

Cloud Computing

Journal

Submitted By

Nagda Mihir Anupkumar

Roll No: 31031523016

MSc CS – Part 1

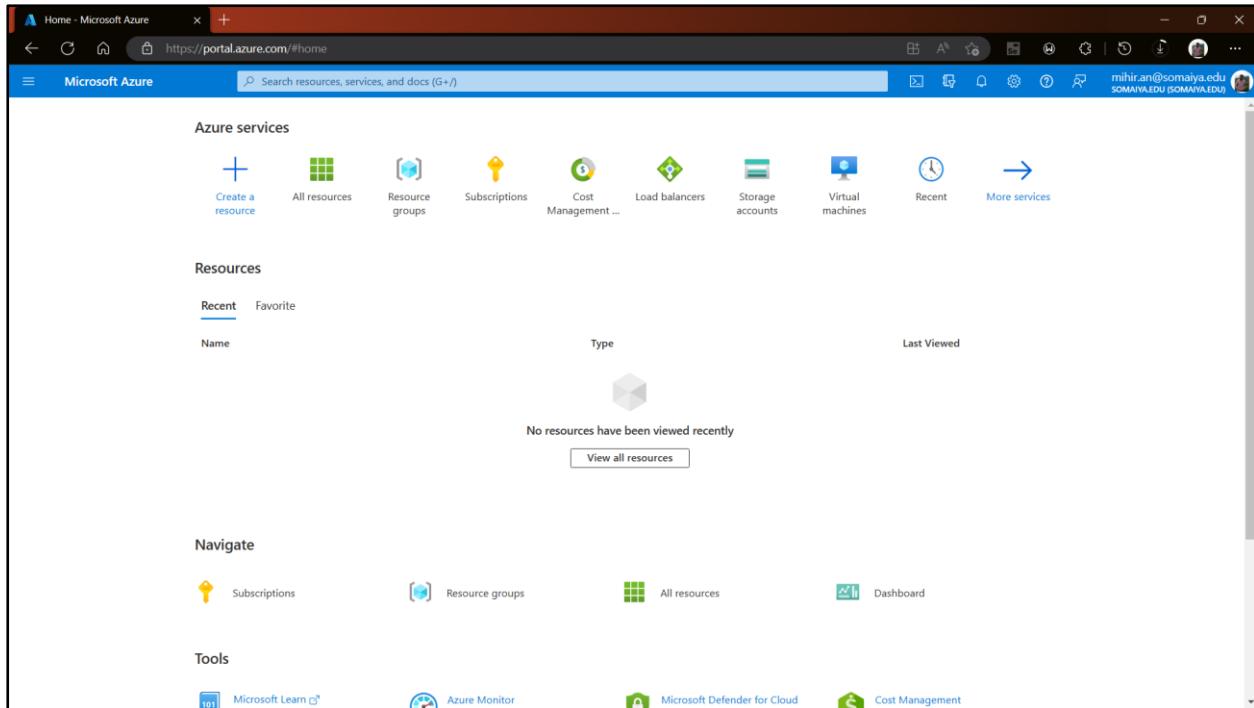
**Department Of Computer Science
Somaiya Vidyavihar University
SK Somaiya college**

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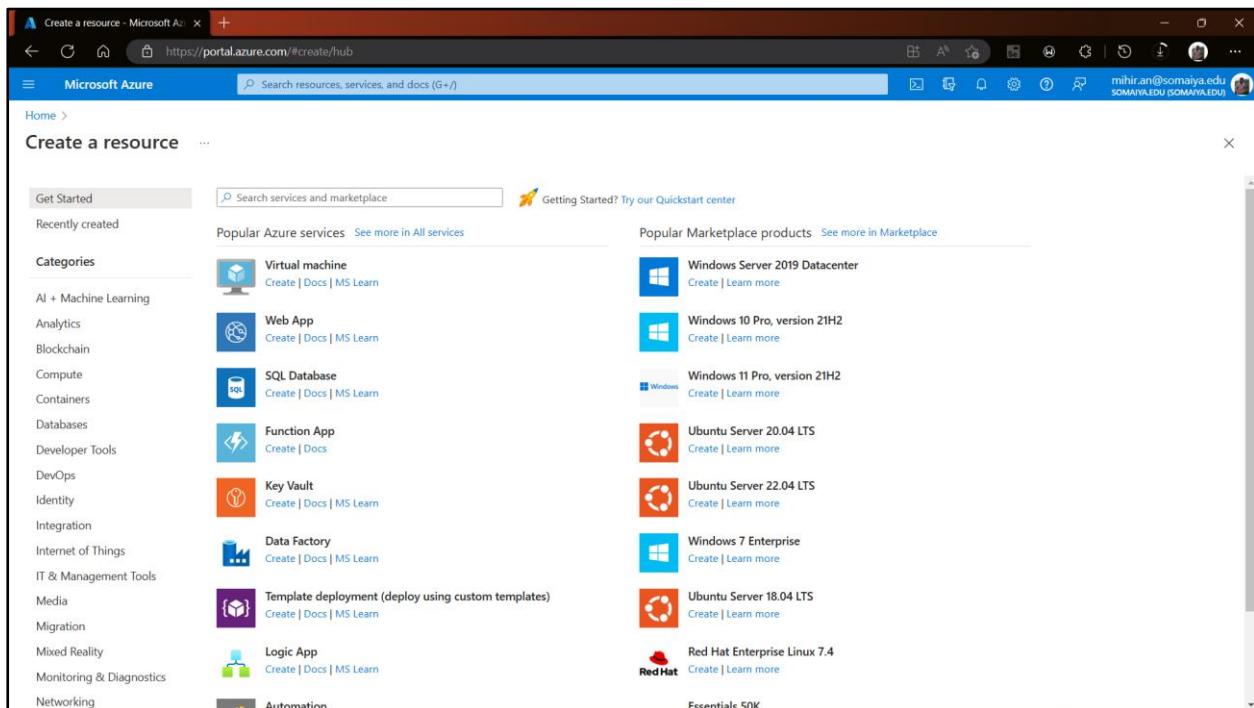
Practical 1: Creating a Virtual Machine in Azure

Step 1: Click on “Create a Resource”



The screenshot shows the Microsoft Azure Home page. At the top, there's a navigation bar with links for Home - Microsoft Azure, portal.azure.com, and a search bar. On the right, there's a user profile with the email mihir.an@somaiya.edu and the domain SOMAIYA.EDU. Below the navigation bar, there's a section titled "Azure services" with icons for Create a resource, All resources, Resource groups, Subscriptions, Cost Management, Load balancers, Storage accounts, Virtual machines, Recent, and More services. Under "Resources", there's a "Recent" tab selected, showing a message: "No resources have been viewed recently". A "View all resources" button is also present. In the "Navigate" section, there are links for Subscriptions, Resource groups, All resources, and Dashboard. In the "Tools" section, there are links for Microsoft Learn, Azure Monitor, Microsoft Defender for Cloud, and Cost Management.

Step 2: Choose “Virtual Machine”.



The screenshot shows the "Create a resource" hub. At the top, there's a navigation bar with links for Home > Create a resource and portal.azure.com/#create/hub. There's also a search bar and a user profile. The main area is titled "Create a resource" with a "Get Started" button. On the left, there's a sidebar with "Recently created" and a "Categories" section listing various Azure services like AI + Machine Learning, Analytics, Blockchain, Compute, Containers, Databases, Developer Tools, DevOps, Identity, Integration, Internet of Things, IT & Management Tools, Media, Migration, Mixed Reality, Monitoring & Diagnostics, and Networking. On the right, there are two sections: "Popular Azure services" and "Popular Marketplace products". The "Popular Azure services" section includes icons for Virtual machine, Web App, SQL Database, Function App, Key Vault, Data Factory, Template deployment (deploy using custom templates), Logic App, and Automation. The "Popular Marketplace products" section includes icons for Windows Server 2019 Datacenter, Windows 10 Pro, version 21H2, Windows 11 Pro, version 21H2, Ubuntu Server 20.04 LTS, Ubuntu Server 22.04 LTS, Windows 7 Enterprise, Ubuntu Server 18.04 LTS, and Red Hat Enterprise Linux 7.4. There's also a link for "Essentials 50K".

Step 3: Fill in all the details

The screenshot shows the 'Create a virtual machine' wizard on the Microsoft Azure portal. The current step is 'Project details'. It includes fields for 'Subscription' (set to 'Azure for Students') and 'Resource group' (set to 'Mihir.CC_group'). Below these, there are sections for 'Instance details' such as 'Virtual machine name' (set to 'Mihir.CC'), 'Region' (set to '(Europe) Norway East'), 'Availability options' (set to 'Availability zone'), and 'Availability zone' (set to 'Zones 1'). A note indicates that selecting multiple zones will create one VM per zone. Other settings include 'Security type' (set to 'Standard'), 'Image' (set to 'Ubuntu Server 22.04 LTS - x64 Gen2'), and 'VM architecture' (set to 'x64'). At the bottom are buttons for 'Review + create' and 'Next : Disks >'. The URL in the browser is https://portal.azure.com/#create/canonical.0001-com-ubuntu-server-jammy22_04-lts-gen2.

Step 4: Fill in all the details.

The screenshot shows the 'Create a virtual machine' wizard on the Microsoft Azure portal. The current step is 'Administrator account'. It shows 'Authentication type' set to 'SSH public key'. A note explains that Azure generates an SSH key pair for secure connection. Other fields include 'Username' (set to 'Mihir'), 'SSH public key source' (set to 'Generate new key pair'), and 'Key pair name' (set to 'Mihir.CC_key'). Below this is the 'Inbound port rules' section, which allows selecting ports for public inbound traffic. A note warns that selecting 'Allow selected ports' will allow all IP addresses to access the VM. At the bottom are buttons for 'Review + create' and 'Next : Disks >'. The URL in the browser is https://portal.azure.com/#create/canonical.0001-com-ubuntu-server-jammy22_04-lts-gen2.

Step 5:

The screenshot shows the 'Create a virtual machine' wizard in progress, specifically Step 5: 'OS disk'. The page title is 'Create a virtual machine - Microsoft Azure'. The URL is https://portal.azure.com/#create/canonical.0001-com-ubuntu-server-jammy22_04-lts-gen2. The user's email is mihir.an@somaya.edu.

VM disk encryption
Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.

Encryption at host (checkbox):
Encryption at host is not registered for the selected subscription.
[Learn more about enabling this feature](#)

OS disk

OS disk type *: Standard SSD (locally-redundant storage)
The selected VM size supports premium disks. We recommend Premium SSD for high IOPS workloads. Virtual machines with Premium SSD disks qualify for the 99.9% connectivity SLA.

Delete with VM (checkbox)

Key management: Platform-managed key

Enable Ultra Disk compatibility (checkbox): Ultra disk is not supported in Norway East.

Data disks for Mihir.CC
You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

| LUN | Name | Size (GiB) | Disk type | Host caching | Delete with VM |
|-----|---------------------|------------|------------------|--------------|--------------------------|
| 1 | Mihir.CC_DataDisk_1 | 4 | Standard SSD LRS | Read-only | <input type="checkbox"/> |

[Create and attach a new disk](#) [Attach an existing disk](#)

[Review + create](#) [Next : Networking >](#) [Give feedback](#)

Step 6:

The screenshot shows the 'Create a new disk' dialog. The URL is https://portal.azure.com/#view/Microsoft_Azure_Compute/CreateDataDiskBlade/subscriptionId/6fea2250-7715-4507-b177-9cdfa9f4b0d6/resourceId/0/resourceType/dataDisk. The user's email is mihir.an@somaya.edu.

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name *: Mihir.CC_DataDisk_1

Source type *: None (empty disk)

Size *: 4 GiB
Standard SSD LRS
[Change size](#)

Key management: Platform-managed key

Enable shared disk: No (radio button selected)

Delete disk with VM (checkbox)

OK

Step 7: Click on “Create”

Validation passed

Basics

| | |
|----------------------|---|
| Subscription | Azure for Students |
| Resource group | Mihir.CC_group |
| Virtual machine name | Mihir.CC |
| Region | Norway East |
| Availability options | Availability zone |
| Availability zone | 1 |
| Security type | Standard |
| Image | Ubuntu Server 22.04 LTS - Gen2 |
| VM architecture | x64 |
| Size | Standard D2s v3 (2 vcpus, 8 GiB memory) |
| Authentication type | SSH public key |
| Username | Mihir |
| Key pair name | Mihir.CC_key |
| Public inbound ports | SSH |
| Azure Spot | No |

Disk

| | |
|------------------------|------------------|
| OS disk type | Standard SSD LRS |
| Use managed disks | Yes |
| Delete OS disk with VM | Disabled |

< Previous | Next > | Download a template for automation | Give feedback

Step 8: Download the Private Key.

Validation passed

Review + create

Cost given below is an estimate and not the final price. Please use [Pricing calculator](#) for all your pricing needs.

PRODUCT DETAILS

1 X Standard D2s v3 by Microsoft Subscription credits apply

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the above; (b) authorize Microsoft to bill my current payment method for the fees associated with the billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact information with the provider(s) of the offering(s) for support, billing and other transactional activities, and provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

Generate new key pair

An SSH key pair contains both a public key and a private key. **Azure doesn't store the private key.** After the SSH key resource is created, you won't be able to download the private key again. [Learn more](#)

Download private key and create resource | **Return to create a virtual machine**

< Previous | Next > | Download a template for automation | Give feedback

Step 9: Wait for the deployment.

The screenshot shows the Microsoft Azure portal with a deployment overview. The deployment name is 'CreateVm-canonical.0001-com-ubuntu-server-jammy-2-20230211112539'. The status bar at the top says 'Deployment is in progress'. Below it, the deployment details table lists four resources:

| Resource | Type | Status | Operation details |
|---------------------|---|--------|-----------------------------------|
| Mihir.CC_DataDisk_1 | Microsoft.Compute/disks | OK | Operation details |
| Mihir.CC_group-vnet | Microsoft.Network/virtualNetworks | OK | Operation details |
| Mihir.CC-nsg | Microsoft.Network/networkSecurityGroups | OK | Operation details |
| Mihir.CC-ip | Microsoft.Network/publicIPAddresses | OK | Operation details |

Step 10: Click on “Go to Resource”.

The screenshot shows the Microsoft Azure portal with the same deployment overview. The status bar at the top says 'Your deployment is complete'. The deployment details table is identical to the previous screenshot. A 'Next steps' section is visible below the deployment details. A large blue button labeled 'Go to resource' is highlighted, indicating the next action to take.

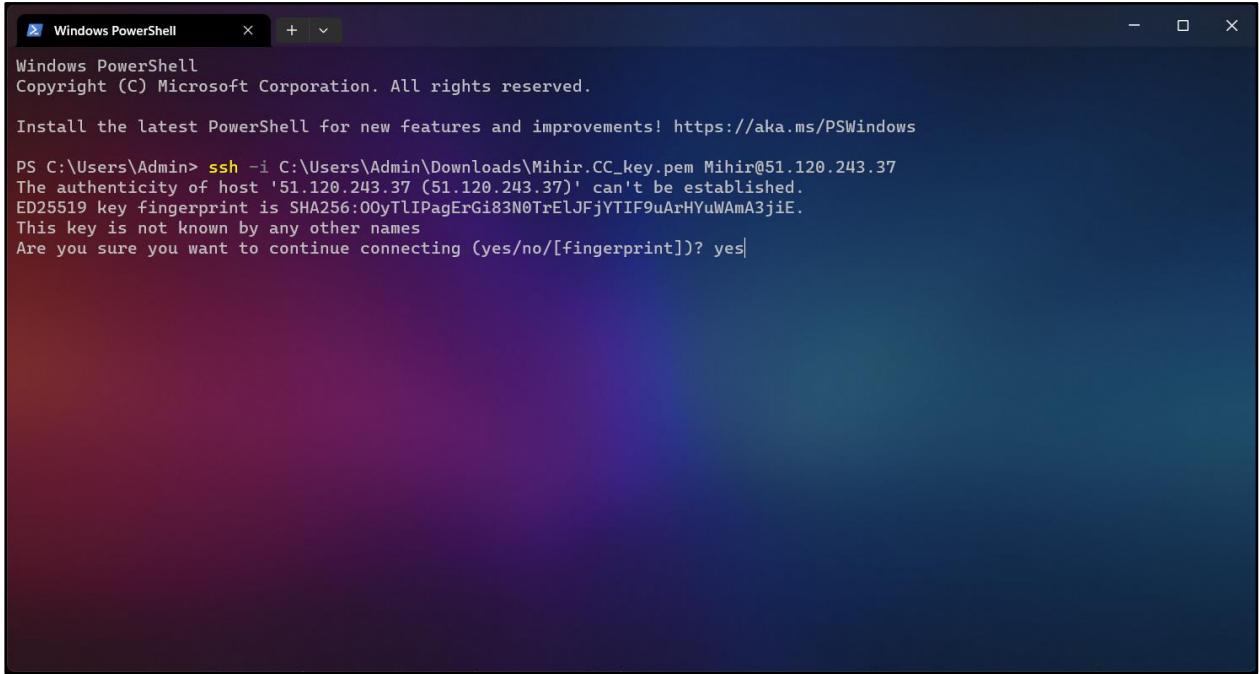
Step 11: Go to Connect tab and click on SSH. Add the path to your downloaded private key. Now copy the command.

