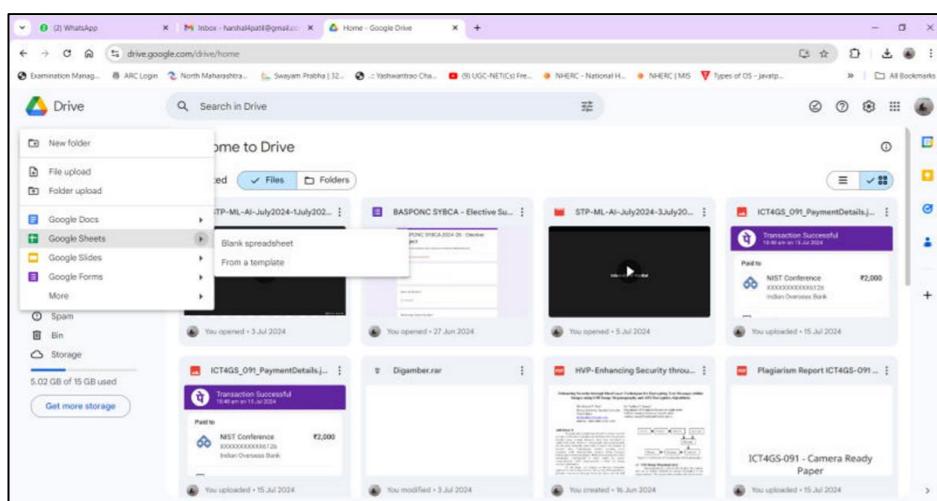
Step 1: Access Google Drive

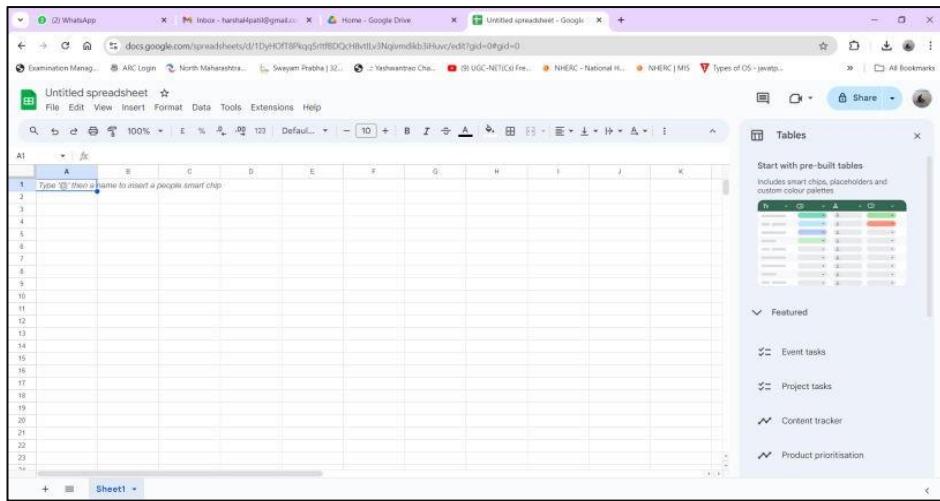
- Open your browser and go to [Google Drive](<https://drive.google.com>).
- Sign in with your Google account if you're not already logged in.



Step 2: Create a New Spreadsheet

- Click on the "+ New" button on the left side of the screen.
- Select "Google Sheets" from the dropdown menu.

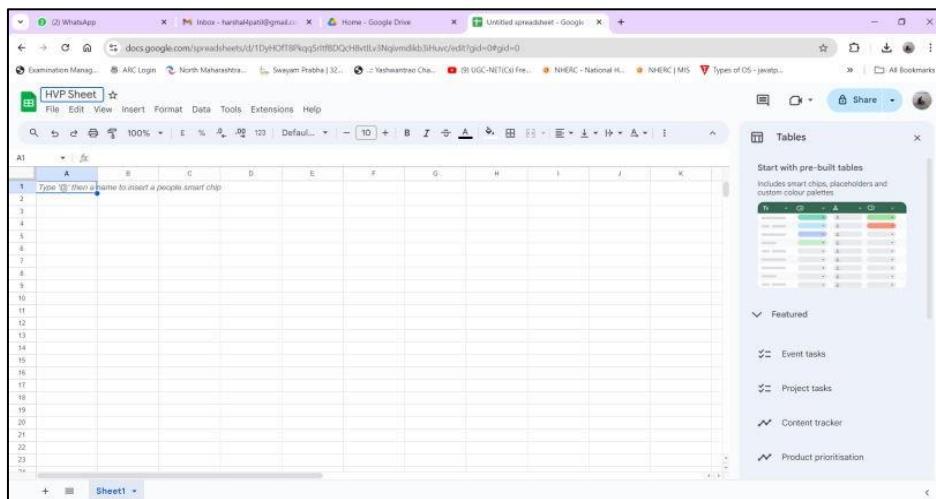




Step 3: Start Editing Your Spreadsheet □ Name

Your Spreadsheet:

- Click on "Untitled spreadsheet" at the top-left corner and enter a name for your spreadsheet.



- Enter Data:**

- Click on any cell to start typing your data.
- Use the `Tab` key to move to the next cell on the right.
- Use the `Enter` key to move to the next cell below.

The screenshot shows a Google Sheets document titled "HVP Sheet". The spreadsheet contains a table with the following data:

Sr. No	Student Name	Subject 1	Subject 2	Subject 3	Subject 4	Total Marks
1	Harshal	80	75	68	85	
2	Purva	65	69	79	90	
3	Bhakti	78	87	56	84	
4	Bhushan	58	77	82	47	
5	Nitesh	69	58	65	62	
6	Rahul	75	45	48	55	
7	Tushar	88	86	68	87	
8	Palevi	82	75	35	85	

The cell A2:A9 is selected, highlighting the range from row 2 to row 9. The "Tables" sidebar is open on the right side of the screen.

- Format Your Data:**
- Select cells you want to format.
- Use the toolbar to apply formatting options like bold, italics, text color, background color, borders, etc.

This screenshot is identical to the one above, showing the same Google Sheets document and data. The selection range A2:A9 is still highlighted, and the "Tables" sidebar is visible.

- Use Formulas:**
- Click on a cell where you want to apply a formula.
- Start with an `=` sign followed by the formula, e.g., `=SUM(A1:A5)` to sum up the values from A1 to A5.

Screenshot of Google Sheets showing a student marksheet. The formula `=SUM(D2:F2)` is entered in cell H2 to calculate the total marks for the first student.

Sr. No	Student Name	Subject 1	Subject 2	Subject 3	Subject 4	Total Marks
1	Hanshal	80	75	68	85	<code>=SUM(D2:F2)</code>
2	Puneet	65	69	79	90	303
3	Bhakti	78	87	86	84	335
4	Bhushan	58	77	82	47	264
5	Nilesh	69	58	65	62	254
6	Rahul	75	45	48	55	223
7	Tushar	88	86	68	87	329
8	Pallavi	82	75	35	85	277

Screenshot of Google Sheets showing the same marksheet with a new formula `=((C2:H2)*100)/400` entered in cell I2 to calculate the percentage for the first student.

Sr. No	Student Name	Subject 1	Subject 2	Subject 3	Subject 4	Total Marks	Percentage
1	Hanshal	80	75	68	85	303	<code>=((C2:H2)*100)/400</code>
2	Puneet	65	69	79	90	303	75.75
3	Bhakti	78	87	86	84	335	83.75
4	Bhushan	58	77	82	47	264	66
5	Nilesh	69	58	65	62	254	63.5
6	Rahul	75	45	48	55	223	55.75
7	Tushar	88	86	68	87	329	82.25
8	Pallavi	82	75	35	85	277	69.25

- **Insert Charts:**
- Highlight the data range you want to visualize.

Screenshot of Google Sheets showing the marksheet with a highlighted data range from A1 to H14. The status bar at the bottom right shows "Sum: 2,828.75".

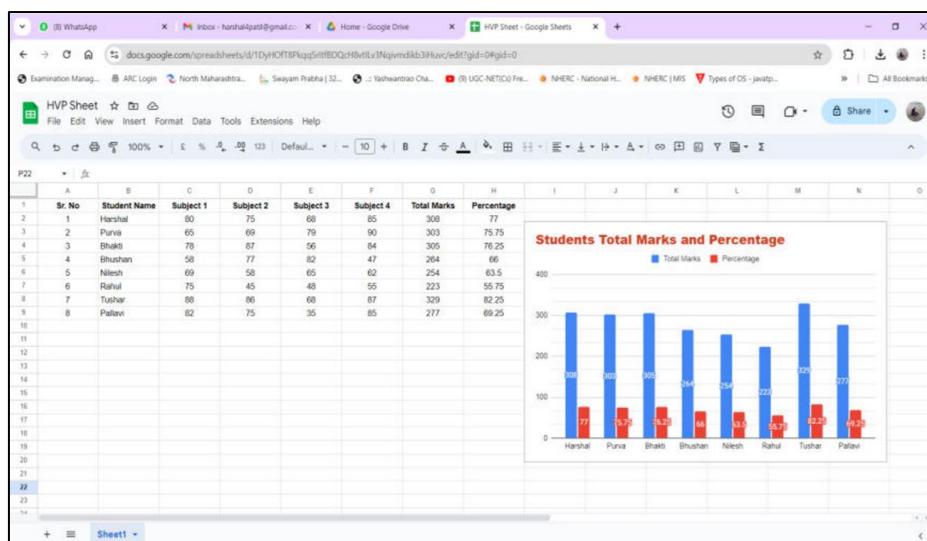
Sr. No	Student Name	Subject 1	Subject 2	Subject 3	Subject 4	Total Marks	Percentage
1	Hanshal	80	75	68	85	303	77
2	Puneet	65	69	79	90	303	75.75
3	Bhakti	78	87	86	84	335	82.25
4	Bhushan	58	77	82	47	264	66
5	Nilesh	69	58	65	62	254	63.5
6	Rahul	75	45	48	55	223	55.75
7	Tushar	88	86	68	87	329	82.25
8	Pallavi	82	75	35	85	277	69.25

- Go to `Insert > Chart` from the top menu.

The screenshot shows a Google Sheets interface with the 'Insert' menu open. The 'Chart' option is highlighted. The main spreadsheet area displays student marks for various subjects.

Sr. No.	Student Name	Subject 1	Subject 2	Subject 3	Subject 4	Total Marks	Percentage
1	Harshal	80	75	68	85	308	77
2	Purna	65	69	79	90	303	75.75
3	Bhakti	78	87	56	84	305	76.25
4	Bhushan	58	77	82	47	264	66
5	Nilesh	69	58	65	62	254	63.5
6	Rahul	75	45	48	55	223	55.75
7	Tushar	88	86	68	87	329	82.25
8	Palavi	82	75	35	85	277	69.25

- Customize your chart using the Chart Editor.



- Share Your Spreadsheet:
- Click on the "Share" button at the top-right corner.

The screenshot shows the Google Sheets interface with the sharing dialog box open over the spreadsheet. The dialog box allows users to add people, choose access levels (Viewer, Commenter, or Editor), and copy the link.

Share 'HVP Sheet'

Add people, groups and calendar events

People with access

Harshal Patil (you)
harshalpatil@gmail.com

General access

Anyone with the link

Viewer

ROLE

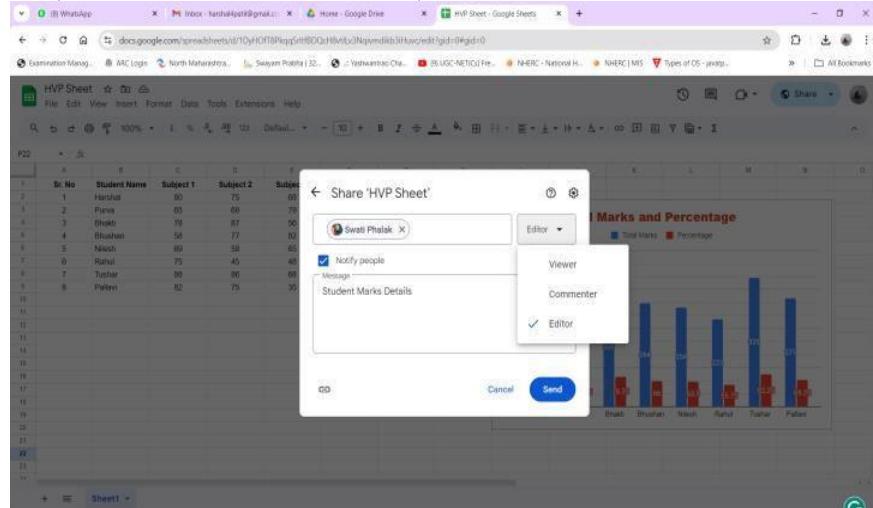
Viewer (checked)

Commenter

Editor

Copy link

- Enter the email addresses of the people you want to share with.
- Set permissions (Viewer, Commenter, Editor) and click "Send".



Step 4: Save Your Spreadsheet

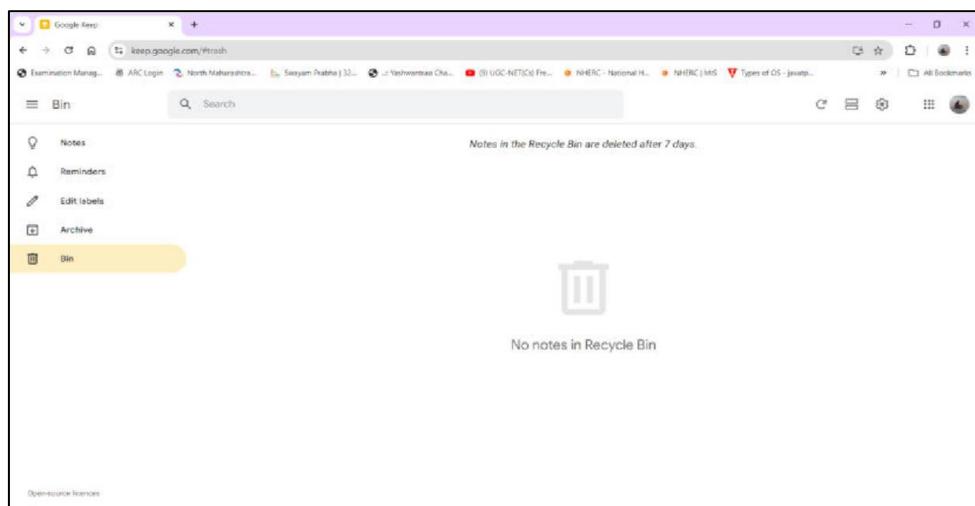
- Google Sheets automatically saves your changes as you make them, so there's no need to manually save.

2. Working on Google Drive to make Google Notes

Step-by-Step Guide for Google Notes (Google Keep)

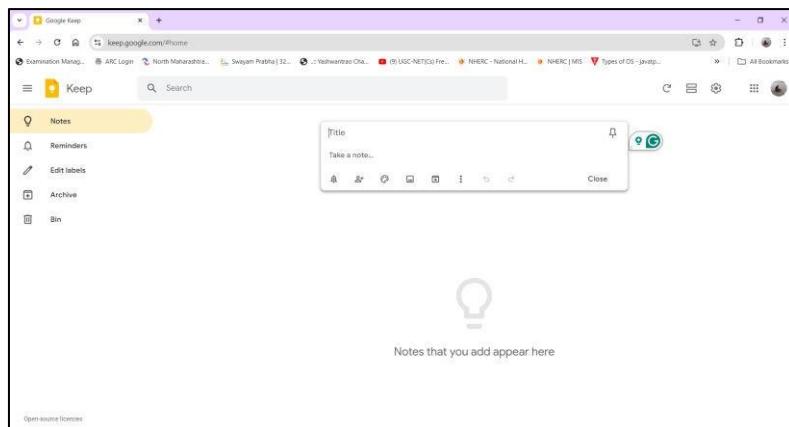
Step 1: Access Google Keep

- Open your browser and go to [Google Keep](<https://keep.google.com>).
- Sign in with your Google account if you're not already logged in.

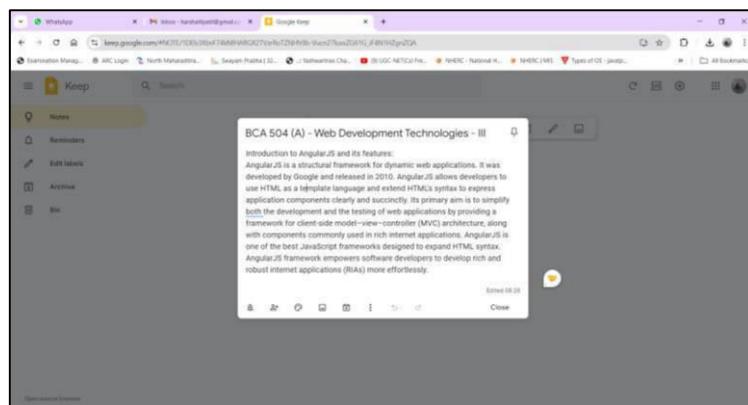


Step 2: Create a New Note

- Click on "Take a note..." at the top of the page.



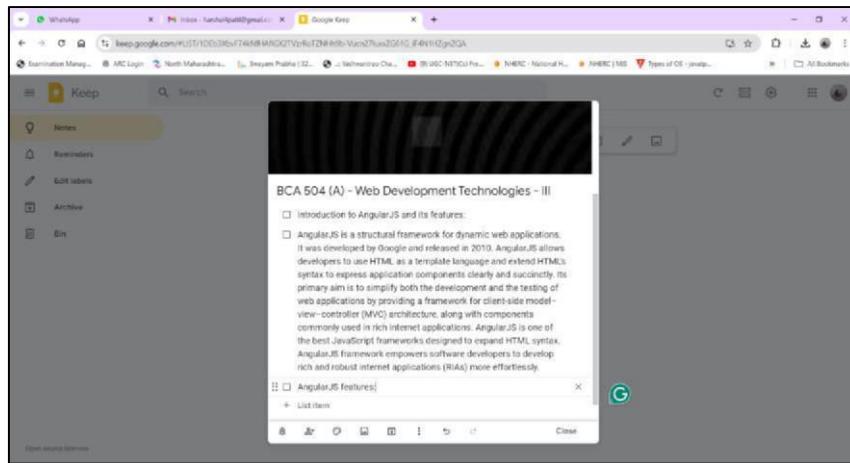
- Add a Title:
- Enter a title for your note in the "Title" field.
- Write Your Note:
- Type your content in the "Take a note..." field.



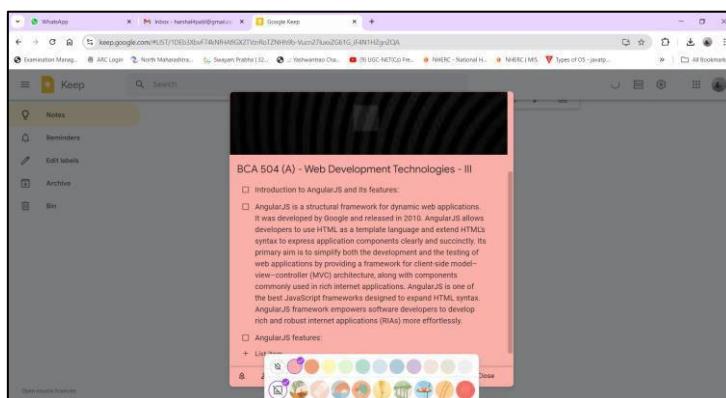
- Add Images:
- Click on the "Add image" icon to insert images into your note.



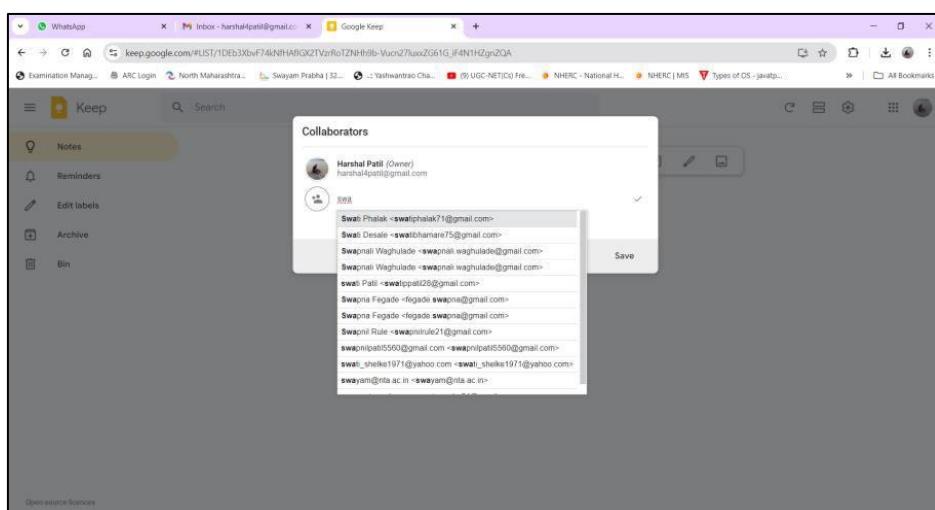
- Use Checkboxes (for task lists):
- Click on the "More" icon (three vertical dots) and select "Show checkboxes".



- Color Code Your Note:
- Click on the "Color palette" icon to choose a background color for your note.



- Label Your Note:
- Click on the "Label" icon to add labels and organize your notes.
- Collaborate with Others:
- Click on the "Collaborator" icon to add collaborators by entering their email addresses.



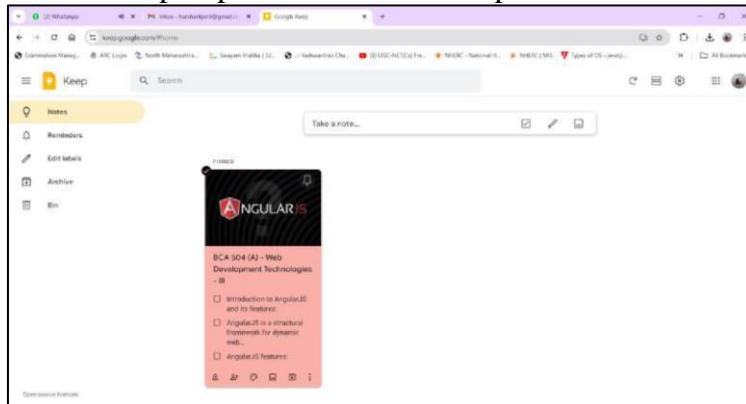
Step 3: Save Your Note

- Like Google Sheets, Google Keep automatically saves your notes as you make changes.