The screenshot shows the Microsoft Azure portal interface. The left sidebar has a 'Connect' section selected. The main content area is titled 'Mihir.CC | Connect' and shows the 'SSH' tab is active. It provides instructions for connecting via SSH with a client, including a note about enabling just-in-time access. Step 4 of the instructions shows the command 'ssh -i C:\Users\Admin\Downloads\Mihir.CC_key.pem Mihir@51.120.243.37' entered in a terminal window. The user's email 'mihir.an@somaiya.edu' is visible at the top right.

Step 12: Paste the Command in your PowerShell or Command Prompt and hit enter.

The screenshot shows a Windows PowerShell window. The command 'ssh -i C:\Users\Admin\Downloads\Mihir.CC_key.pem Mihir@51.120.243.37' is typed into the command line. The PowerShell interface includes a title bar 'Windows PowerShell', a taskbar with a '+' button, and a status bar at the bottom.

Step 13: Type yes

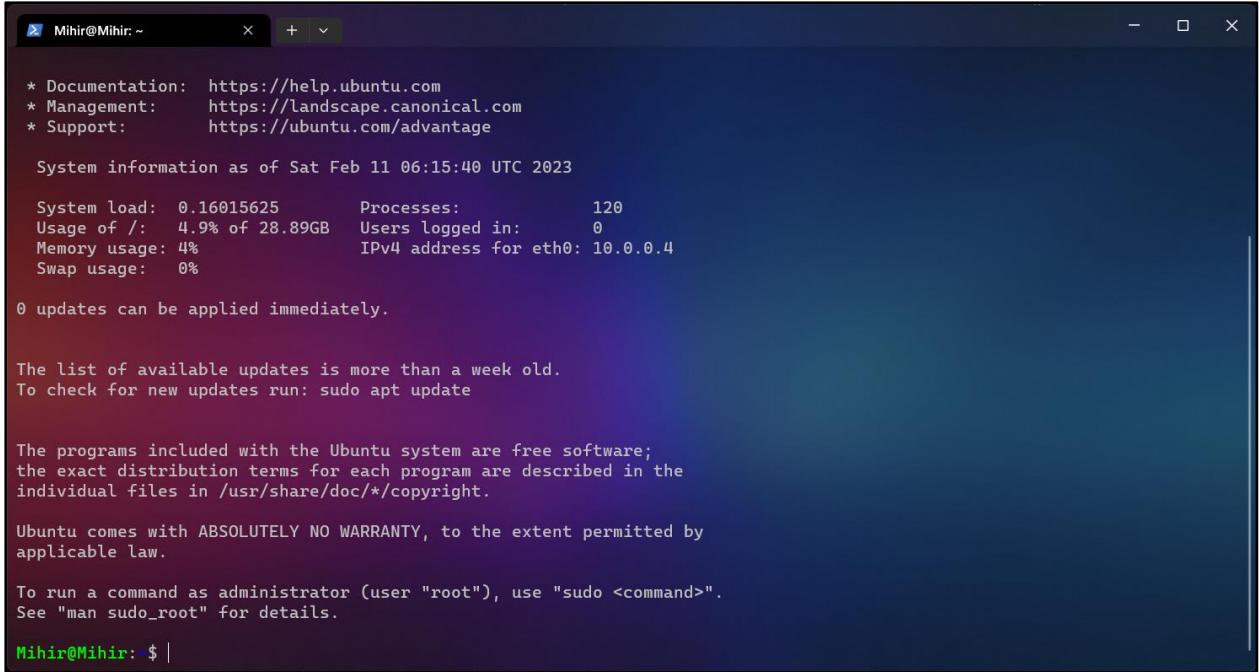


```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Admin> ssh -i C:\Users\Admin\Downloads\Mihir.CC_key.pem Mihir@51.120.243.37
The authenticity of host '51.120.243.37 (51.120.243.37)' can't be established.
ED25519 key fingerprint is SHA256:0OyTlIPagErGi83N0TrElJFjYTIF9uArHYuWAmA3jiE.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes|
```

Step 14:



```
Mihir@Mihir: ~
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage

System information as of Sat Feb 11 06:15:40 UTC 2023

System load: 0.16015625      Processes:          120
Usage of /: 4.9% of 28.89GB  Users logged in:    0
Memory usage: 4%            IPv4 address for eth0: 10.0.0.4
Swap usage: 0%

0 updates can be applied immediately.

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Mihir@Mihir:~$ |
```

Practical 2: Storage Account Using Azure

Step 1: Create a storage account in Azure.

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes tabs for 'Cloud Computing TYCS Hons' and 'Home - Microsoft Azure'. The main content area is titled 'Storage accounts'. On the left, there's a sidebar with sections for 'Azure services' (Create a resource, All resources, Management groups, Storage accounts), 'Resources' (Recent, Favorite, Name: Mihir.CC_group, See all), 'Navigate' (Subscriptions, Resource groups), and 'Tools' (Microsoft Learn, Azure Monitor, Microsoft Defender for Cloud, Cost Management). The central pane displays information about creating a storage account, including a description of what it is used for, free training modules, and a 'Create' button. A 'Last Viewed' section shows a recent activity from 6 days ago. At the bottom, there are 'Helpful links' and a 'Dashboard' button. The URL in the address bar is <https://portal.azure.com/#blade/HubsExtension/BrowseResourceBlade/resourceType/Microsoft.Storage%2FStorageAccounts>.

Step 2: Fill in all the details and click on “Review”

The screenshot shows the 'Create a storage account' wizard in the Microsoft Azure portal. The title bar says 'Create a storage account - Microsoft Azure'. The page is titled 'Create a storage account'. It has a tab navigation bar with 'Basics' selected, followed by 'Advanced', 'Networking', 'Data protection', 'Encryption', 'Tags', and 'Review'. Below the tabs, a note says 'Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.' The 'Subscription' dropdown is set to 'Azure for Students' and the 'Resource group' dropdown is set to 'Mihir.CC_group'. Under 'Instance details', there are fields for 'Storage account name' (prac3cc), 'Region' (US East US), 'Performance' (Standard selected), and 'Redundancy' (Geo-redundant storage (GRS)). At the bottom, there are buttons for 'Review' (highlighted in blue), '< Previous', 'Next : Advanced >', and 'Give feedback'.

Step 3: Click on “Create”

Cloud Computing TYCS Hons > Create a storage account - Microsoft Azure > https://portal.azure.com/#create/Microsoft.StorageAccount-ARM

Microsoft Azure Search resources, services, and docs (G+) mihir.an@somaiya.edu SOMAIYA.EDU (SOMAIYA.EDU)

Home > Storage accounts >

Create a storage account

Basics Advanced Networking Data protection Encryption Tags Review

Basics

| | |
|----------------------|--|
| Subscription | Azure for Students |
| Resource Group | Mihir.CC_group |
| Location | eastus |
| Storage account name | prac3cc |
| Deployment model | Resource manager |
| Performance | Standard |
| Replication | Read-access geo-redundant storage (RA-GRS) |

Advanced

| | |
|---|-------------|
| Secure transfer | Enabled |
| Allow storage account key access | Enabled |
| Allow cross-tenant replication | Enabled |
| Default to Azure Active Directory authorization in the Azure portal | Disabled |
| Blob public access | Enabled |
| Minimum TLS version | Version 1.2 |

< Previous Next > Download a template for automation Give feedback

Step 4: Click on “Go to Resource”

Cloud Computing TYCS Hons > prac3cc_1678182429113 - Microsoft Azure > https://portal.azure.com/#view/HubsExtension/DeploymentDetailsBlade/~/overview/id/%2Fsubscriptions%2F6fea2250-7715-4507-b177-9cdfa9f... >

Microsoft Azure Search resources, services, and docs (G+) mihir.an@somaiya.edu SOMAIYA.EDU (SOMAIYA.EDU)

Home > prac3cc_1678182429113 | Overview

Deployment

Search Delete Cancel Redeploy Download Refresh

Your deployment is complete

Deployment name: prac3cc_1678182429113
Subscription: Azure for Students
Resource group: Mihir.CC_group

Start time: 3/7/2023, 3:17:21 PM
Correlation ID: 4748c601-b474-4eba-8cf8-a815db1a6ea9

Deployment details

Next steps Go to resource

Give feedback Tell us about your experience with deployment

Cost Management Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >

Microsoft Defender for Cloud Secure your apps and infrastructure. Go to Microsoft Defender for Cloud >

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Work with an expert Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support. Find an Azure expert >

Step 5: Click on “Containers”

The screenshot shows the Microsoft Azure Storage account overview for the 'prac3cc' storage account. The left sidebar is expanded to show the 'Containers' option under 'Data storage'. The main pane displays the following details:

- Resource group (move)**: Mihir.CC_group
- Location**: East US
- Primary/Secondary Location**: Primary: East US, Secondary: West US
- Subscription (move)**: Azure for Students
- Subscription ID**: 6fea2250-7715-4507-b177-9cd9f4b0d6
- Disk state**: Primary: Available, Secondary: Available
- Tags (edit)**: Click here to add tags

The 'Properties' tab is selected. In the 'Blob service' section, the following settings are listed:

| Setting | Value |
|--------------------------------|------------------|
| Hierarchical namespace | Disabled |
| Default access tier | Hot |
| Blob public access | Enabled |
| Blob soft delete | Enabled (7 days) |
| Container soft delete | Enabled (7 days) |
| Versioning | Disabled |
| Change feed | Disabled |
| NFS v3 | Disabled |
| Allow cross-tenant replication | Enabled |

In the 'Security' section, the following settings are listed:

| Setting | Value |
|---|-------------|
| Require secure transfer for REST API operations | Enabled |
| Storage account key access | Enabled |
| Minimum TLS version | Version 1.2 |
| Infrastructure encryption | Disabled |

In the 'Networking' section, the following settings are listed:

| Setting | Value |
|--|---------------------------|
| Allow access from | All networks |
| Number of private endpoint connections | 0 |
| Network routing | Microsoft network routing |

Step 6: Click on the “Plus + Icon”, Name the container and click on “Create”.

The screenshot shows the Microsoft Azure Storage account 'Containers' page for the 'prac3cc' storage account. The left sidebar is expanded to show the 'Containers' option under 'Data storage'. The main pane shows a list of existing containers and a 'New container' dialog on the right.

The 'New container' dialog contains the following fields:

- Name**: test
- Public access level**: Private (no anonymous access)

At the bottom right of the dialog, there is a blue 'Create' button.

Step 7: Click on “Upload” and upload any file.

The screenshot shows the Microsoft Azure Storage Container upload interface. On the left, there's a sidebar with options like Overview, Diagnose and solve problems, Access Control (IAM), Settings, Shared access tokens, Access policy, Properties, and Metadata. The main area shows a table of blobs with columns Name, Modified, and Access tier. One blob named 'Presentation.pdf' is listed, modified on 3/7/2023, 3:21:36 PM, and in the Hot (Inferred) tier. To the right, there's an 'Upload blob' section with a cloud icon and a message saying 'Successfully uploaded blob(s) Successfully uploaded 1 blob(s.)'. It has a 'Drag and drop files here' area, a 'Browse for files' button, and a checkbox for 'Overwrite if files already exist'. Below that is an 'Advanced' section with an 'Upload' button and a 'Give feedback' link. At the bottom, it shows 'Current uploads' with a list for 'Presentation.pdf' showing a checkmark and the size '10.51 KiB / 10.51 KiB'.

Practical 3: SQL Database using Azure

Step 1: Create a “SQL Database” in Azure.

Did you know that new users in Azure can create a free Azure SQL Database and use it for 12 months using Azure free account? [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Resource group *

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources.

Database name *

Server *

Want to use SQL elastic pool? Yes No

Workload environment Development Production

Default settings provided for Production workloads. Configurations can be modified later.

Step 2: Fill in all the details and click on “Ok”.

Cloud Computing TWCs Home

https://portal.azure.com/#/virtualmachines/create/Microsoft.SQLDatabase

Microsoft Azure

minir.an@somaya.edu SOMAYA.EDU (DOMAIN.EDU)

Home > SQL databases > Create SQL Database >

Create SQL Database Server ...

Server details

Enter required settings for this server, including providing a name and location. This server will be created in the same subscription and resource group as your database.

Server name *

Location *

Authentication

Select your preferred authentication methods for accessing this server. Create a server admin login and password to access your server with SQL authentication, select only Azure AD authentication [Learn more](#), or using an existing Azure AD user, group, or application as Azure AD admin [Learn more](#), or select both SQL and Azure AD authentication.

Authentication method Use only Azure Active Directory (Azure AD) authentication Use both SQL and Azure AD authentication Use SQL authentication

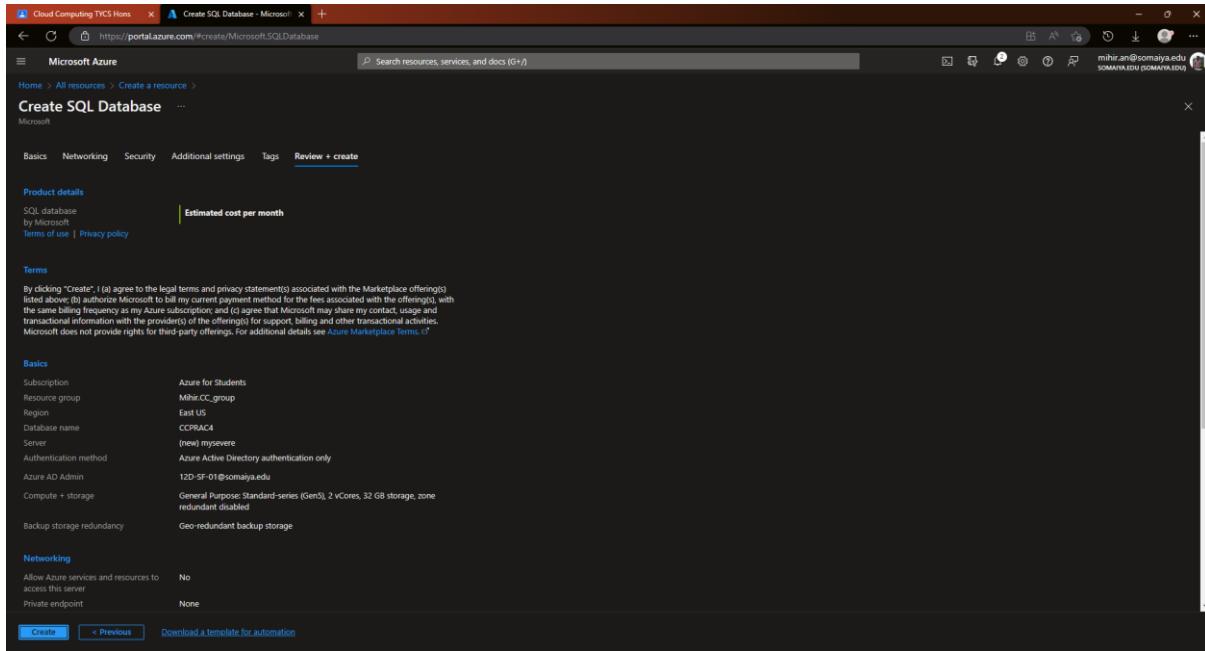
Set Azure AD admin Admin Object/App ID: 02c95f73-d434-408c-801c-2dbcffa0d03