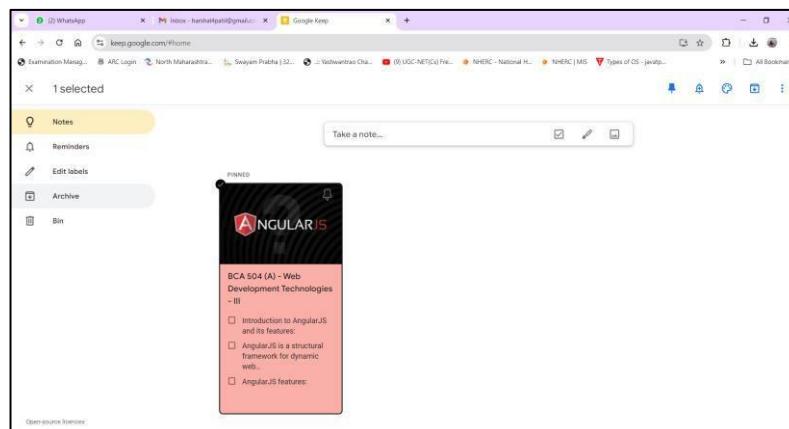
Step 4: Organize Your Notes □ Pin

Important Notes:

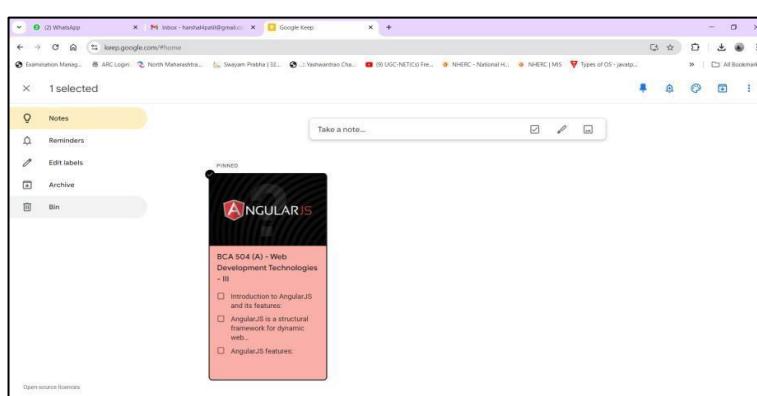
- Click on the "Pin" icon to keep important notes at the top.



- Archive or Delete Notes:
- Use the "Archive" icon to move notes to the archive without deleting them.



- Click on the "Delete" icon to remove a note permanently.

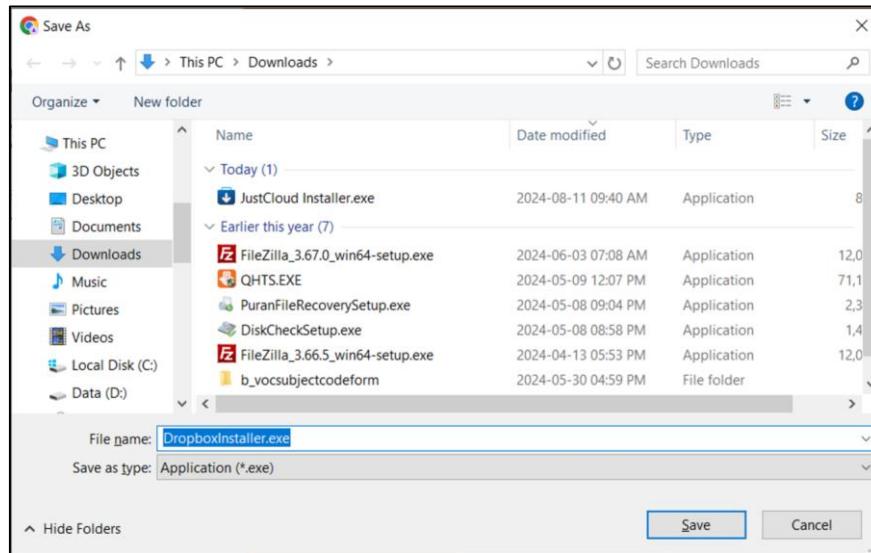
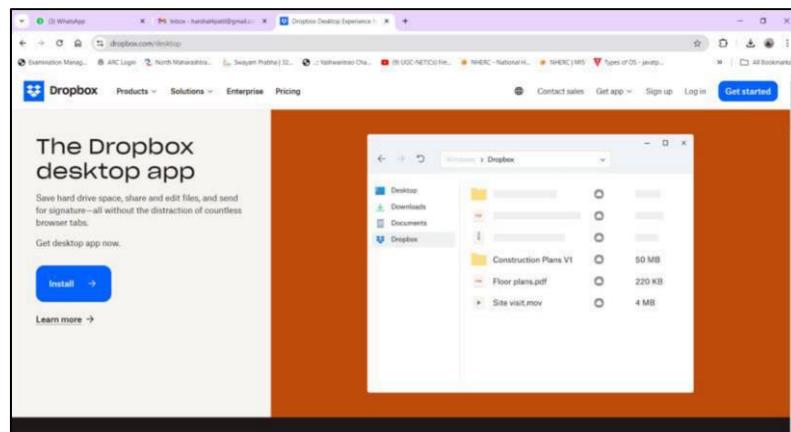


Practical 2. Installation and Configuration of Dropbox.

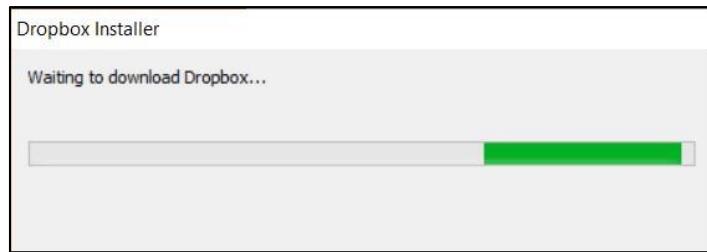
To install and configure Dropbox, follow these steps:

□ Step - 1 Installation

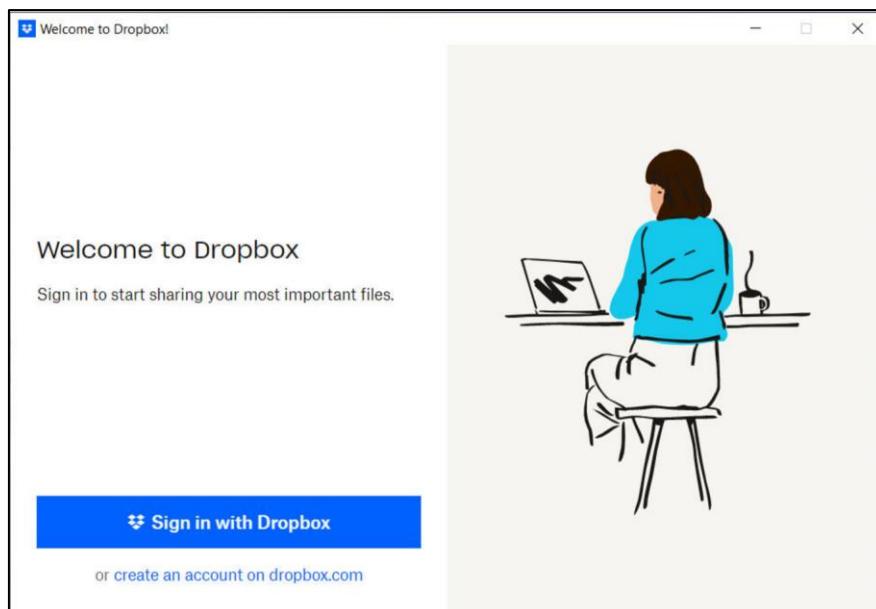
- **Download the Dropbox Application**
- Visit the official Dropbox website and download the installer for your operating system (Windows or macOS).

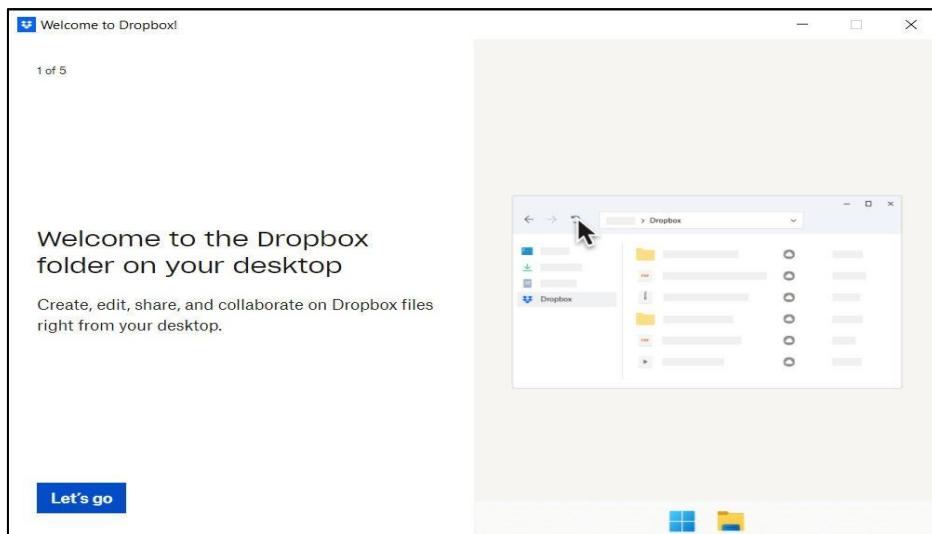


- Once the download is complete, locate the installer file (usually in your "Downloads" folder) and double-click it to start the installation process.



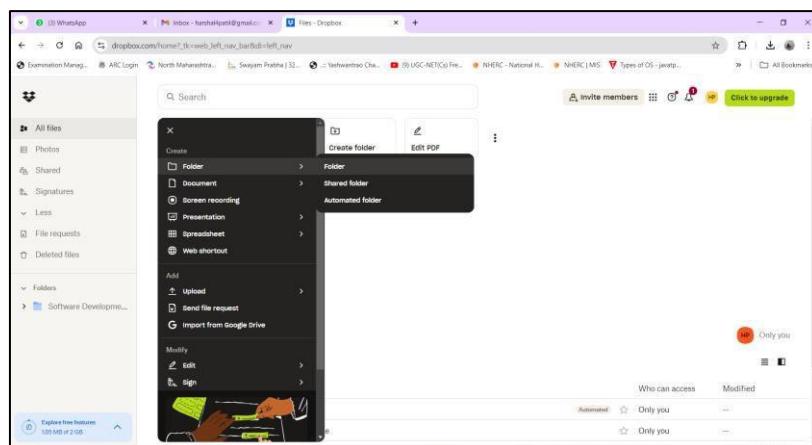
- **Run the Installer**
- Follow the on-screen instructions to install Dropbox on your computer.
- **Step – 2 Configuration**
- **Create or Log in to Your Dropbox Account**
- After installation, launch the Dropbox application.
- If you already have an account, log in using your credentials. If not, you'll need to create a new account.



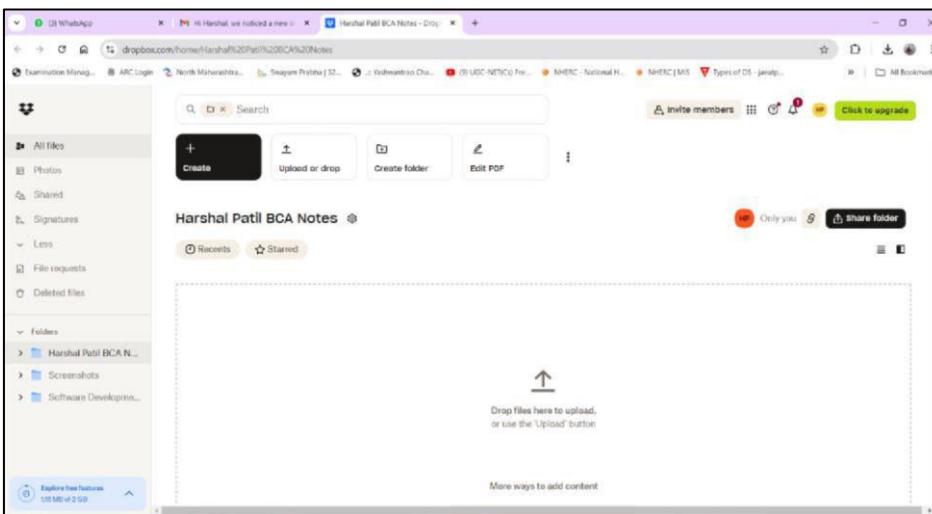


- Initial Setup:**

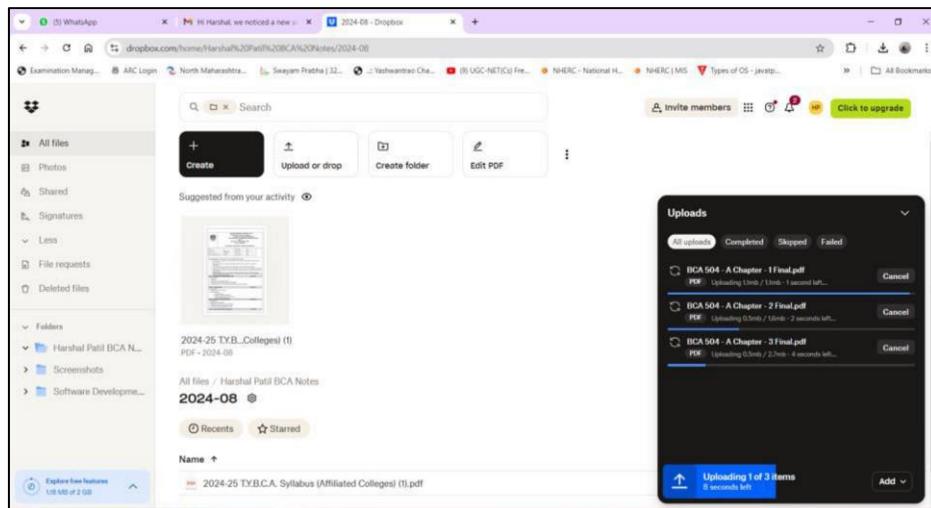
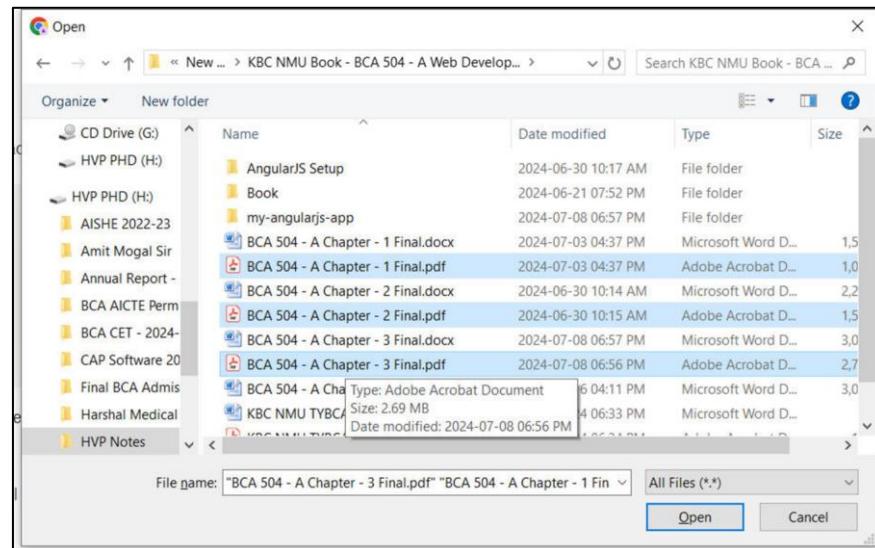
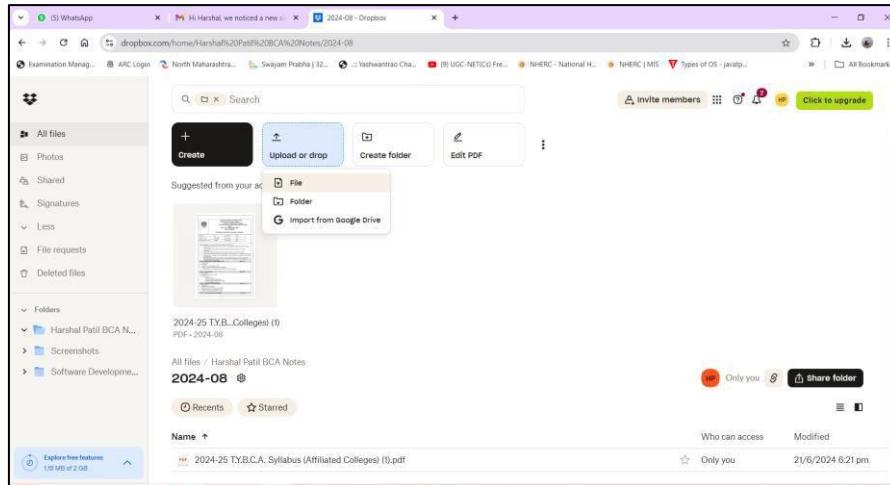
- After signing in, Dropbox will guide you through some initial setup steps.
- Choose the Dropbox folder location on your computer.

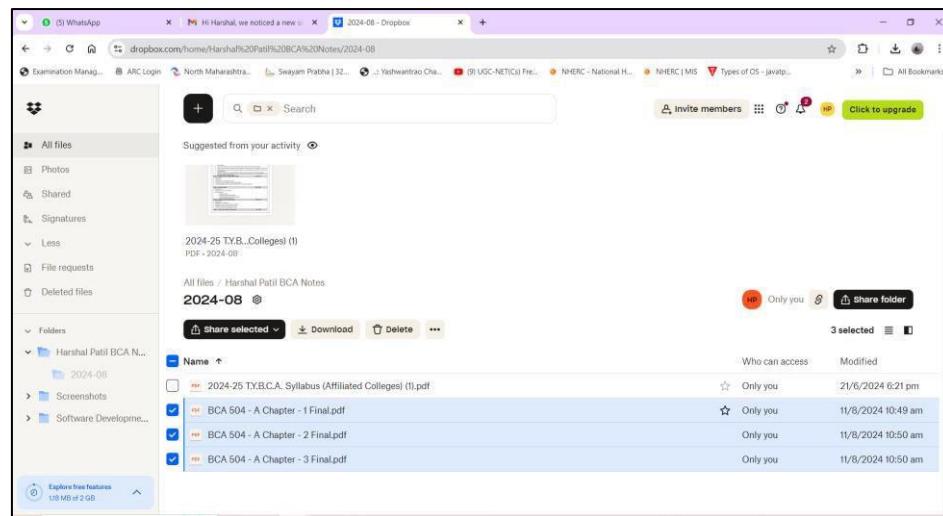


- Select which folders you want to sync (you can change this later).

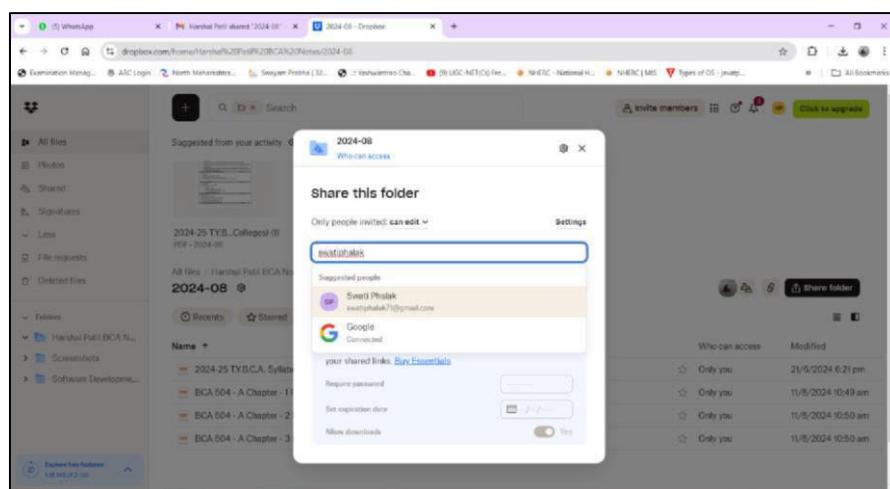
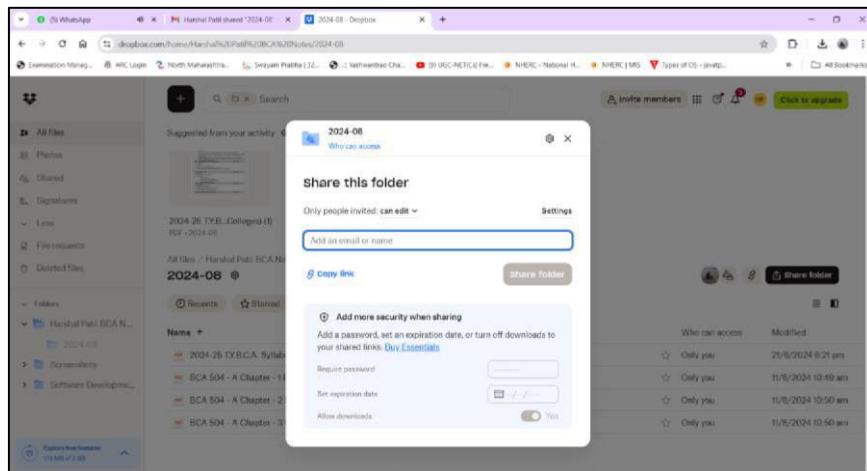


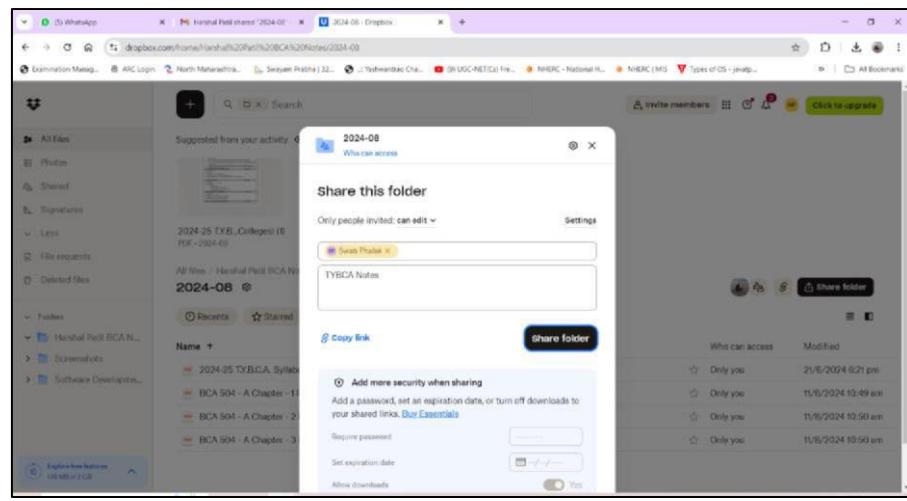
- Upload any file (documents, photos, videos, and more) in your folder on Dropbox.