Server admin login *

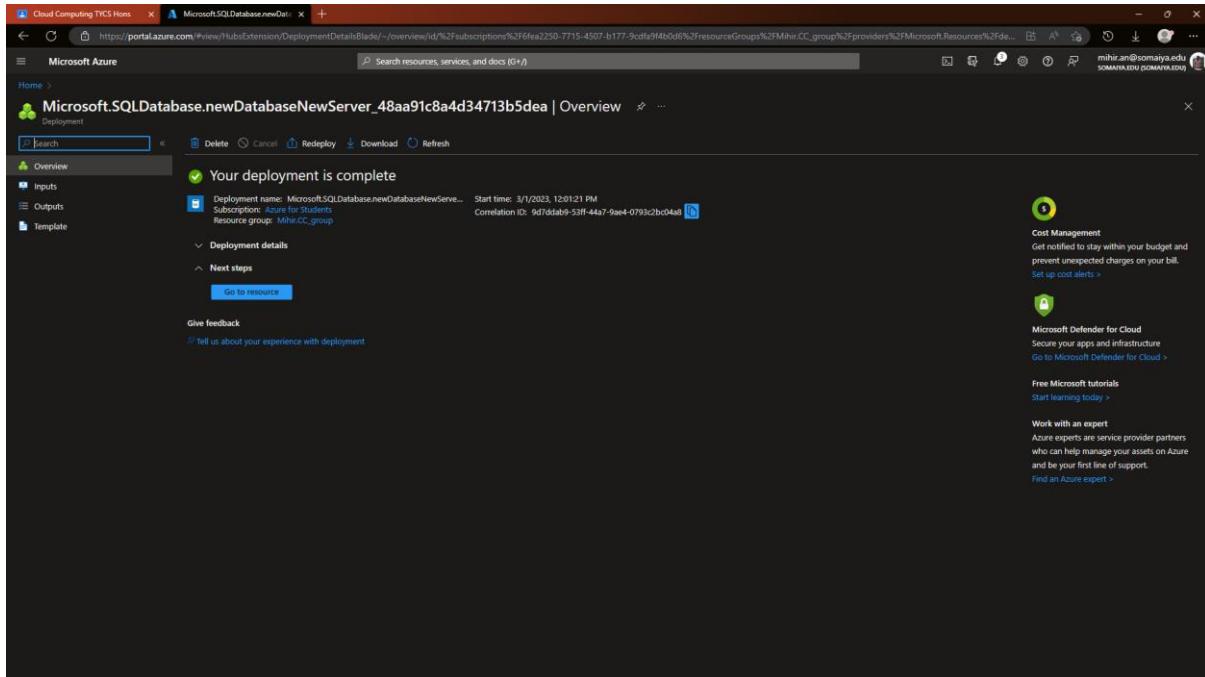
Password *

Confirm password *

Step 3: Click on “Create”.



Step 4: Click on “Go to Resource”



Step 5: Click on “Networking” and Click on “Add your client IPv4 address”.

The screenshot shows the Azure portal interface for managing a Microsoft SQL Server named 'mysevere'. In the left sidebar, under the 'Networking' section, there is a 'Firewall rules' subsection. A new rule has been added with the following details:

| Rule name | Start IPv4 address | End IPv4 address |
|---------------------------------|--------------------|------------------|
| ClientIPAddress_2023-3-12-19-25 | 182.73.90.242 | 182.73.90.242 |

At the bottom of the page, there are 'Save' and 'Discard' buttons.

Step 6: Go to “Microsoft SQL Server Management Studio” and login using the credentials. Create a new table.

The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. The Object Explorer on the left shows a database named 'mysevere'. In the center, the Table Designer is open for a table named 'dbo.Salary'. The table structure is as follows:

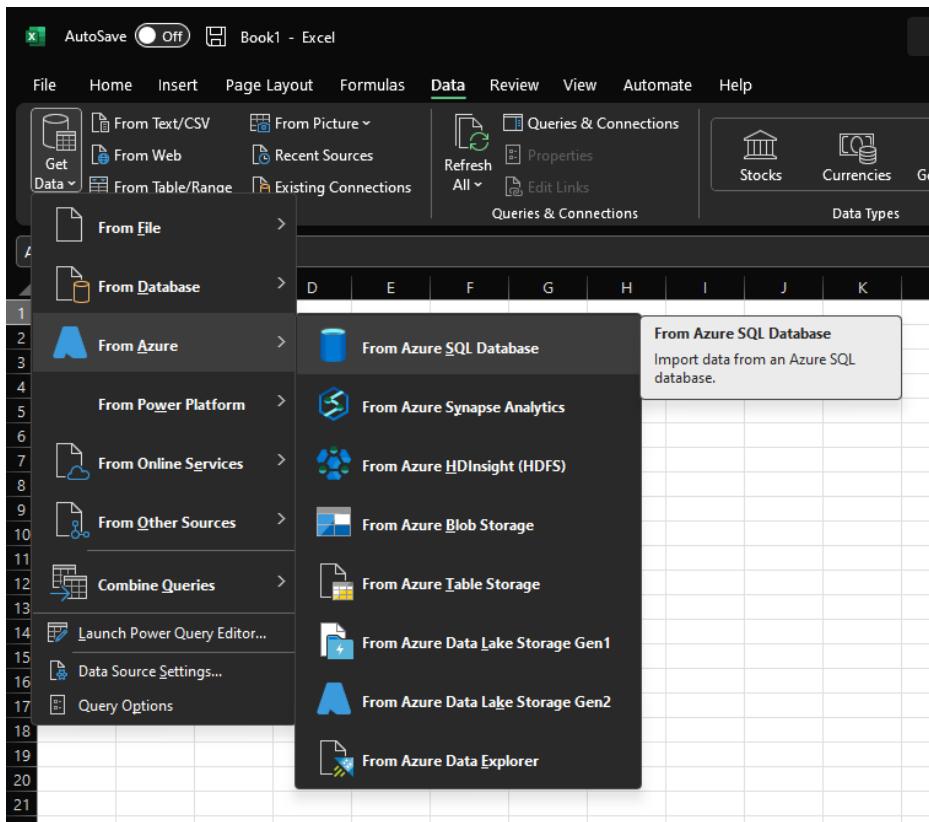
| Column Name | Data Type | Allow Nulls |
|-------------|----------------|-------------------------------------|
| id | numeric(18, 0) | <input type="checkbox"/> |
| name | varchar(50) | <input type="checkbox"/> |
| salary | numeric(18, 0) | <input checked="" type="checkbox"/> |

The 'Column Properties' pane at the bottom shows the properties for the 'salary' column:

- (General)
 - Name: salary
 - Allow Nulls: No
 - Data Type: numeric
 - Default Value or Binding:
 - Precision: 18

Step 7: Add values in the table.

Step 8: Go to “Excel” and from the Data Tab, click on “Get Data From Azure”



Step 9: Connect to your server.



Step 10: Select your table.

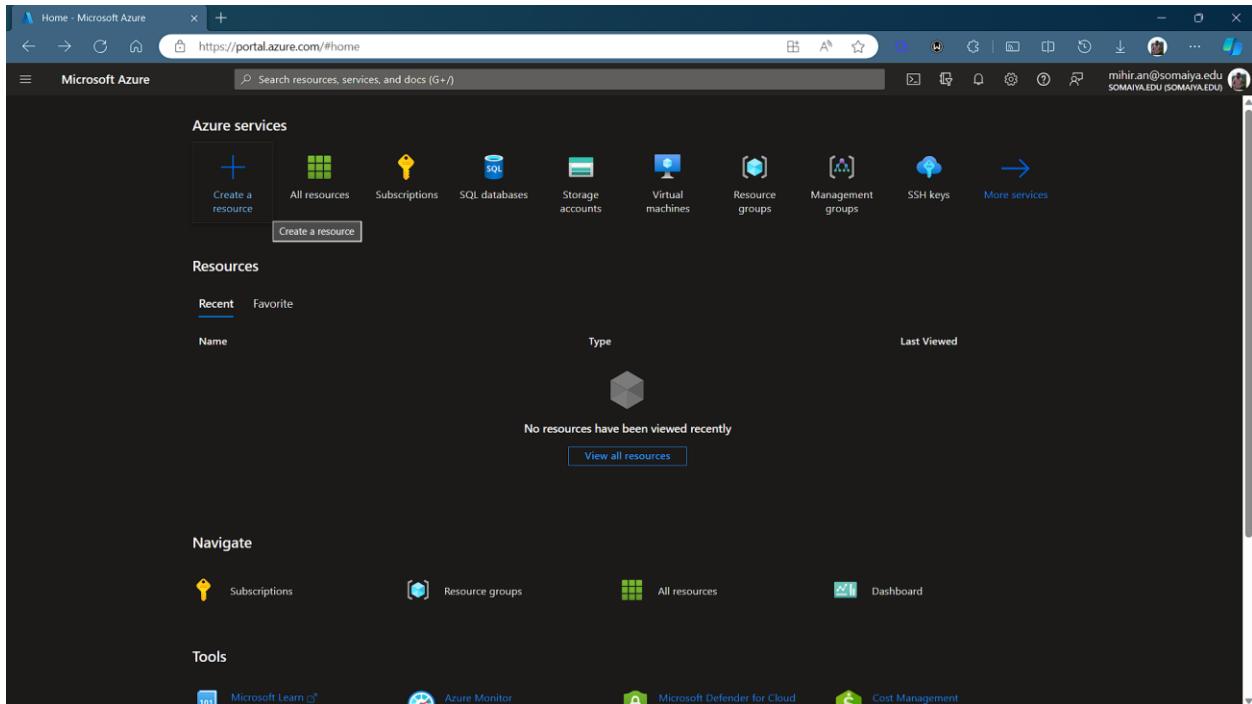
The screenshot shows the 'Navigator' window. On the left, there's a tree view with 'mysevere.database.windows.net [1]', 'CCPRAC4 [2]', 'sys.database_firewall_rules', and 'Salary' (which is highlighted with a green background). On the right, a table named 'Salary' is displayed with the following data:

| id | name | salary |
|----|--------|--------|
| 1 | Tabish | 100 |
| 1 | Deep | 10000 |

At the bottom, there are buttons for 'Select Related Tables', 'Load', 'Transform Data', and 'Cancel'.

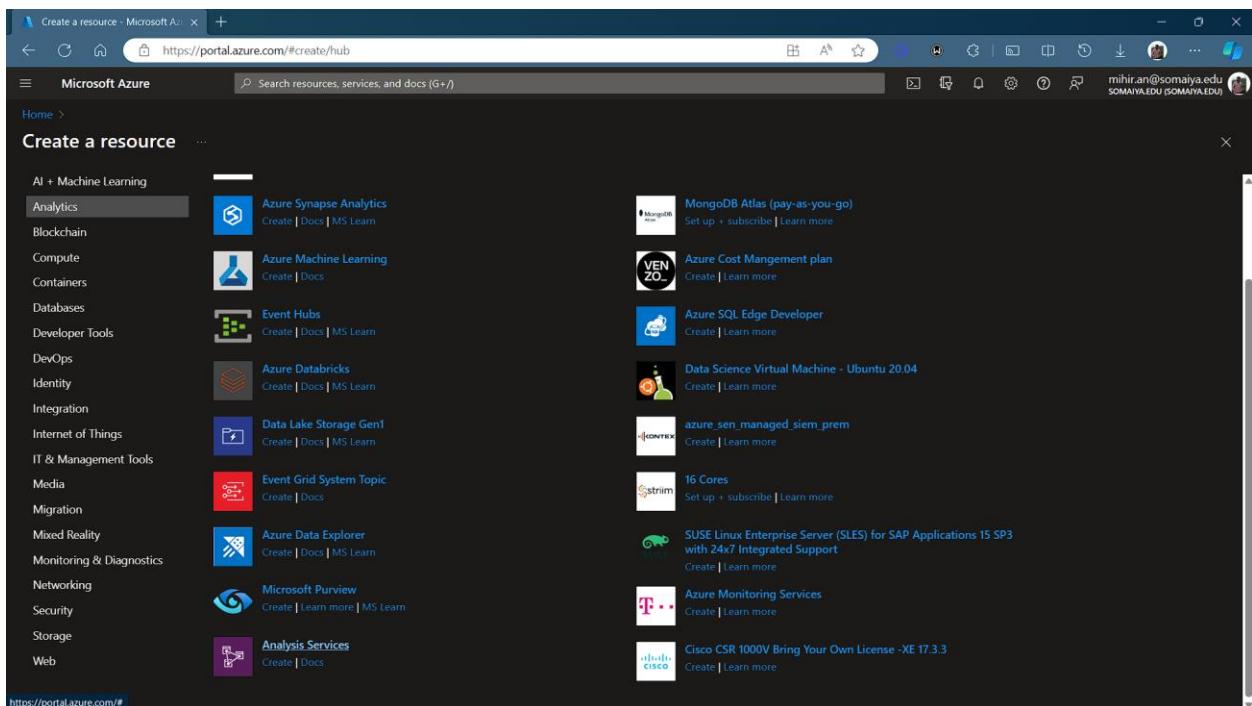
Practical 4: Power BI (Data Analytics)

Step 1: Login to Azure and Click on Create a Resource.



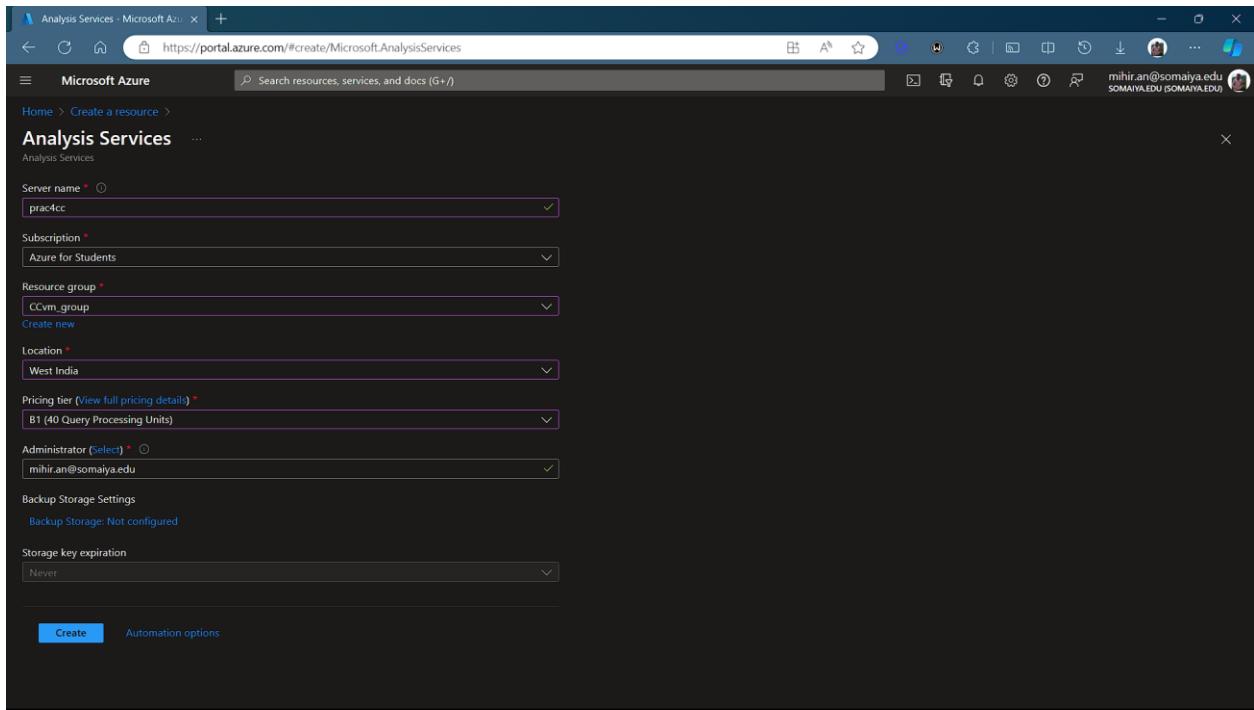
The screenshot shows the Microsoft Azure portal homepage. At the top, there's a navigation bar with links for Home, Subscriptions, SQL databases, Storage accounts, Virtual machines, Resource groups, Management groups, SSH keys, and More services. Below the navigation bar is a search bar labeled "Search resources, services, and docs (G+/-)". The main content area is titled "Azure services" and features a "Create a resource" button. To the right of this are icons for All resources, Subscriptions, SQL databases, Storage accounts, Virtual machines, Resource groups, Management groups, and SSH keys. Below this section is a "Resources" section with tabs for "Recent" and "Favorite". It displays a message: "No resources have been viewed recently" and a "View all resources" button. Further down are sections for "Navigate" (with links to Subscriptions, Resource groups, All resources, and Dashboard), "Tools" (with links to Microsoft Learn, Azure Monitor, Microsoft Defender for Cloud, and Cost Management), and a "Create a resource" sidebar on the left containing various service categories like Analytics, Blockchain, Compute, etc., with their respective icons and names.