- Shared Upload file or folder on Dropbox.





S.T.E.S.& Co.Op. Education Society's Ltd.
Institute of Management, Research & Development, Shahada.

TYBCA – BCA 506 Lab on Cloud Computing – Practical Sheets

Practical 3. Implementing Virtual Machines with VirtualBox.

(Cloud providers use virtualization technologies to offer scalable and flexible computing resources. Understanding VM creation and configuration is essential for working with cloud-based infrastructure.)

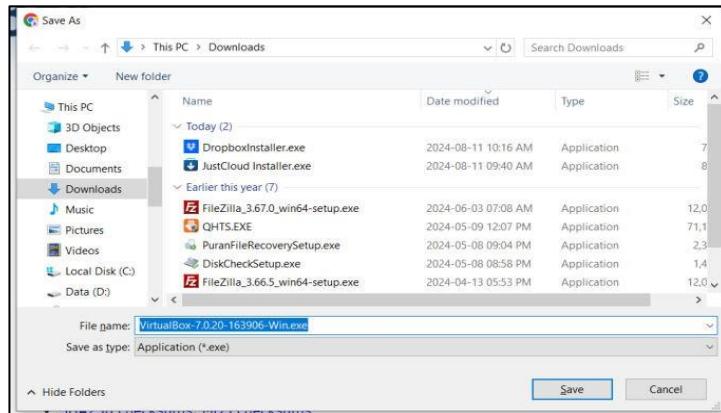
Implementing virtual machines (VMs) with VirtualBox is a great way to run multiple operating systems on a single physical machine.

Here's a step-by-step guide to help you get started:

Step - 1 Download and Install VirtualBox

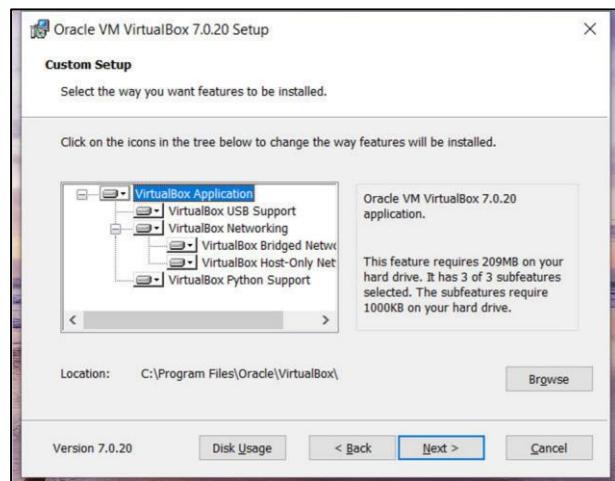
1. Download VirtualBox:

- Go to the [VirtualBox website](<https://www.virtualbox.org/>).
- Click on Download VirtualBox and choose the installer for your operating system (Windows, macOS, Linux).



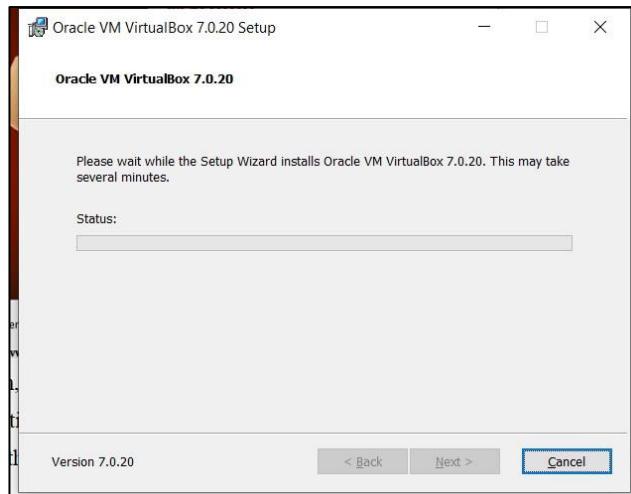
2. Install VirtualBox:

- Run the downloaded installer and follow the on-screen instructions.



- On Windows, you might be asked to install network adapters—accept these.



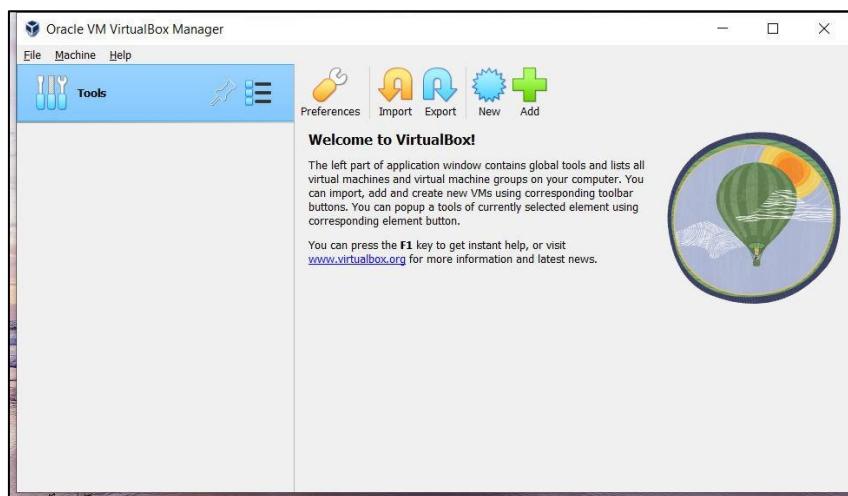


- After installation, you might also be prompted to install VirtualBox Extension Pack, which adds additional features. Download it from the same website and install it by double-clicking the downloaded file.

Step - 2 Setting Up a New Virtual Machine

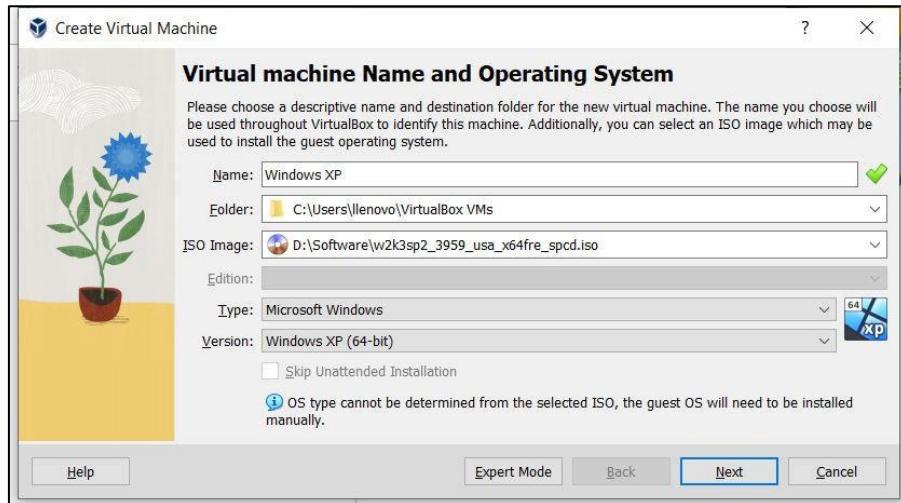
1. Open VirtualBox:

- Launch VirtualBox from your applications or start menu.

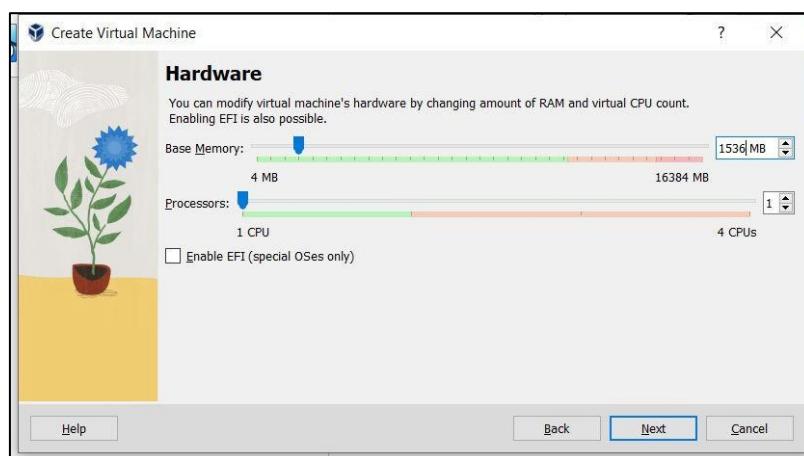


2. Create a New Virtual Machine:

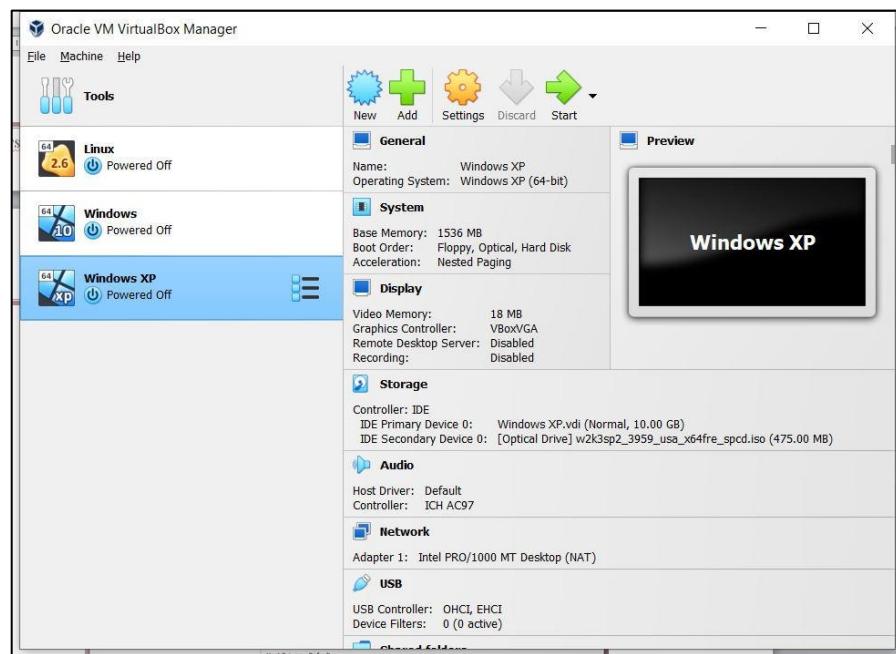
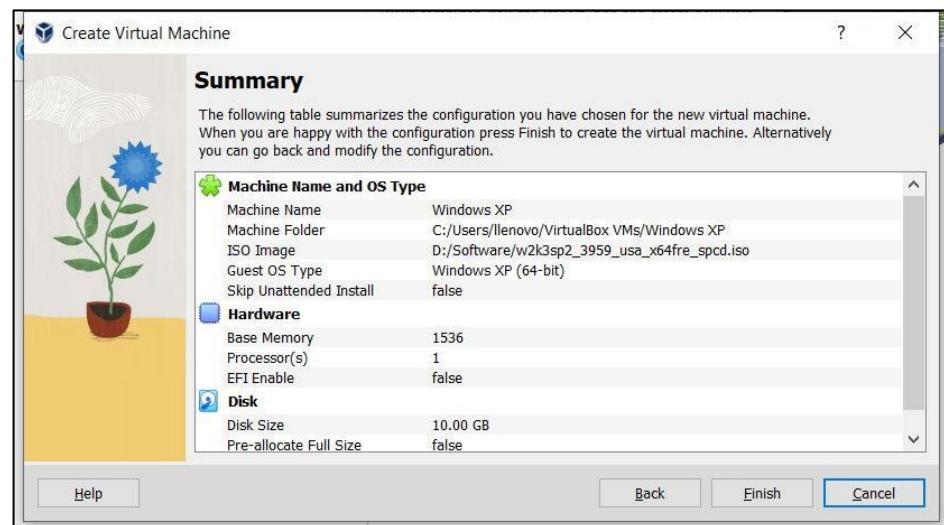
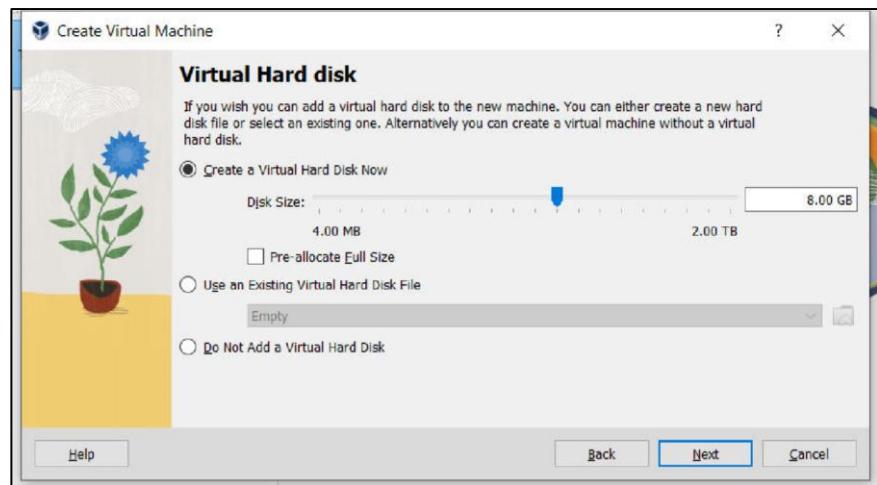
- Click the New button in the VirtualBox Manager.
- Name and Operating System:
 - Give your VM a name. Choose the type and version of the operating system (OS) you plan to install. VirtualBox might automatically detect the type based on the name you provide. Also Select ISO file.



- Memory Size:
 - Allocate RAM for the VM. The amount depends on your physical system's RAM and the OS requirements. For example, 2 GB (2048 MB) is often sufficient for many Linux distributions, while 4 GB or more might be needed for newer Windows versions.



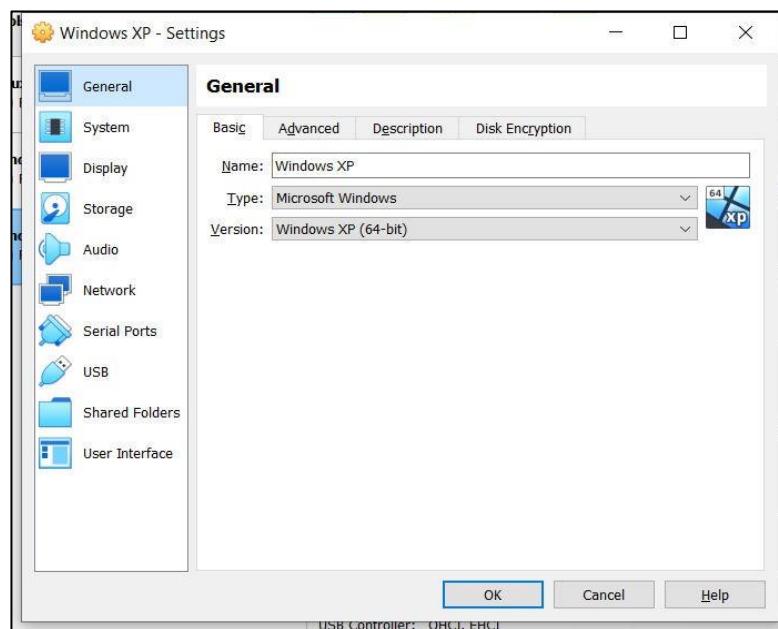
- Hard Disk:
 - Select Create a virtual hard disk now and click Create.



3. Configure the Virtual Machine:

Once the VM is created, select it in the VirtualBox Manager and click Settings.

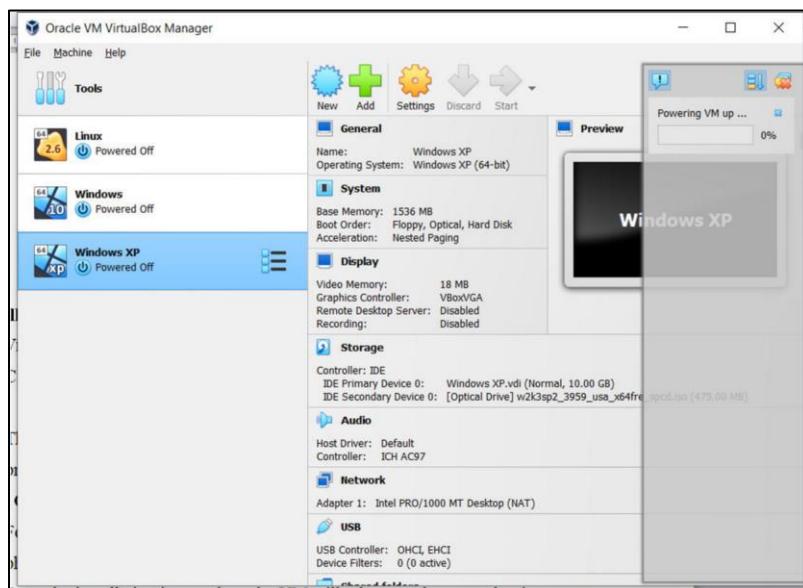
- System: Adjust the boot order, and allocate additional CPUs if your host system has multiple cores.
- Display: Increase the video memory if needed, especially for graphically intensive operating systems.
- Storage: Attach an ISO file (the installer for your OS). Click on the Empty under the Controller: IDE, then click on the CD icon next to Optical Drive, and choose Choose a disk file to select your ISO.
- Network: By default, VirtualBox sets the network to NAT, which is suitable for most purposes. You can adjust this if you need more advanced networking options.



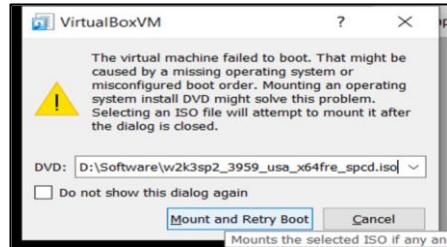
Step - 3 Installing the Operating System

1. Start the Virtual Machine:

- Click Start to boot up your VM.



- The VM will start from the attached ISO file, launching the OS installation process.



2. Install the Operating System:

- Follow the installation instructions for your chosen OS, just as you would on a physical machine.
- Once the installation is complete, the VM will reboot, and you can log into your new virtual machine.

Step - 4 Post-Installation Configuration

1. Install Guest Additions:

- Once the OS is installed, it's recommended to install VirtualBox Guest Additions. This will improve performance and enable additional features like shared folders, clipboard sharing, and better display resolutions.
- In the VM window, go to Devices > Insert Guest Additions CD Image.
- Inside the VM, open the CD drive and run the Guest Additions installer.
- Restart the VM after installation.

2. Set Up Shared Folders (Optional):

- To share files between your host and the VM, go to Settings > Shared Folders.
- Add a new shared folder, set the path on your host, and choose whether it should be read-only or auto-mounted.

3. Configure Network Settings (Optional):

- You can change the network mode to Bridged Adapter for the VM to appear as a separate device on your network, or keep it as NAT for internet access without exposing the VM to the local network.

Step - 5 Managing Virtual Machines

1. Snapshots:

- Take snapshots to save the current state of your VM. This allows you to revert to a previous state if something goes wrong.
- Click on Snapshots in the VirtualBox Manager and then Take Snapshot.

2. Cloning VMs:

- You can clone VMs if you need identical setups for multiple projects or tests.

Right-click the VM and choose Clone.

3. Backing Up VMs:

- Export your VM for backup purposes. Go to File > Export Appliance, select the VM, and save it as an OVA file.

4. Updating VirtualBox:

- Periodically check for updates to VirtualBox and the Extension Pack to ensure compatibility with newer operating systems and features.

Step - 6 Advanced Usage

1. Running Multiple VMs:

- You can run multiple VMs simultaneously if your hardware supports it. Ensure you allocate sufficient resources (CPU, RAM) without overcommitting your host system.

2. Network Configurations:

- Set up complex network configurations with multiple network adapters, internal networks, and port forwarding for advanced testing and development scenarios.

3. Remote Access:

- Use the built-in VirtualBox Remote Desktop Protocol (VRDP) to remotely access your VMs from another machine.

4. Command-Line Interface (CLI):

- VirtualBox also provides a powerful CLI called `VBoxManage`, which allows you to manage VMs, configure settings, and automate tasks via scripts.

Step - 7 Deleting and Cleaning Up VMs

1. Deleting VMs:

- To remove a VM, right-click it in the VirtualBox Manager and choose Remove.

You can either keep the files or delete them entirely from your disk.

2. Cleaning Up:

- Regularly clean up old snapshots and unused VMs to save disk space.

Practical 4. Setting up a Cloud Environment with OpenStack.

(To Gain proficiency in cloud infrastructure development and management, a fundamental skills in cloud computing, through the implementation of OpenStack for creating a customized cloud environment.)

OpenStack is a popular open-source cloud computing platform that provides a comprehensive set of services for building and operating private and public clouds. This guide will walk you through the basic steps of setting up a cloud environment using OpenStack.

Prerequisites

- **Hardware:** Sufficient RAM, CPU, and storage to accommodate your cloud's needs.
- **Operating System:** A Linux distribution like Ubuntu or CentOS.
- **Networking:** A network with at least one public IP address and a private network for your cloud.

Installation

1. **Update System:** Ensure your system is up-to-date with the latest packages: Bash
➤ `sudo apt update && sudo apt upgrade`
2. **Install Required Packages:** Install essential packages for OpenStack installation: Bash
➤ `sudo apt install python3-pip python3-dev libssl-dev libffi-dev`
3. **Install OpenStack:** Download and install OpenStack using the appropriate installer for your distribution. For Ubuntu, use the openstack-installer: Bash
➤ `Sudo curl -sL https://raw.githubusercontent.com/openstack/openstackinstall/master/install.sh | sudo bash -s -- -u https://raw.githubusercontent.com/openstack/openstack-install/master/install.yaml`
4. **Configure OpenStack:** After installation, configure OpenStack using the openstackconfig tool. This involves setting up networks, security groups, and user credentials.