Step 2: In the Analytics Tab, click on create “Analysis Services”.

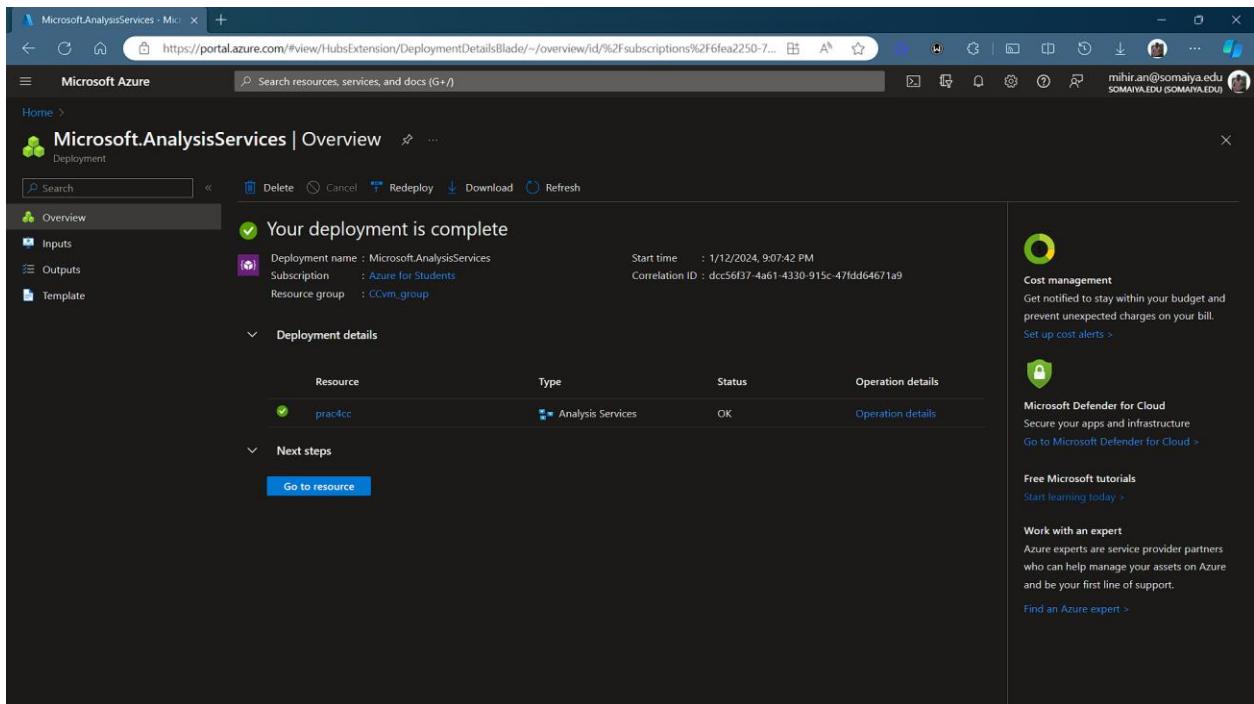


The screenshot shows the "Create a resource" hub in the Microsoft Azure portal. The left sidebar is titled "Create a resource" and has a "Analytics" category selected, which is highlighted in purple. Other categories listed include AI + Machine Learning, Blockchain, Compute, Containers, Databases, Developer Tools, DevOps, Identity, Integration, Internet of Things, IT & Management Tools, Media, Migration, Mixed Reality, Monitoring & Diagnostics, Networking, Security, Storage, and Web. On the right side, there is a grid of service cards. The "Analysis Services" card is visible at the bottom left of the grid. Other cards shown include Azure Synapse Analytics, MongoDB Atlas (pay-as-you-go), Azure Cost Management plan, Azure SQL Edge Developer, Data Science Virtual Machine - Ubuntu 20.04, azure_sen_managed_siem_prem, 16 Cores, SUSE Linux Enterprise Server (SLES) for SAP Applications 15 SP3, Azure Monitoring Services, and Cisco CSR 1000V Bring Your Own License -XE 17.3.3. Each card includes a "Create" button, a "Docs" link, and an "MS Learn" link.

Step 3: Fill in all the details. Click on Create.



Step 4: Wait till the deployment is complete and click on “Go to Resource”.



Step 5: Click on “New Model”

The screenshot shows the Microsoft Azure Analysis Services Overview page for the 'prac4cc' resource group. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Scale, Pricing Tier (Scale QPUs), Replicas, Models, Manage, Settings, Quick Start, Analysis Services Admins, On-Premises Data Gateway, Backups, Connection Strings, Firewall, Properties, and Logs. The main content area displays resource details: Resource group (CCvm_group), Status (Active), Location (West India), Subscription name (Azure for Students), and Subscription ID (6fea2250-7715-4507-b177-9cd9f4b0d6). Below this, a section titled 'Models on Analysis Services Server' shows a table with columns: Name, Compatibility, Date Modified, Last Synced Time, and Sync State. A message indicates 'No results'. At the top of the main content area, there are buttons for '+ New model', 'Pause', 'Move', and 'Delete'. The '+ New model' button is highlighted with a red box.

Step 6: Click on “Add”

The screenshot shows the 'New model' creation dialog box. The title bar says 'New model - Microsoft Azure'. The URL in the address bar is https://portal.azure.com/#view/Microsoft_Azure_AnalysisServices/CreateSampleDatabaseBlade/serverName/prac4cc%3A...'. The dialog has a header 'New model' and a sub-header '...'. Below the sub-header, there is a section titled 'Where is your data?' with a note 'Choose a data source'. A dropdown menu is open, showing 'Sample data' as the selected option. At the bottom of the dialog, there is a blue 'Add' button.

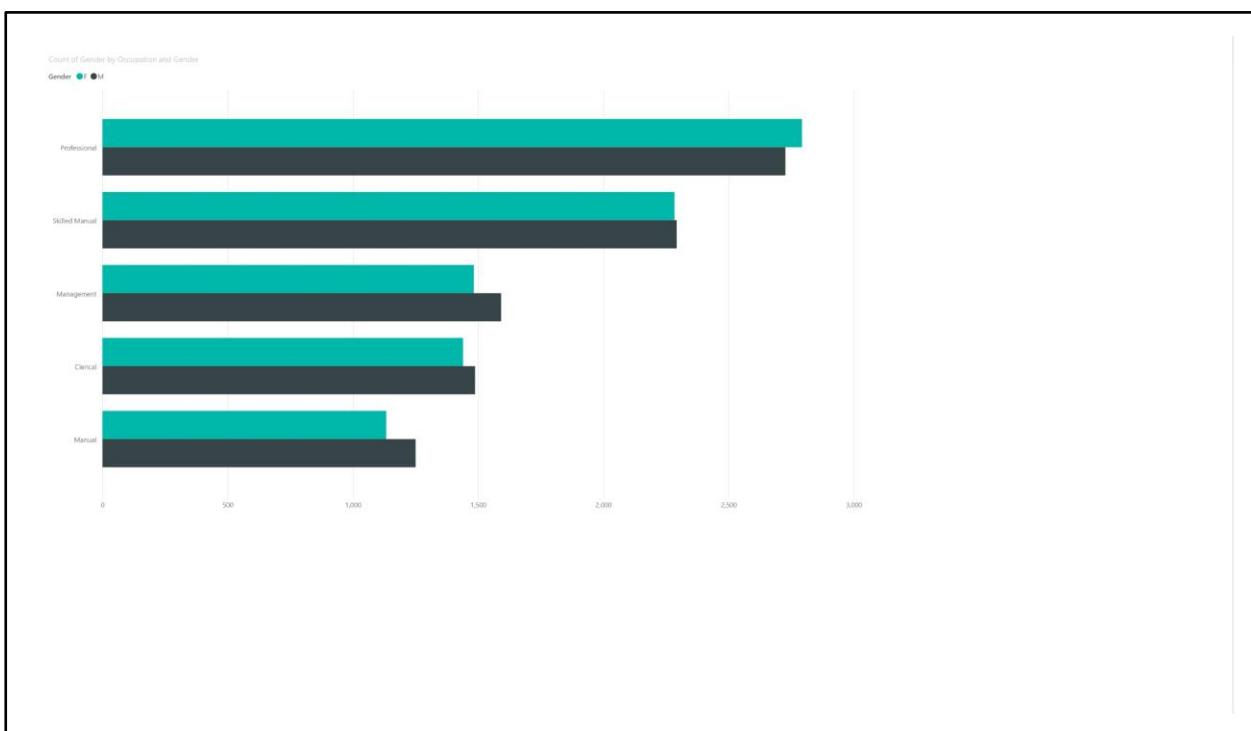
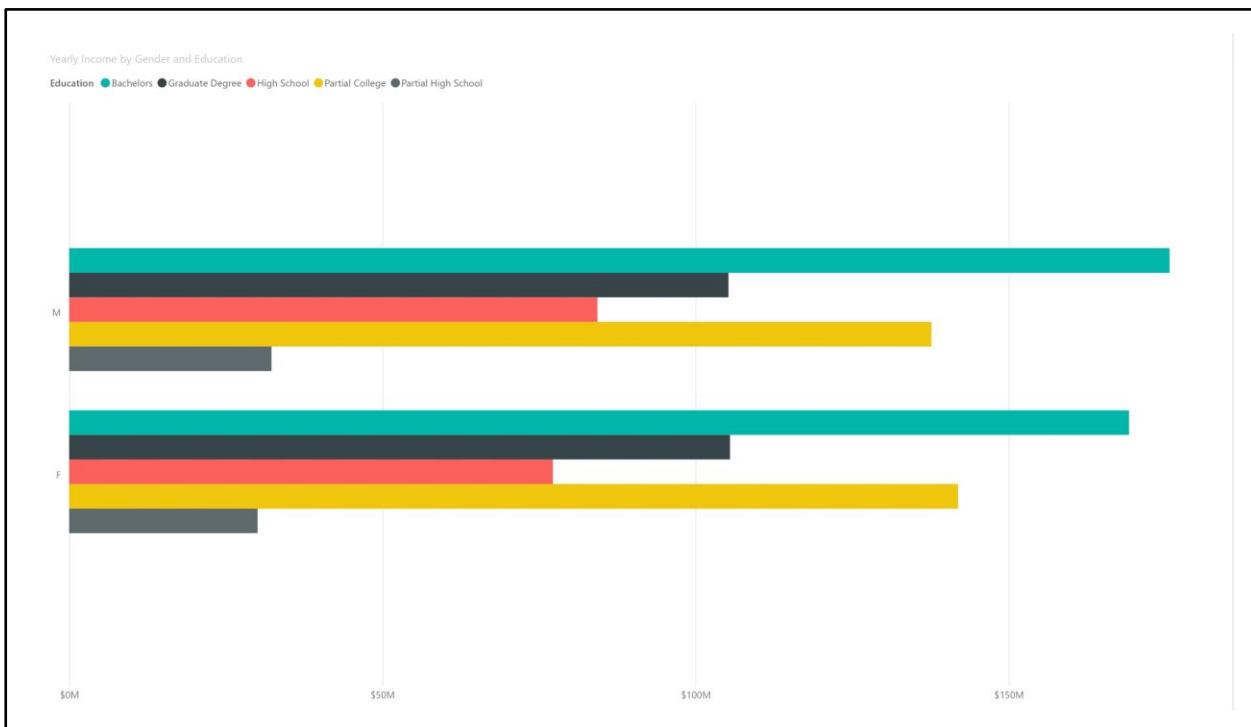
Step 7: Click on the “Context Menu” and Click on “Open in Excel” & “Open in Power BI Desktop” and Download it.

The screenshot shows the Microsoft Azure Analysis Services Overview page. On the left, there's a navigation sidebar with sections like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Scale, Pricing Tier (Scale QPUs), Replicas, Models, Manage, and Settings. The main area displays 'Models on Analysis Services Server' with a table showing one row for 'adventureworks'. To the right of the table, a context menu is open, listing 'Open in Excel', 'Open in Power BI Desktop', and 'Open in Visual Studio'.

Step 8: Open the File in Power BI.

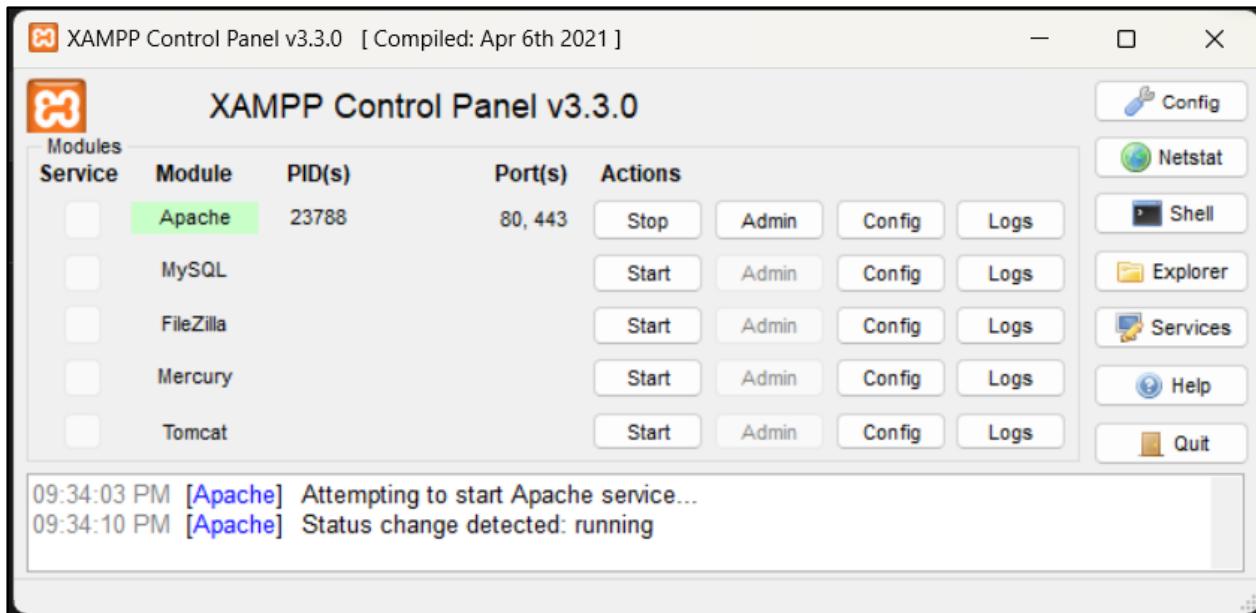
The screenshot shows the Power BI Desktop application window. The main area displays a 'Getting started with Power BI Desktop' screen, which includes a large circular arrow icon in the center, several small thumbnail images for 'Building reports', 'Query view concepts', 'Uploading your reports', and 'Create a Phone report', and a 'WHAT'S NEW' section. The top navigation bar includes File, Home, Insert, Modeling, View, Optimize, and Help. The left sidebar has options for Clipboard, Get data, Recent sources, and Open other reports. The bottom status bar shows 'Page 1' and '88%'. A user profile 'Mihir Nagda' is visible in the top right corner.