Creating a Cloud Instance

1. **Create a Network:** Use the OpenStack CLI to create a new network: Bash
`openstack network create my-network`
2. **Create a Subnet:** Create a subnet within the network:
Bash
➤ `openstack subnet create my-subnet --network-id my-network --gateway-ip-address 192.168.0.1 --subnet-range 192.168.0.0/24`

3. **Create a Security Group:** Define security rules for the instance: Bash openstack security group create my-security-group --description "My security group" Add rules to allow SSH and other necessary protocols.
4. **Create an Instance:** Launch a virtual machine instance: Bash
 - `openstack server create my-instance --image <image-name> --flavor <flavor-name> --security-group my-security-group --network my-network`

Replace <image-name> and <flavor-name> with appropriate values.

Accessing the Instance

- **Obtain Public IP:** Find the public IP address of the instance: Bash
 - `openstack server list`
- **Connect:** Use an SSH client to connect to the instance using the public IP and your credentials.

Additional Considerations

- **Storage:** Create volumes for persistent storage.
- **Networking:** Configure floating IPs for public access to instances.
- **Monitoring:** Implement monitoring tools to track resource usage.
- **Automation:** Use tools like Ansible or Terraform for automated deployment.

Note: This is a basic overview. OpenStack offers many more features and customization options. Refer to the official OpenStack documentation for detailed instructions.

By following these steps, you can successfully set up a cloud environment using OpenStack and leverage its capabilities for your projects.

Practical 5. Setting Up a Simple Website on GitHub.

(To deploy a static website on GitHub Pages, demonstrating the use of cloud-based hosting for web content. Software: GitHub (<https://github.com/>)

GitHub Pages is a static website hosting service that lets you build, publish, and maintain personal, project, or organization websites directly from your GitHub repository. Here's a basic guide to set up a simple website using GitHub Pages:

1. Create a GitHub Repository □ Go to github.com.

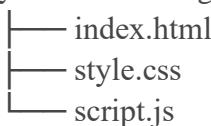
- Log in to your account.
- Click on the **New** button and create a new repository.
- Give your repository a name, preferably your username (e.g., your-username.github.io).
- Initialize the repository with a README file.
- Click **Create repository**.

2. Create Your Website Files

- Create HTML, CSS, and JavaScript files as needed for your website.
- Place these files in the root directory of your repository.

Example Structure:

your-username.github.io/



3. Publish Your Website

- **Option 1: Using the Master Branch (Deprecated)**
 - This method is deprecated. It's recommended to use the gh-pages branch instead.
- **Option 2: Using the gh-pages Branch**
 - Create a new branch named gh-pages:
Bash
➤ **git checkout -b gh-pages**
 - Copy your website files to this branch:

Bash

- `git add .`
- `git commit -m "Add website files"`
- `git push origin gh-pages`

4. Access Your Website

- Once you've pushed your website files to the gh-pages branch, your website will be available at the following URL:
- <https://your-username.github.io/>

Practical 6. Introduction to Cloud CRM (Salesforce).

(Understand Customer Relationship Management (CRM) on Salesforse)

Introduction to Cloud CRM (Salesforce)

Customer Relationship Management (CRM) systems are vital tools that help organizations manage interactions with current and potential customers. Salesforce is one of the leading cloud-based CRM platforms, providing a suite of tools for sales, service, marketing, and more.

What is Salesforce?

Salesforce is a cloud-based CRM platform that enables businesses to manage customer data, track customer interactions, and automate various business processes. It offers a comprehensive suite of applications to support sales, customer service, marketing, and other business needs.

Key Components of Salesforce CRM

1. Sales Cloud:

- Manages customer information and interactions.
- Tracks sales leads, opportunities, and performance.
- Provides tools for contact management, sales forecasting, and workflow automation.

2. Service Cloud:

- Supports customer service operations.
- Includes case management, knowledge base, and customer support automation.
- Facilitates multi-channel support (phone, email, chat, social media).

3. Marketing Cloud:

- Helps in creating and managing marketing campaigns.
- Provides tools for email marketing, social media marketing, and customer journey mapping.
- Enables personalized customer engagement and marketing automation.

4. Commerce Cloud:

- Facilitates e-commerce operations.
- Integrates with online storefronts and provides tools for managing products, orders, and customer experiences.

5. Community Cloud:

- Creates branded online communities for customers, partners, and employees.

- Enhances collaboration and information sharing.

6. Analytics Cloud:

- Provides data analytics and business intelligence capabilities.
- Allows users to create custom reports and dashboards.

7. AppExchange:

- An online marketplace for third-party applications and integrations.
- Extends Salesforce functionality with additional tools and features.

Benefits of Using Salesforce CRM

1. Centralized Customer Data:

- Consolidates all customer information in a single platform, enabling better data management and accessibility.

2. Improved Customer Relationships:

- Enhances understanding of customer needs and behaviors.
- Facilitates personalized interactions and improved customer service.

3. Sales Productivity:

- Automates repetitive tasks, freeing up time for sales representatives to focus on selling.
- Provides insights and analytics to help close deals faster.

4. Scalability:

- Adapts to the needs of businesses of all sizes, from small startups to large enterprises.
- Scalable infrastructure supports business growth without significant additional investment.

5. Mobility:

- Cloud-based platform accessible from anywhere with an internet connection.
- Mobile apps allow on-the-go access to CRM features.

6. Integration Capabilities:

- Seamlessly integrates with other business applications and third-party services.
- Ensures data consistency and streamlines business processes.

Getting Started with Salesforce

1. Sign Up:

□ Create an account on the Salesforce website (<https://www.salesforce.com>) and

choose a suitable plan.

2. Customize Your CRM:

- Tailor the platform to your business needs by customizing objects, fields, and workflows.
- Use drag-and-drop tools to build custom applications without coding.

3. Data Migration:

□ Import existing customer data into Salesforce using data import tools or APIs.

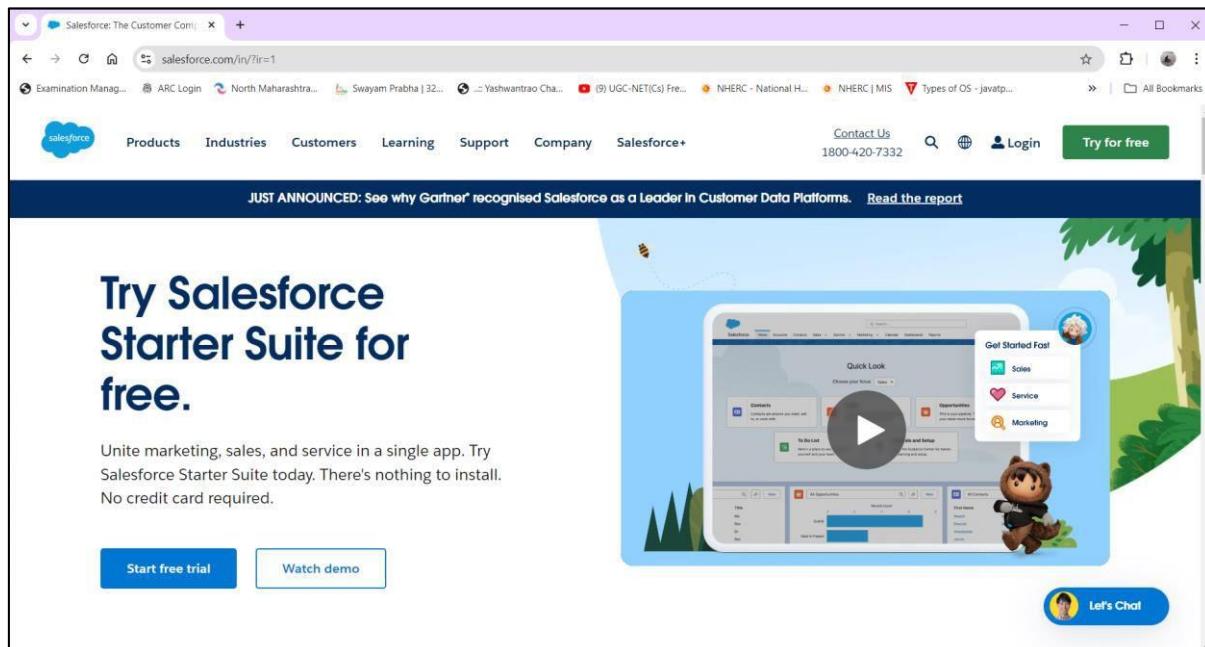
4. Training and Adoption:

- Provide training for your team to ensure effective use of the platform.
- Utilize Salesforce's extensive documentation, tutorials, and support resources.

Ongoing Management:

- Regularly update and maintain your Salesforce instance.
- Continuously evaluate and optimize workflows and processes for better efficiency.

Salesforce CRM provides a powerful, flexible, and scalable solution for managing customer relationships and driving business growth. By leveraging its wide range of features and integration capabilities, organizations can enhance their customer engagement, streamline their sales processes, and make data-driven decisions.



Salesforce: The Customer Comp. x Free Trial - Salesforce IN x

salesforce.com/in/form/signup/freetrial-salesforce-starter/?d=jumbo1-btn-ft

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First name: Harshal ✓ Last name: Patil ✓
Job title: Student / Job Seeker ✓ Work Email: harshal4patil@gmail.com ✓
Company: BASPONC ✓ Employees: 26 - 100 employees ✓
Phone: 8975114205 ✓ Country/Region: India ✓
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Salesforce: The Customer Comp. x Welcome To Salesforce x

momentum-efficiency-3758.lightning.force.com/welcome_to_salesforce/onboarding

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What brings you to Salesforce?

Your choice won't limit what you can do in Salesforce.

Sales
Service
A bit of everything

Next

Salesforce: The Customer Comp x Home | Salesforce x +

momentum-efficiency-3758.lightning.force.com/lightning/page/home

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Check your email to verify your account. Just so you know, you can only log back in once you confirm your email.

Days left in Starter trial: 30 Buy Now

Home Contacts Accounts Sales Service Outreach Commerce Your Acco...

Cloud Home

Welcome, Harshal Patil

Check out these suggestions to kick off your day.

View All Cards

To Do List

This screenshot shows the Salesforce Home page. It features a sidebar with icons for Home, Contacts, Accounts, Sales, Service, Outreach, Commerce, and Your Account. The main area displays a welcome message for 'Harshal Patil' and three suggested actions: 'Create your first contact', 'Create your first lead', and 'Create your first deal'. Each suggestion includes a brief description and a small icon. A 'View All Cards' link is also present. At the bottom, there's a 'To Do List' section.

Salesforce: The Customer Comp x All Contacts | Contacts | Salesforce x +

momentum-efficiency-3758.lightning.force.com/lightning/o/Contact/list?filterName=AllContacts

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Check your email to verify your account. Just so you know, you can only log back in once you confirm your email.

Import from File

Upload contacts using a CSV file.

CSV

Start with Contacts

Get organized and make the most of your relationships by adding contacts to Salesforce.

Sync with Google or Microsoft

Bring your contacts into Salesforce and keep them

Next

This screenshot shows the 'Start with Contacts' step of a setup wizard. It features a large central callout with a purple circular icon containing a card. To the right, there are two smaller boxes: one for 'Import from File' (with a CSV icon) and another for 'Sync with Google or Microsoft' (with a sync icon). Below these, a progress bar shows the user is at step 1 of 5. A 'Next' button is located at the bottom right. The sidebar on the left remains the same as the previous screenshot.

Practical 7. Data Analytics on the Cloud (Salesforce).

(The objective of this practical is to familiarize students with Salesforce's reporting tools and dashboards, enabling them to analyze and visualize data effectively.)

Understanding Salesforce's Reporting Tools and Dashboards

Salesforce provides a robust suite of reporting and analytics tools that allow users to:

- **Create custom reports:** Tailor reports to specific business needs and data requirements.
 - **Build dashboards:** Visualize data in a clear and concise manner using charts, graphs, and other interactive elements.
 - **Analyze data:** Gain insights into sales performance, customer behavior, and other key metrics.

Practical Steps:

1. Create a Custom Report:

- **Navigate:** Go to **Reports** in the Salesforce navigation menu.
- **Create:** Click on **New Report**.
- **Select Object:** Choose the object you want to report on (e.g., Leads, Opportunities, Accounts).
- **Add Fields:** Drag and drop the desired fields into the report builder.
- **Filter:** Apply filters to narrow down the data.
- **Group:** Group data by specific fields.
- **Summary Fields:** Add summary fields (e.g., SUM, AVERAGE) to aggregate data.
- **Run Report:** Click **Run Report** to view the results.

2. Build a Dashboard:

- **Navigate:** Go to **Dashboards** in the Salesforce navigation menu.
- **Create:** Click on **New Dashboard**.
- **Add Components:** Drag and drop report components (e.g., tables, charts) onto the dashboard.
- **Customize:** Adjust the size, layout, and appearance of components.
- **Save:** Save the dashboard.

Example: Analyzing Sales Performance

Goal: Analyze sales performance over the past quarter.

Steps:

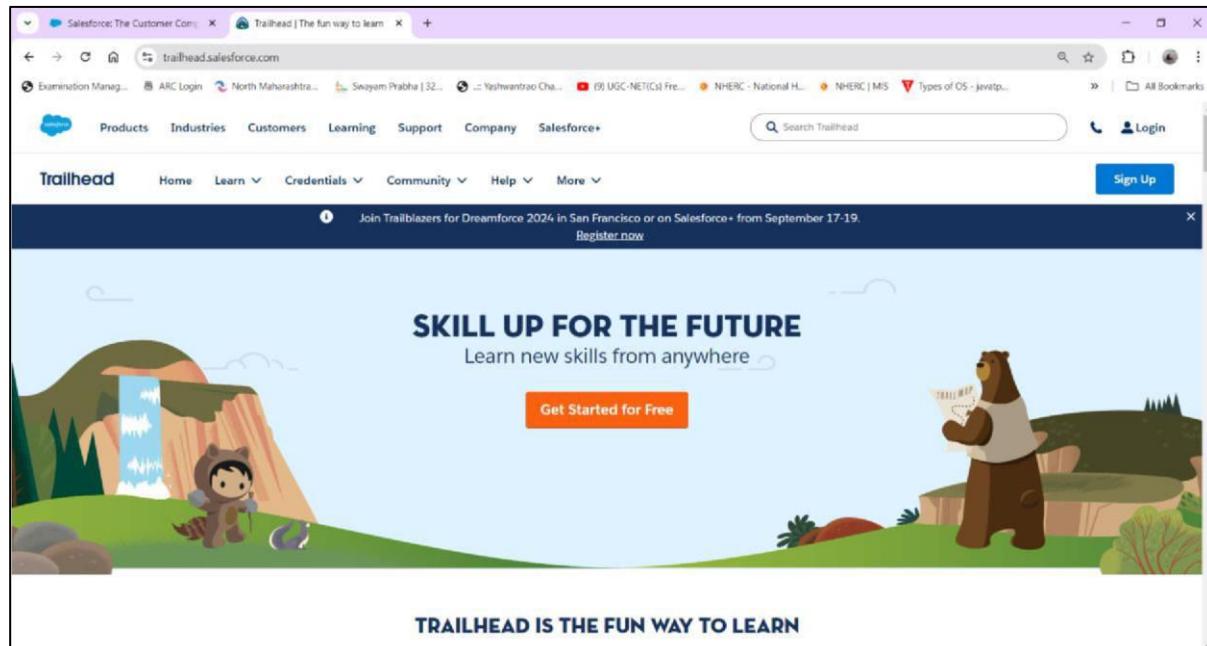
1. Create a Report:

- Select the **Opportunities** object.
- Add fields: **Close Date**, **Amount**, **Stage**.
- Filter by **Close Date** to include the desired quarter.
- Group by **Stage**.
- Add summary fields: **SUM(Amount)**.

2. Build a Dashboard:

- Add a **Bar Chart** to visualize sales by stage.
- Add a **Table** to display detailed sales data.
- Customize the dashboard's appearance.

For further learning, explore the [Salesforce Trailhead modules](#) on reports and dashboards, which offer interactive, hands-on training.



Practical 8. Introduction to Amazon AWS S3.

(The objective of this practical is to learn about Amazon AWS and how to host a simple static website using Amazon S3.)

Introduction to Amazon AWS S3

Amazon Simple Storage Service (S3) is a scalable object storage service provided by Amazon Web Services (AWS). S3 is commonly used for storing and retrieving any amount of data, at any time, from anywhere on the web. One of its popular use cases is hosting static websites.

Objectives

- Understand the basics of Amazon S3.
- Learn how to create an S3 bucket.
- Learn how to upload files to an S3 bucket.
- Configure the S3 bucket to host a static website.
- Access the hosted static website.

Prerequisites

- An AWS account. If you don't have one, you can [sign up for free](<https://aws.amazon.com/free/>).

Key Concepts

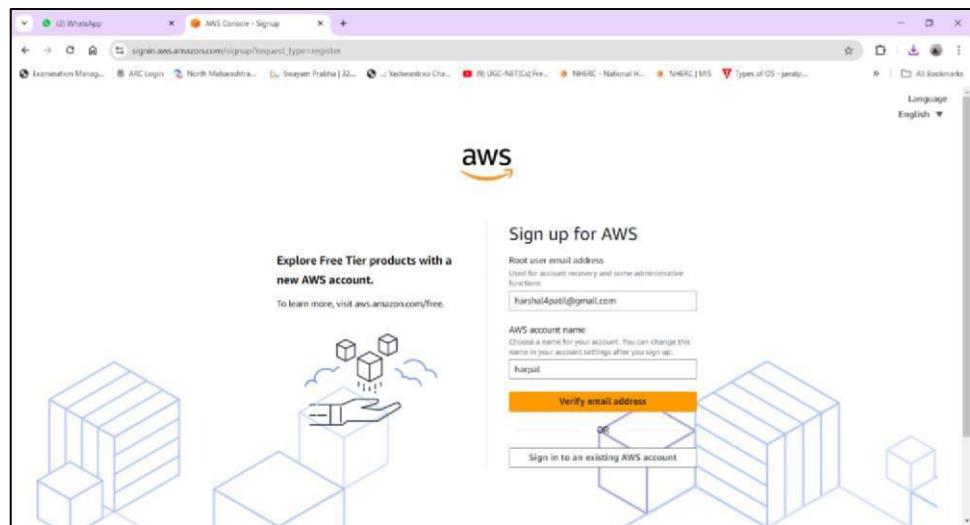
- Bucket: A container for storing objects (files) in S3. Each bucket must have a unique name across all of AWS.
- Object: Any file stored in an S3 bucket. Each object is identified by a unique key within the bucket.
- Static Website Hosting: Serving static content (HTML, CSS, JavaScript, images) directly from an S3 bucket.

Step-by-Step Guide

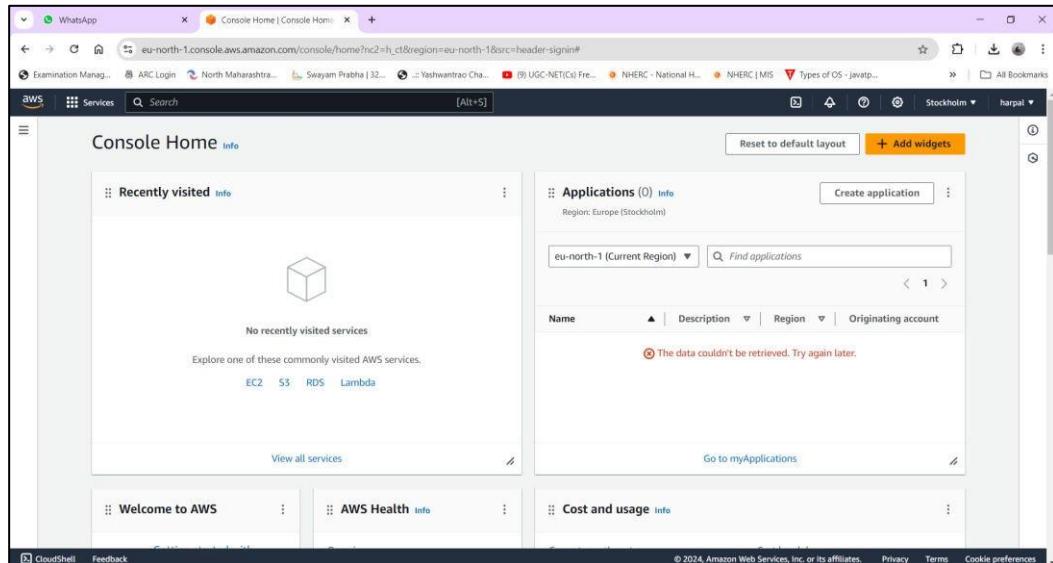
Step 1: Create an S3 Bucket

1. Log in to AWS Management Console:

- Go to the [AWS Management Console](<https://aws.amazon.com/console/>).



- Log in with your AWS credentials.



2. Navigate to S3:

- In the Services menu, under Storage, click on S3.

3. Create a New Bucket:

- Click the Create bucket button.
- Enter a unique Bucket name (e.g., `my-static-website-bucket`).
- Select a region for your bucket.
- Click Create bucket at the bottom of the page, keeping the default settings. **Step 2:**

Upload Files to the S3 Bucket

1. Upload Files:

- Click on the name of the newly created bucket.
- Click the Upload button.
- Drag and drop your website files (e.g., `index.html`, `style.css`, `script.js`) into the upload area.

- Click Upload to start the upload process.

Step 3: Configure the Bucket for Static Website Hosting

1. Enable Static Website Hosting:

- In the S3 bucket, click on the Properties tab.
- Scroll down to the Static website hosting section.
- Click Edit.
- Select Enable.
- Enter the name of the index document (e.g., `index.html`).
- Enter the name of the error document (optional).
- Click Save changes.

2. Make the Bucket Public:

- In the S3 bucket, click on the Permissions tab.
- Click on Bucket policy.
- Copy and paste the following bucket policy, replacing `your-bucket-name` with the name of your bucket:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "PublicReadGetObject",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::your-bucket-name/*"
    }
  ]
}
```

Click Save changes. **Step 4:**

Access Your Static Website

1. Get the Website URL:

- Go back to the Properties tab.

- In the Static website hosting section, note the Endpoint URL. This is the URL of your hosted static website.

2. Visit Your Website:

- Open a web browser and navigate to the Endpoint URL to see your static website live.

Practical Exercises

1. Host a Simple HTML Page:

- Create a basic `index.html` file with some content.
- Upload it to your S3 bucket and enable static website hosting.
- Access your hosted HTML page using the Endpoint URL.

2. Add CSS and JavaScript:

- Create `style.css` and `script.js` files.
- Link them in your `index.html` file.
- Upload all files to your S3 bucket.
- Ensure they are accessible and properly linked when you visit your website.

3. Error Document Handling:

- Create a custom error page (e.g., `404.html`).
- Configure the error document in the static website hosting settings.
- Test accessing a non-existent page to see your custom error page.