Step 9: Visualize the data



Practical 5A: Web Feeds Using RSS.

Step 1: Open XAMPP and Start Apache Server.



Step 2: Write this HTML code.

```
<html>
  <head>
    <script>
      function showRSS(str) {
        if (str.length == 0) {
          document.getElementById("output").innerHTML = "";
          return;
        }
        if (window.XMLHttpRequest) {
          xmlhttp = new XMLHttpRequest();
        } else {
          xmlhttp = new ActiveXObject("Microsoft.XMLHTTP");
        }
        xmlhttp.onreadystatechange = function () {
          if (xmlhttp.readyState == 4 && xmlhttp.status ==
200) {
            document.getElementById("output").innerHTML =
              xmlhttp.responseText;
          }
        }
      }
    </script>
  </head>
  <body>
    <div id="output"></div>
    <button onclick="showRSS('')>Get RSS</button>
  </body>
</html>
```

```

        }
    };
    xmlhttp.open("GET", "rss.php?q=" + str, true);
    xmlhttp.send();
}
</script>
</head>
<body>
<p>Please select an option to get RSS:</p>
<form>
<select onchange="showRSS(this.value)">
<option value="">Select an RSS-feed:</option>
<option value="cnn">CNN</option>
<option value="bbc">BBC News</option>
</select>
</form>
<br />
<div id="output">RSS-feeds</div>
</body>
</html>

```

Step 3: Write the php code.

```

<?php
$q = $_GET["q"];

if ($q == "cnn") {
    $xml = ("http://rss.cnn.com/rss/edition_entertainment.rss");
} elseif ($q == "bbc") {
    $xml =
("http://newsrss.bbc.co.uk/rss/newsonline_world_edition/americas/rss.xml");
}

$xmlDoc = new DOMDocument();
$xmlDoc->load($xml);

```

```
$channel = $xmlDoc->getElementsByTagName('channel')->item(0);

$channel_title = $channel->getElementsByTagName('title')
    ->item(0)->childNodes->item(0)->nodeValue;

$channel_link = $channel->getElementsByTagName('link')
    ->item(0)->childNodes->item(0)->nodeValue;

$channel_desc = $channel->getElementsByTagName('description')
    ->item(0)->childNodes->item(0)->nodeValue;

echo ("<p><a href = '" . $channel_link . "'>" .
    $channel_title . "</a>");

echo ("<br>");

echo ($channel_desc . "</p>");

$x = $xmlDoc->getElementsByTagName('item');

for ($i = 0; $i <= 2; $i++) {
    $item_title = $x->item($i)->getElementsByTagName('title')
        ->item(0)->childNodes->item(0)->nodeValue;
    $item_link = $x->item($i)->getElementsByTagName('link')
        ->item(0)->childNodes->item(0)->nodeValue;
    $item_desc = $x->item($i)->getElementsByTagName('description')
        ->item(0)->childNodes->item(0)->nodeValue;
    echo ("<p><a href = '" . $item_link . "'>" .
        $item_title . "</a>");

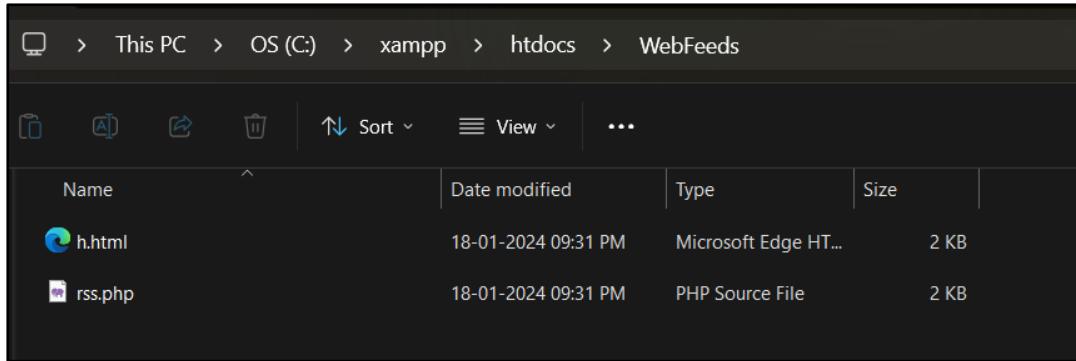
    echo ("<br>");

    echo ($item_desc . "</p>");

}

?>
```

Step 4: Save both the files inside a new folder called WebFeeds at the path C:\xampp\htdocs.



Step 5: Go to localhost/WebFeeds.

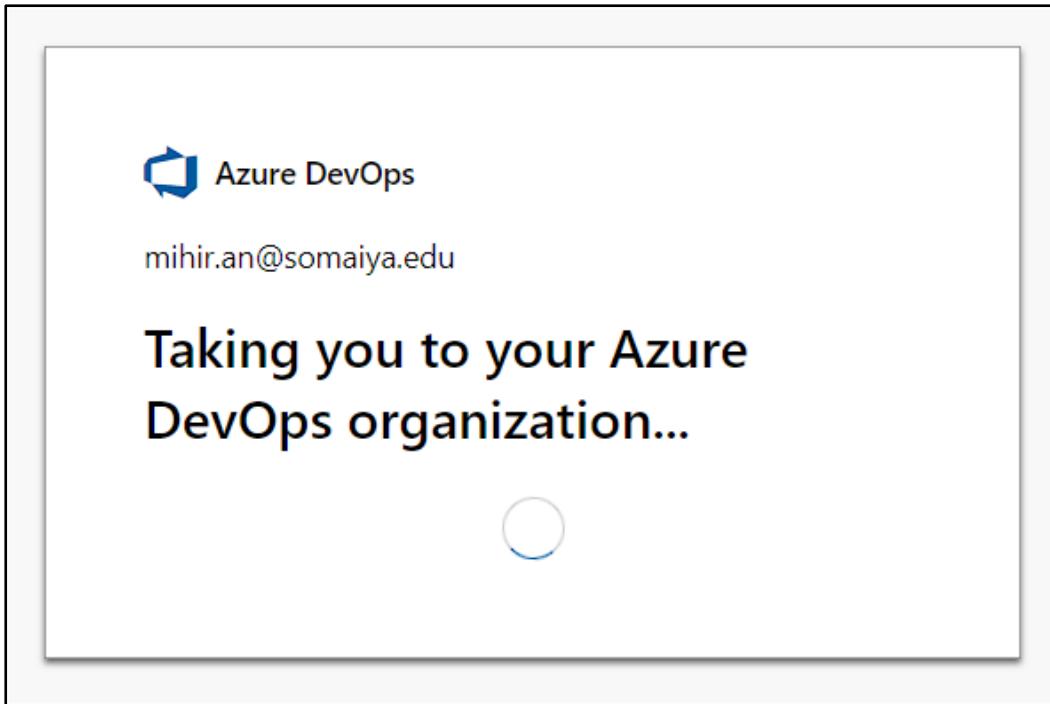
A screenshot of a web browser window titled 'Index of /webfeeds'. The address bar shows 'localhost/webfeeds/'. The page content is titled 'Index of /webfeeds' and includes a table with columns for Name, Last modified, Size, and Description. It lists three items: 'Parent Directory', 'h.html' (modified 2024-01-18 21:31, size 1.3K), and 'rss.php' (modified 2024-01-18 21:31, size 1.3K). At the bottom, it says 'Apache/2.4.54 (Win64) OpenSSL/1.1.1p PHP/8.2.0 Server at localhost Port 80'.

Step 6: Open h.html and choose any RSS Feed.

A screenshot of a web browser window titled 'localhost/webfeeds/h.html'. The address bar shows 'localhost/webfeeds/h.html'. The page content starts with 'Please select an option to get RSS:' followed by a dropdown menu with 'CNN' selected. Below the dropdown, there is a link to 'CNN.com - RSS Channel - Entertainment'. The page then lists several news articles: 'Kirstie Alley, 'Cheers' and 'Veronica's Closet' star, dead at 71', 'Actress Kirstie Alley has died after a brief battle with cancer, her children announced on social media.', 'John Travolta and Kirstie Alley: A love story', 'Kirstie Alley and John Travolta were never romantically involved, but that wasn't how she initially wanted it.', and 'Chelsea Handler, Leslie Jones and John Leguizamo among guest hosts to step in for Trevor Noah on 'The Daily Show''. At the bottom, it says 'The end of an era is fast approaching at Comedy Central's "The Daily Show," and the network has announced at least the first phase of plans for what's to come next.'

Practical 5B: Web Feeds using Azure DevOps

Step 1: Go to Azure DevOps and start free



Step 2: Create a new project.

A screenshot of the Azure DevOps "Create a project to get started" page. The URL in the browser bar is https://dev.azure.com/mihiran0315/. The main area shows a cartoon illustration of a person sitting on the ground with a dog, surrounded by clouds and code snippets. To the right, there is a form to enter a project name ("CCPrac6") and a visibility setting. The "Private" option is selected, indicated by a blue border around the radio button and the "Private" text. A note below states: "Public projects are disabled for your organization. You can turn on public visibility with organization policies." At the bottom right is a blue "Create project" button. On the left sidebar, there are links for "What's new" (mentioning "Sprint 234" and "Workload identity federation"), "Organization settings", and "New organization".

Step 3: Go to Artifacts.

The screenshot shows the Azure DevOps project summary page for the project 'CCPrac6'. The left sidebar has 'Artifacts' selected. The main area features a cartoon illustration of a person working at a desk with a dog. Below the illustration, the text 'Welcome to the project!' is displayed, followed by 'What service would you like to start with?'. Below this, there are tabs for Boards, Repos, Pipelines, Test Plans, and Artifacts, with 'Artifacts' being the active tab. A link 'or manage your services' is also present. To the right, there is a 'Project stats' section with a message 'No stats are available at this moment. Setup a service to see project activity.' and a 'Members' section showing one member with the initials 'MN'.

Step 4: Create a new Feed

The screenshot shows the Azure Artifacts feed creation page for the project 'CCPrac6'. The left sidebar has 'Artifacts' selected. The main area has a dropdown menu set to 'mihiran0315'. It features a central icon of a cloud with an upward arrow. Below the icon, the text 'Connect to the feed to get started' is displayed, with a 'Connect to Feed' button. There is also a 'Search Upstream Sources' button. A note at the bottom says 'Learn more about Azure Artifacts'.

Step 5: Give name and click on Create.

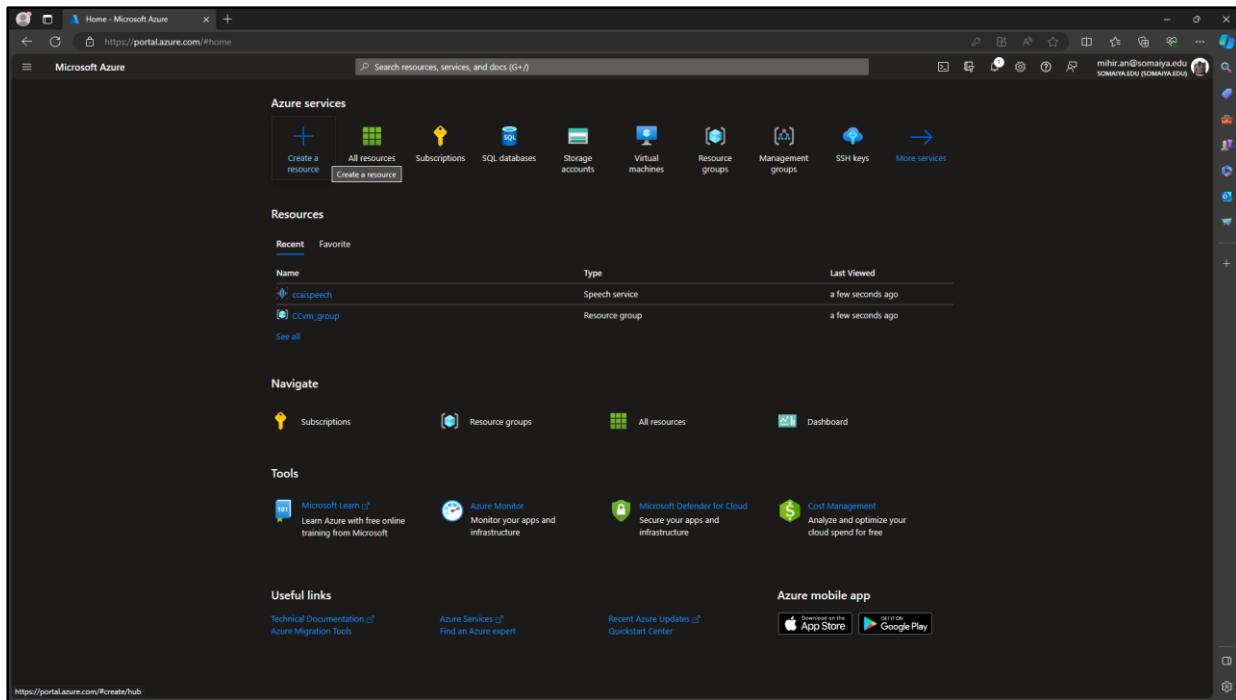
The screenshot shows the Azure DevOps interface for creating a new feed. On the left, the navigation bar includes 'Overview', 'Boards', 'Repos', 'Pipelines', 'Test Plans', and 'Artifacts'. The 'Artifacts' option is selected. In the center, there's a search bar with 'mihiran0315' and a dropdown arrow. Below it are two buttons: 'Connect to Feed' and 'Create Feed'. A central area features a cloud icon with a box and the text 'Connect to the feed to get started'. Below this are two buttons: 'Connect to Feed' and 'Search Upstream Sources'. A link 'Learn more about Azure Artifacts' is also present. On the right, a modal window titled 'Create new feed' is open. It contains the following fields:

- Name ***: Prac6
- Visibility**:
 - Members of your Microsoft Entra tenant: Any member of your Microsoft Entra tenant can view the packages in this feed.
 - Members of mihiran0315: Any member of your organization can view the packages in this feed.
 - Specific people: Only users you grant access to can view the packages in this feed.
- Upstream sources**:
 - Include packages from common public sources. A note says 'For example: nuget.org, npmjjs.com'
- Scope**:
 - Project: CCPrac6 (Recommended): The feed will be scoped to the CCPrac6 project.
 - Organization

At the bottom right of the modal are 'Cancel' and 'Create' buttons.

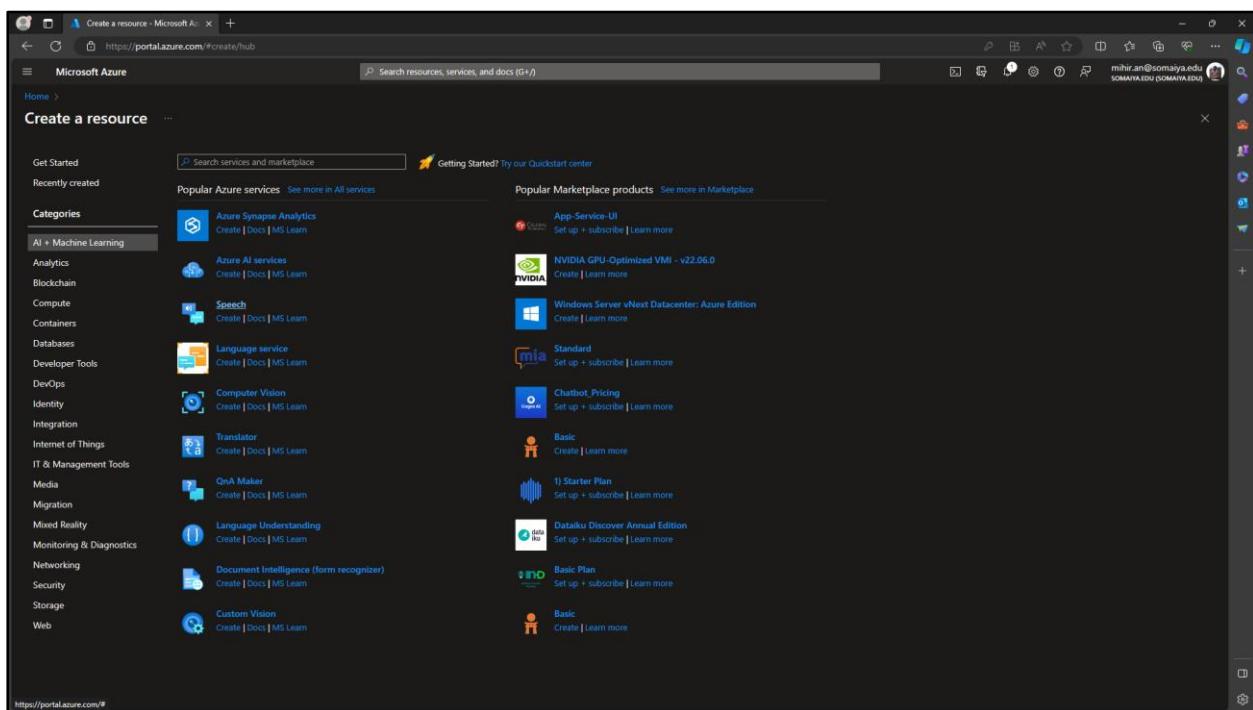
Practical 6: AI Services

Step 1: Go to “Create a Resource”



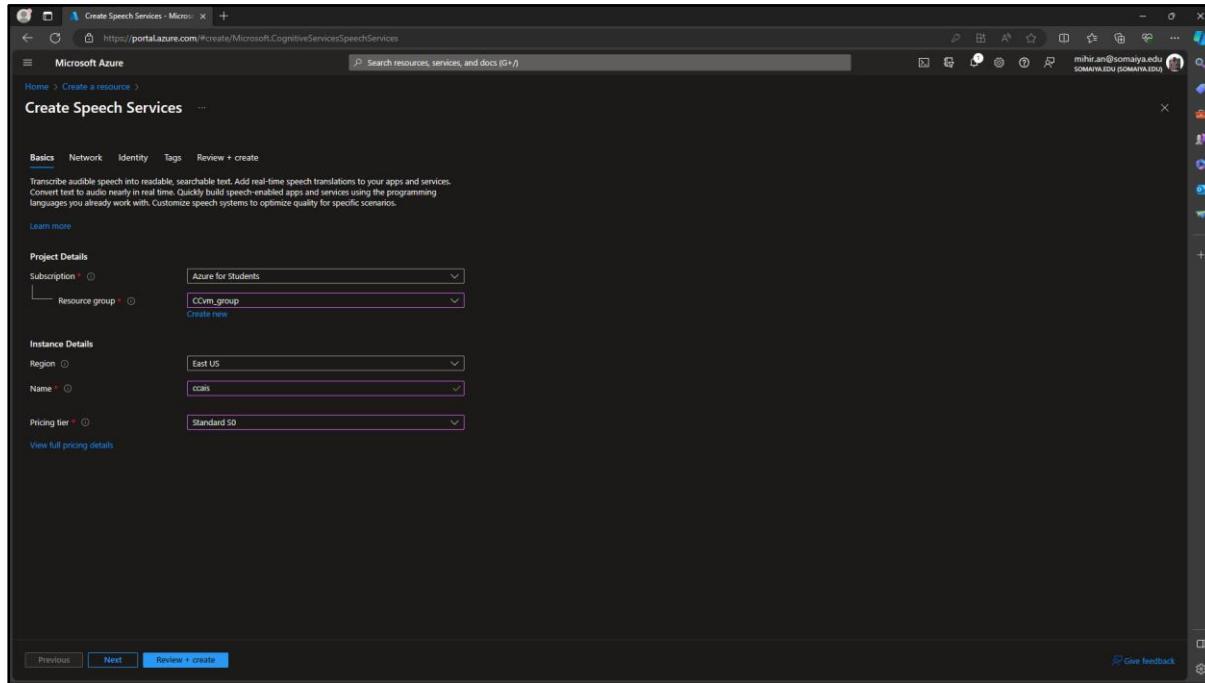
The screenshot shows the Microsoft Azure portal homepage. At the top, there's a search bar and a user profile. Below the header, the 'Azure services' section features a 'Create a resource' button, which is highlighted with a red box. Other service icons include All resources, Subscriptions, SQL databases, Storage accounts, Virtual machines, Resource groups, Management groups, SSH keys, and More services. The 'Resources' section shows recent and favorite resources like 'ccaspesch' (Speech service) and 'CCM_group' (Resource group). The 'Navigate' section includes links for Subscriptions, Resource groups, All resources, and Dashboard. The 'Tools' section has links for Microsoft Learn, Azure Monitor, Microsoft Defender for Cloud, and Cost Management. The 'Useful links' section includes Technical Documentation, Azure Migration Tools, Azure Services (Find an Azure expert), Recent Azure Updates (Quickstart Center), and Azure mobile app links for App Store and Google Play. The URL in the address bar is https://portal.azure.com/#create/hub.

Step 2: Select “AI + Machine Learning” Category and choose “Speech”.

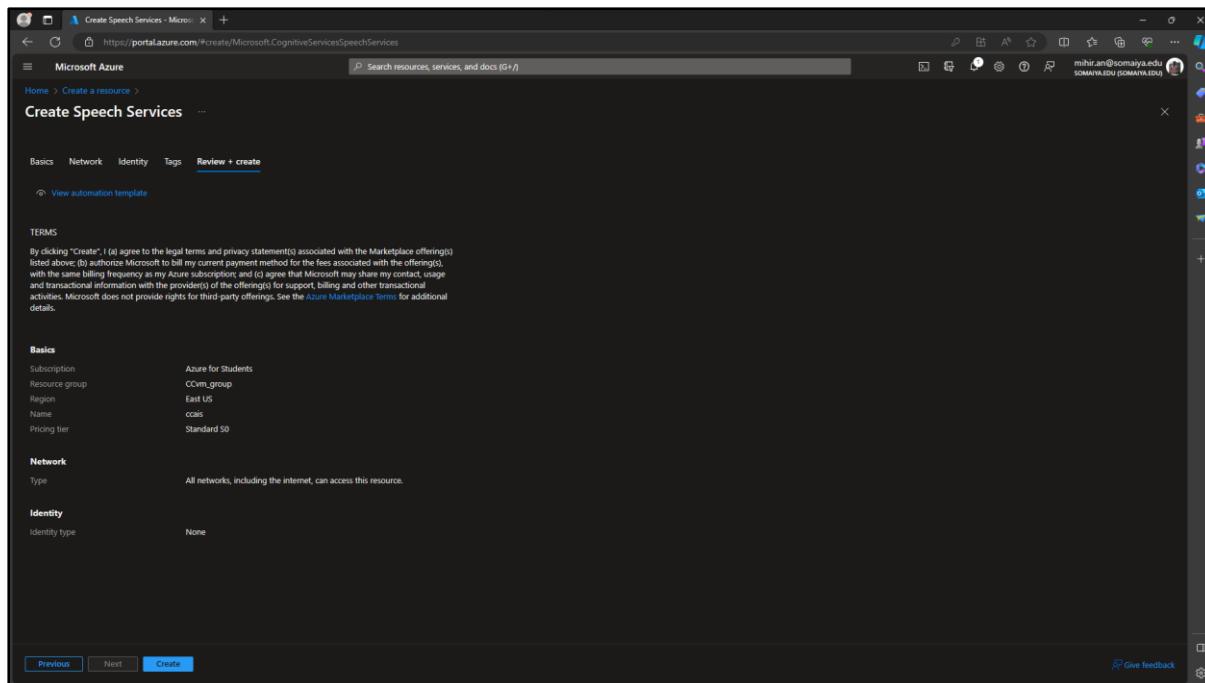


The screenshot shows the 'Create a resource' page in the Microsoft Azure portal. The left sidebar has a 'Categories' section with 'AI + Machine Learning' selected, indicated by a red box. Under 'Popular Azure services', the 'Speech' service is listed with a 'Create' button. The right side shows 'Popular Marketplace products' with various options like NVIDIA GPU-Optimized VM, Windows Server vNext Datacenter, and Dataiku Discover Annual Edition, each with a 'Create' or 'Set up + subscribe' button. The URL in the address bar is https://portal.azure.com/#create/hub.

Step 3: Fill in all the details and click on “Review + Create”



Step 4: Click on “Create”.



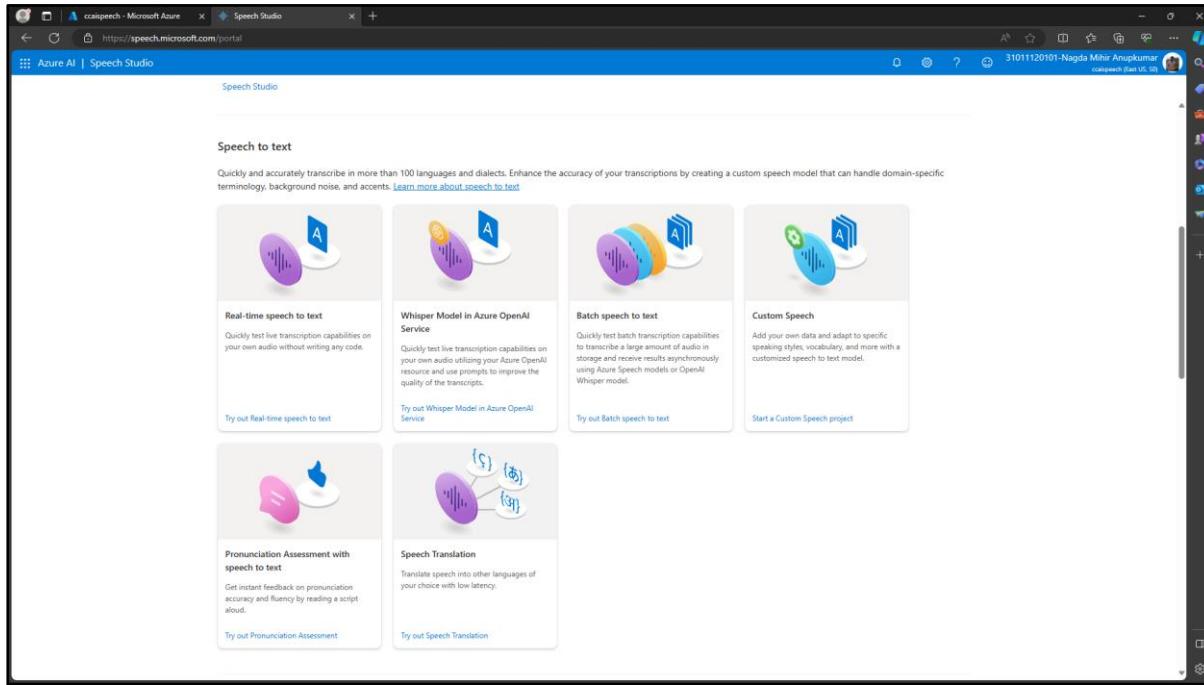
Step 5: Wait for the deployment and click on “Go to Resource”

The screenshot shows the Microsoft Azure portal with the URL https://portal.azure.com/#view/HubsExtension/DeploymentDetailsBlade/-/overview/id/%2FSubscriptions%2F6fea2250-7715-4507-b177-9cdfa94b0d6/resourceGroups%2CCvm_group/providers%2FMicrosoft.CognitiveServices/accounts%2Fccaispeech/overview. The page title is "Microsoft.CognitiveServicesSpeechServices-20240125015938 | Overview". The main message is "Your deployment is complete". Deployment details show the name is "Microsoft.CognitiveServicesSpeechServices-20240125015938", subscription is "Azure for Students", and resource group is "CCvm_group". The start time is 1/25/2024, 7:30:16 AM, and the correlation ID is 0x019d7e-795e-42bd-b891-1ab5a3afe449. A "Go to resource" button is present. On the right side, there are promotional links for Cost management, Microsoft Defender for Cloud, Free Microsoft tutorials, Work with an expert, and Find an Azure expert.

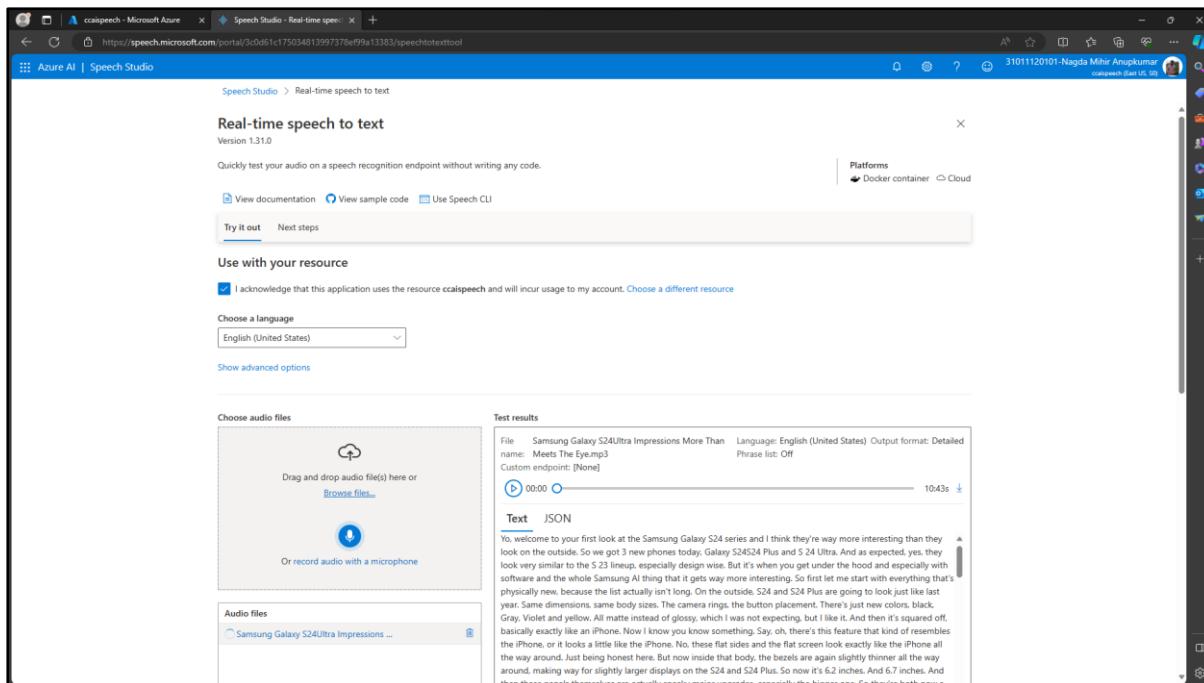
Step 6: Go to Speech Studio.

The screenshot shows the Microsoft Azure portal with the URL https://portal.azure.com/#@somaiya.edu/resource/subscriptions/6fea2250-7715-4507-b177-9cdfa94b0d6/resourceGroups/CCvm_group/providers/Microsoft.CognitiveServices/accounts/ccaispeech/overview. The page title is "ccaispeech". The left sidebar shows navigation options like Overview, Activity log, Access control (IAM), Tags, and Diagnosis and solve problems. The main content area shows the "Essentials" section with details: Resource group (CCvm_group), Status (Active), Location (East US), Subscription (Azure for Students), and Subscription ID (6fea2250-7715-4507-b177-9cdfa94b0d6). It also shows API Kind (SpeechServices), Pricing tier (Standard), Endpoint (<https://eastus.api.cognitive.microsoft.com/>), and Manage keys (with a link to "Click here to manage keys"). A "Get started with your resource in Speech Studio" section includes a "Go to Speech Studio" button and a "Keys and endpoint" section with instructions about API keys and a "Show keys" button. The right side of the screen shows a "JSON View" button and a vertical scroll bar.

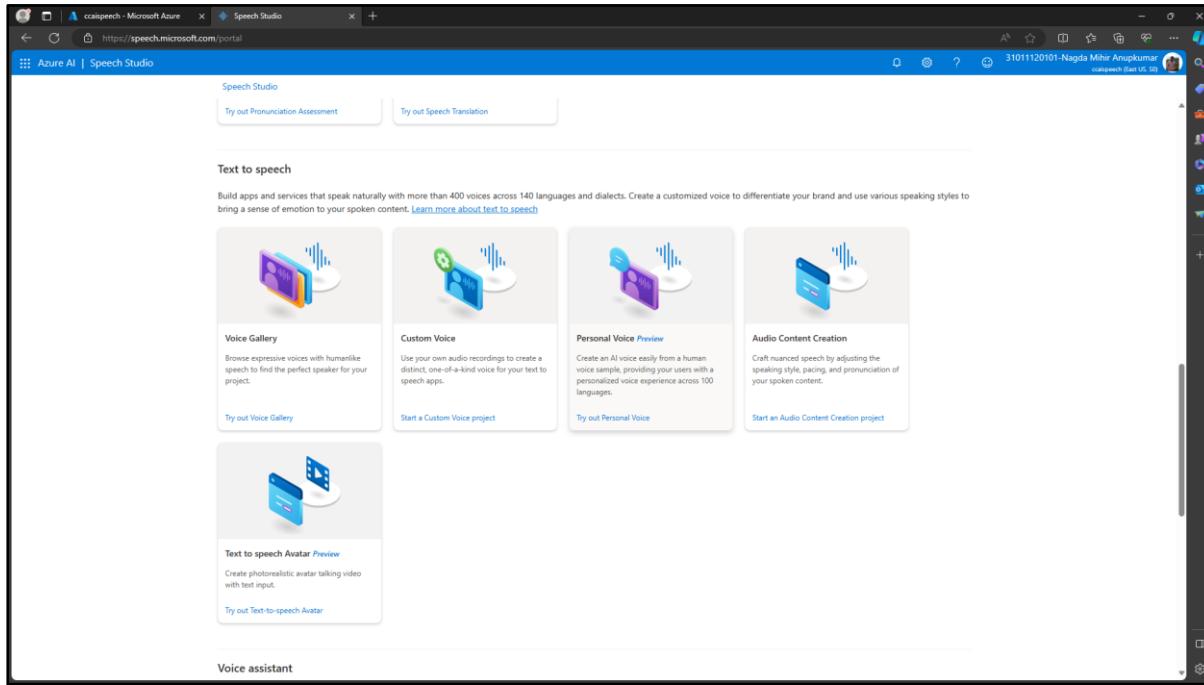
Step 7: Use any Speech to Text Service



Step 8: Try it out using any mp3 or inbuilt dialogues.



Step 9: Choose any Text to speech service



Step 10: Try it out

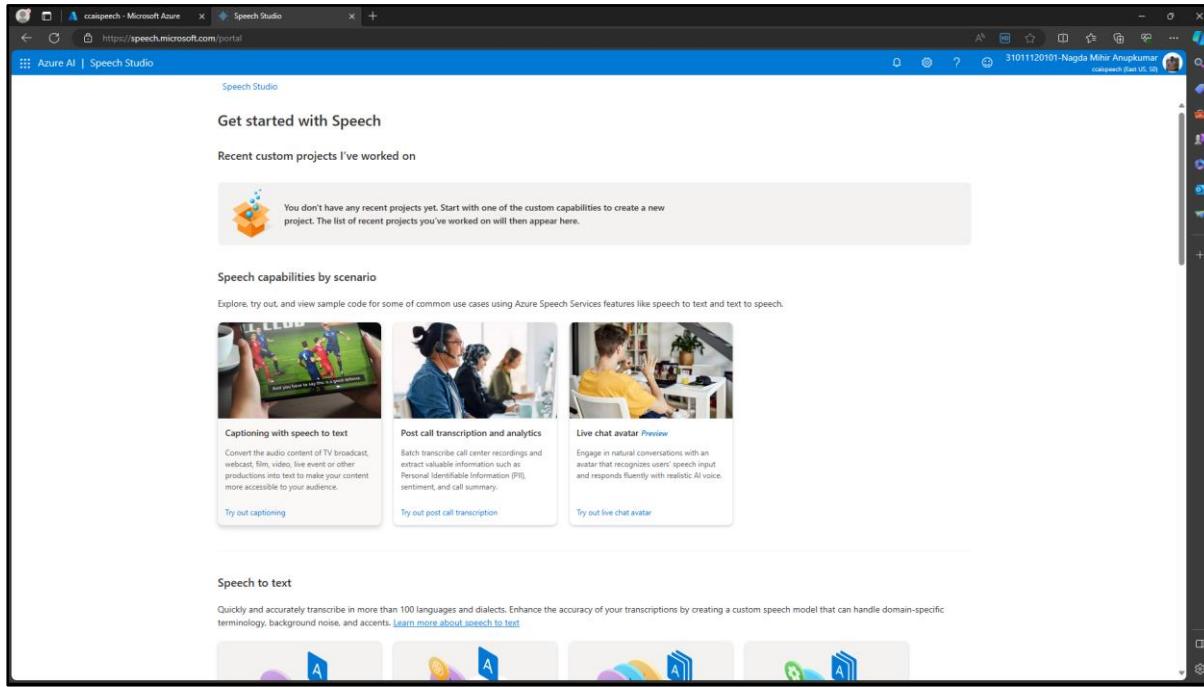
The screenshot shows the Microsoft Azure Speech Studio - Voice Gallery portal. At the top, there is a breadcrumb navigation: 'Speech Studio > Voice Gallery'. Below this, there is a heading 'Choose a sample' followed by a grid of ten voice samples:

| | | | | |
|---|---|--|--|---|
| English - Audiobook An argument demonstrating angry, shouting, and sad speaking styles | English - Audiobook A family discussion with a range of emotional tones and distinct voices | English - Narrator A broadcaster introduces a book and a child shares her dreams of space travel | English - News A weatherman recaps winter in the newscast speaking style | English - Voice assistant A cheerful voice assistant helps a customer set up a dinner reservation |
| Chinese - Audiobook An example featuring multiple roles with a wide variety of emotions | Chinese - Narrator Two podcasters provide their commentary on a recent news article | Chinese - News A voice that's optimized for casual news reporting gives a stock update | Chinese - Voice assistant A call center voice assistant helpfully answers questions about a delivery | Chinese - Voice assistant A smart car's voice assistant demonstrated by two different voices |

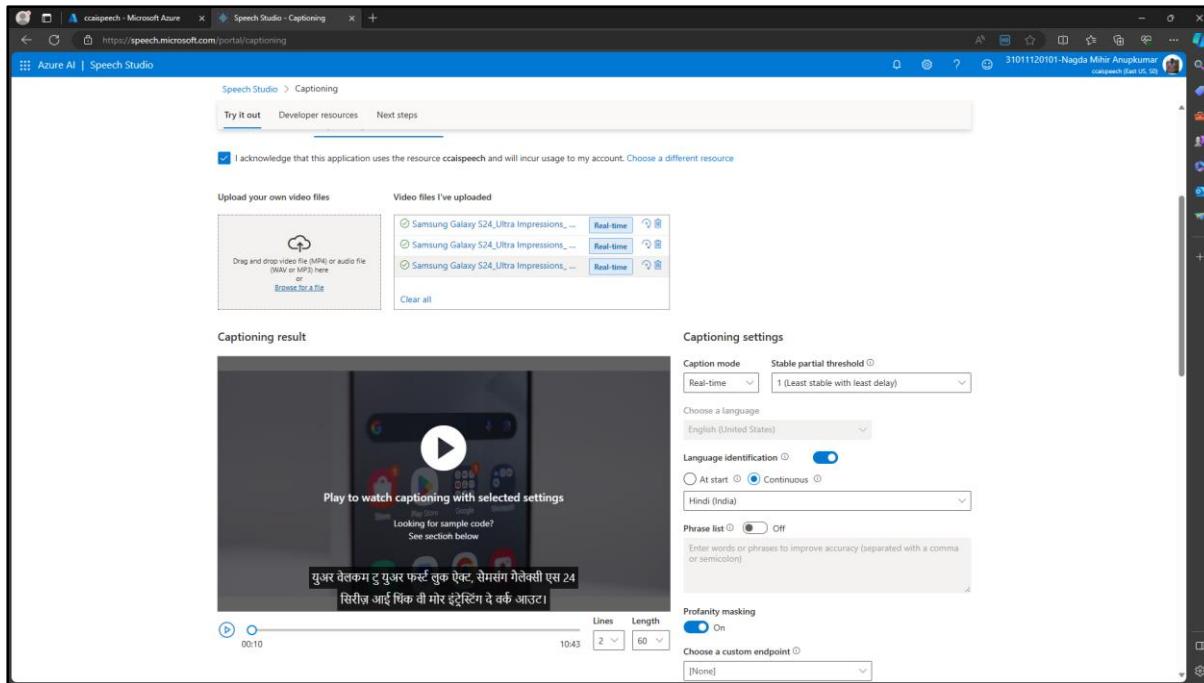
Below the grid, there is a preview window showing a transcript of a conversation between Nancy and Davis. The transcript includes SSML tags for speech synthesis. The preview window has a play button at 00:02 and an end time of 00:29s. There are also 'Copy SSML' and 'Edit in Audio Content Creation' buttons.

At the bottom, there is a link 'Next steps'.

Step 11: Select “Captioning with speech to text” service



Step 12: Use your own video and try it out.



Step 13: Create a new AI Service as Computer Vision

The screenshot shows the Azure AI services Computer vision page. The left sidebar lists various AI services, with 'Computer vision' selected. The main area displays a message: 'No computer vision to display. Try changing or clearing your filters.' It includes a 'Create computer vision' button and a 'Learn more' link. The top navigation bar shows the URL as https://portal.azure.com/#view/Microsoft_Azure_ProjectOxford/CognitiveServicesHub/~/ComputerVision.

Step 14: Give the name and Click on Review + Create

The screenshot shows the 'Create Computer Vision' wizard on the 'Basics' step. It includes sections for 'Project Details' (Subscription: Azure for Students, Resource group: Mihir.CC_group), 'Instance Details' (Region: East US, Name: CCP7), and 'Pricing tier' (Standard S1 (10 Calls per second)). A note at the top states: 'Changes on this step may reset later selections you have made. Review all options prior to deployment.' Navigation buttons at the bottom are 'Previous', 'Next', and 'Review + create'.

Step 15: Click on Create

The screenshot shows the 'Create Computer Vision' wizard in the Microsoft Azure portal. The page has a dark theme. At the top, there's a header bar with the title 'Create Computer Vision - Microsoft Azure' and a search bar. Below the header, the URL is https://portal.azure.com/#create/Microsoft.CognitiveServicesComputerVision. The main content area is titled 'Create Computer Vision' and contains several sections:

- TERMS:** A legal agreement section with a link to 'View automation template'.
- Basics:** Fields for Subscription (Azure for Students), Resource group (Mihir_CC_group), Region (East US), Name (CCP7), and Pricing tier (Standard S1 (10 Calls per second)).
- Network:** A note stating 'All networks, including the internet, can access this resource.'
- Identity:** A note stating 'Identity type: None'.

At the bottom, there are three buttons: 'Previous', 'Next', and a large blue 'Create' button. On the right side, there's a 'Give feedback' link.

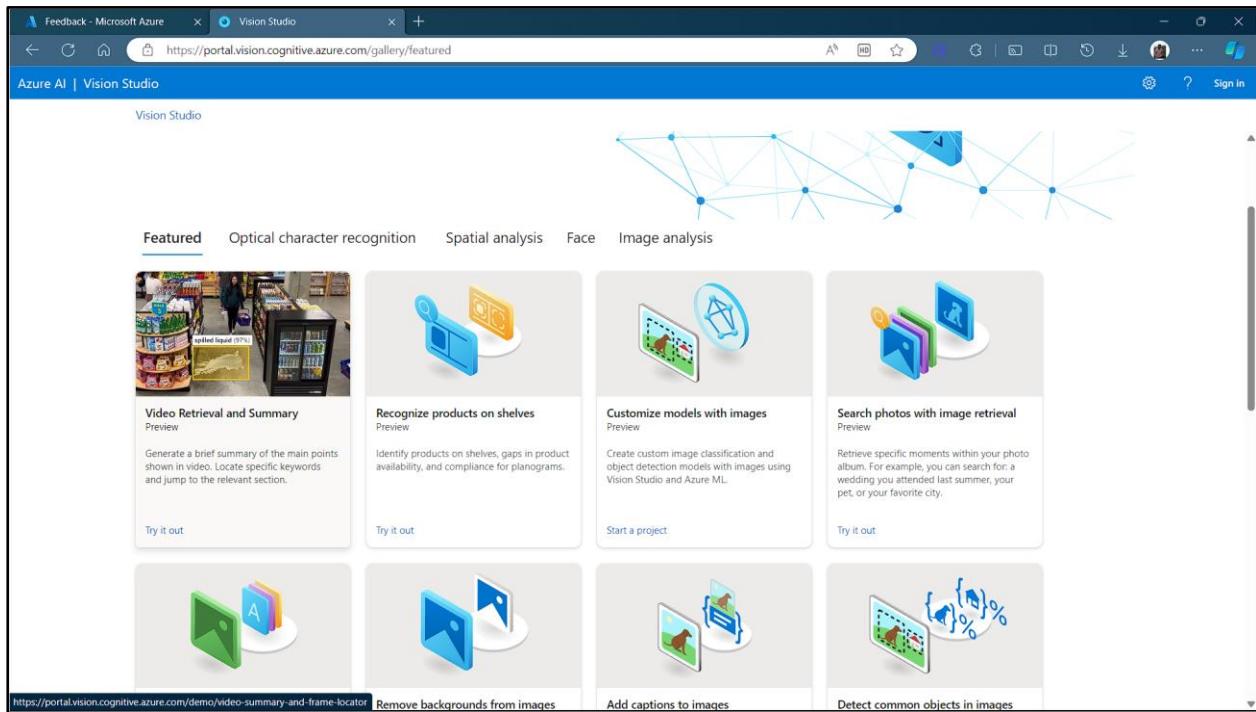
Step 16: Go to Vision Studio after deployment

The screenshot shows the 'CCP7 - Computer vision' overview page in the Microsoft Azure portal. The page has a dark theme. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource Management, Keys and Endpoint, Encryption, Commitment tier pricing, Networking, Identity, Cost analysis, Properties, Locks, Monitoring, Alerts, Metrics, and Diagnostic settings. The main content area is titled 'Essentials' and displays the following resource details:

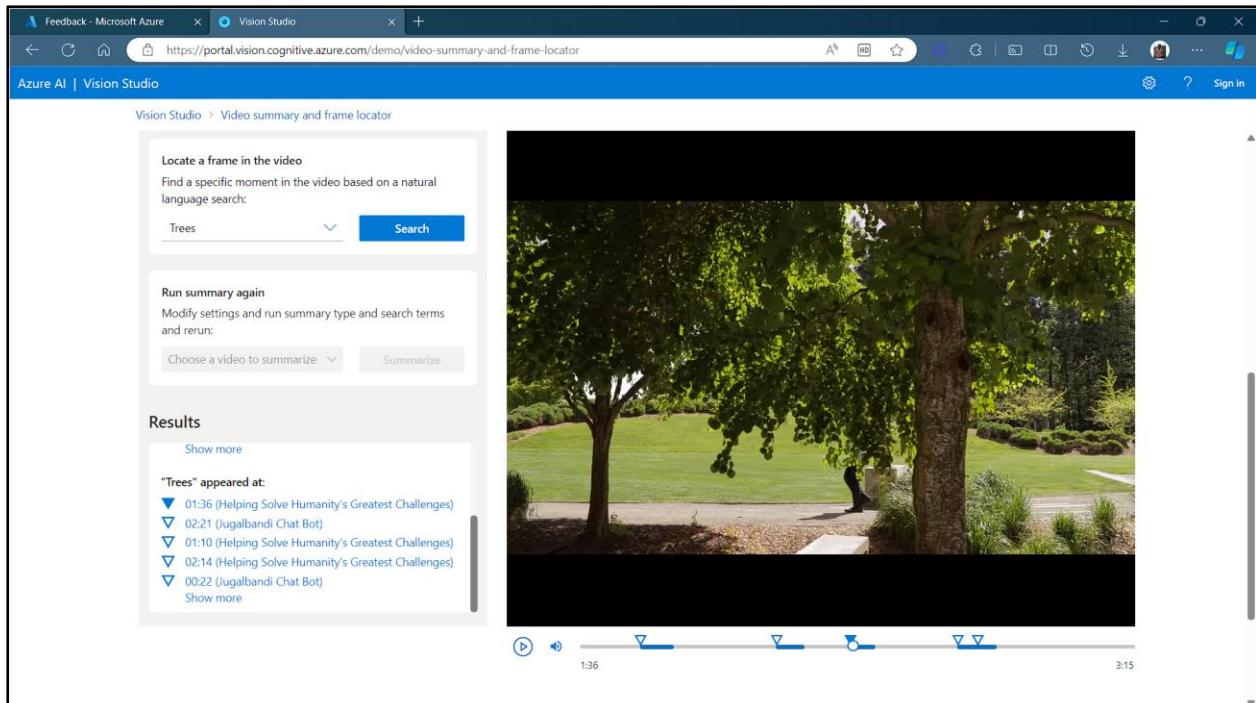
| Resource group | Mihir_CC_group | API Kind | ComputerVision |
|-----------------|--------------------------------------|--------------|---|
| Status | Active | Pricing tier | Standard |
| Location | East US | Endpoint | https://ccp7.cognitiveservices.azure.com/ |
| Subscription | Azure for Students | Manage keys | Click here to manage keys |
| Subscription ID | 6fea2250-7715-4507-b177-9cd9a9f4b0d6 | Autoscale | Disabled |
| Tags | Add tags | | |

Below the essentials, there's a section titled 'Get started with your resource in Vision Studio' with a 'Go to Vision Studio' button. At the bottom, there's a 'Keys and endpoint' section with a note about API keys and a 'Create API' button.

Step 17: Click on Video Retrieval and Summary

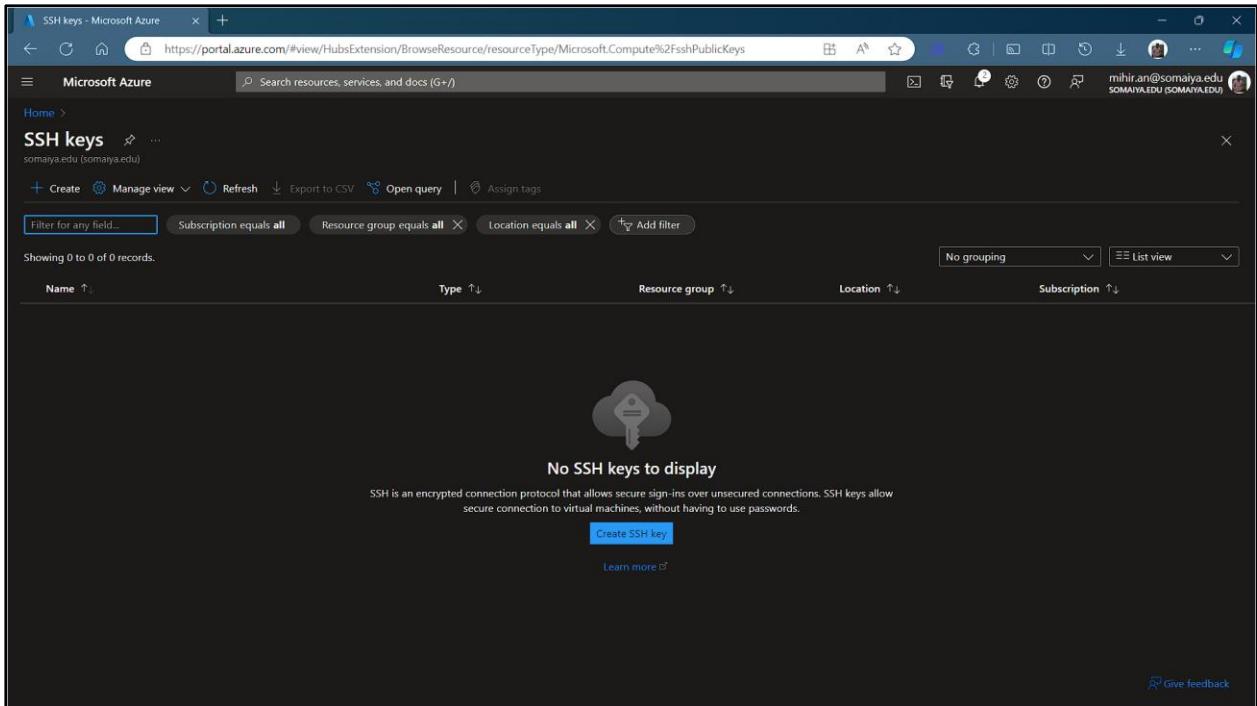


Step 18: Choose any video and check the results



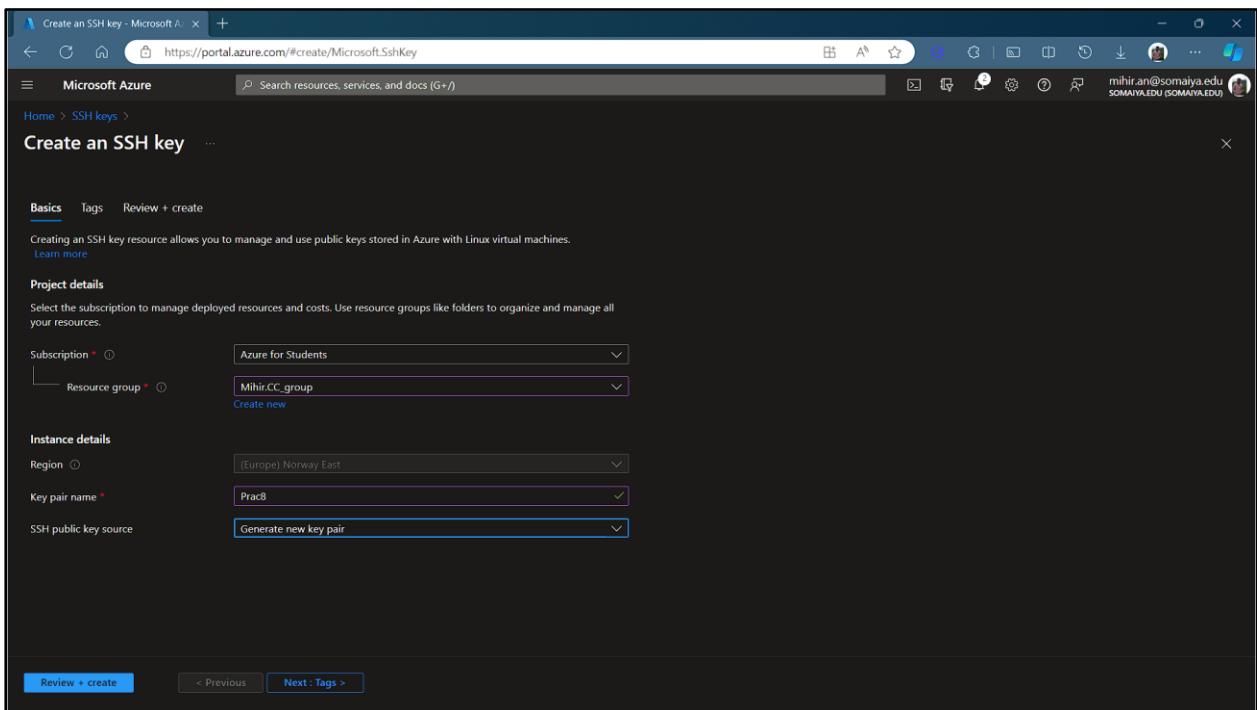
Practical 7: Generating SSH Keys using Azure

Step 1: Create a new Resource as SSH Keys



The screenshot shows the Microsoft Azure portal with the URL <https://portal.azure.com/#view/HubsExtension/BrowseResource/resourceType/Microsoft.Compute%2FsshPublicKeys>. The page title is "SSH keys". The main content area displays a large key icon and the text "No SSH keys to display". Below this, a description states: "SSH is an encrypted connection protocol that allows secure sign-ins over unsecured connections. SSH keys allow secure connection to virtual machines, without having to use passwords." Two buttons are present: "Create SSH key" (highlighted in blue) and "Learn more". The top navigation bar shows the user's email (mahir.an@somaiya.edu) and the resource group (SOMAIYA.EDU). The bottom right corner has a "Give feedback" link.

Step 2: Fill the required details and click on Review + Create.

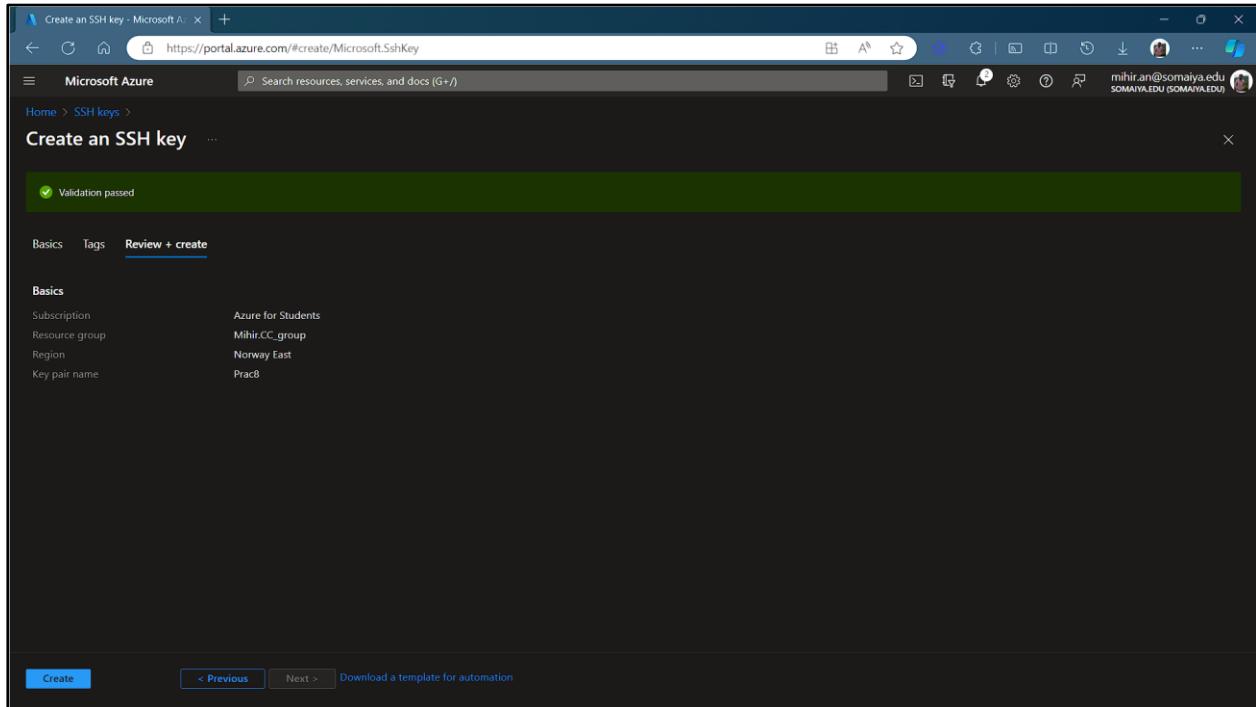


The screenshot shows the "Create an SSH key" wizard in the Microsoft Azure portal. The current step is "Basics". The form fields are as follows:

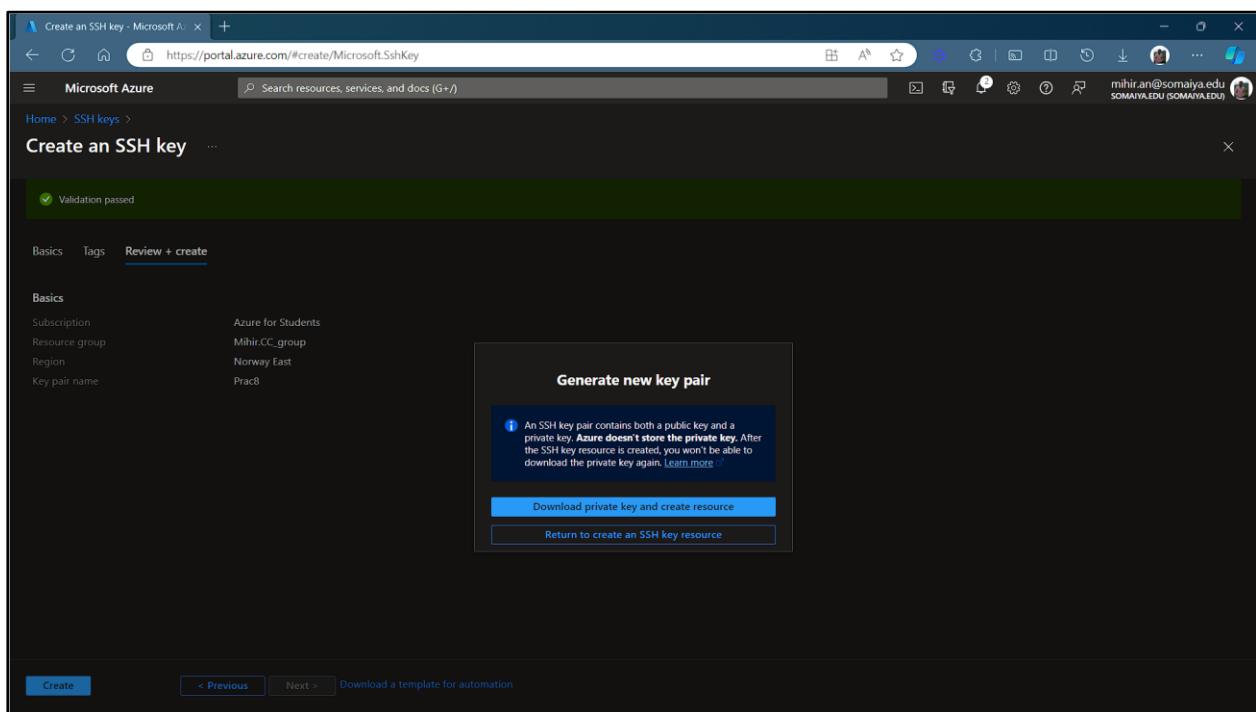
- Project details:** Subscription is set to "Azure for Students" and Resource group is set to "Mihir.CC_group".
- Instance details:** Region is set to "(Europe) Norway East", Key pair name is set to "Prac8", and the SSH public key source is set to "Generate new key pair".

At the bottom, there are buttons for "Review + create", "< Previous", and "Next : Tags >".

Step 3: Click on create.



Step 4: Download the Private key and Create Resource.



Practical 8: User management

Step 1: Go to any existing management group.

The screenshot shows the 'Management groups' blade in the Azure portal. At the top, there's a search bar and navigation links for 'Create', 'Add subscription', 'Refresh', 'Expand / Collapse all', 'Export to CSV', and 'Feedback'. Below this is a main content area with a heading 'Use management groups to group subscriptions. Click on an existing group to drill in, view details and govern resources. Right-click on any subscription or management group to launch quick actions. Click the "Get Started" tab to learn more.' A 'Get started' button and a 'Settings' link are also present. The main table lists three subscriptions across two groups:

| Name | Type | ID | Total subscriptions |
|--------------------|------------------|--------------------------------------|---------------------|
| Tenant Root Group | Management group | a64acab6-f01b-462b-aa9c-44546386ff31 | 1 |
| Azure for Students | Subscription | 6fea2250-7715-4507-b177-9cdfa9f4b0d6 | ... |
| Mihir | Management group | CCPrac7 | 0 |

Step 2: Create a new management group, give it an ID and display name.

The screenshot shows the 'Create management group' dialog box overlaid on the Azure Management groups blade. The dialog has a title 'Create management group' and a sub-instruction 'Create a new management group to be a child of 'Mihir''. It contains two main input fields: 'Management group ID (Cannot be updated after creation)*' and 'Management group display name'. The 'Management group ID' field is highlighted with a red border and has validation errors: 'The value must not be empty.' and 'ID can only be an ASCII letter, digit, -, _, ., and cannot end with a period.'. The 'Management group display name' field is empty. At the bottom of the dialog are 'Submit' and 'Cancel' buttons. The background shows the 'Overview' section of the 'Mihir' management group, which includes sections for Subscriptions, Resource Groups, Resources, Activity Log, Access control (IAM), Governance, Cost Management, and Deployments.

Create management group

Create a new management group to be a child of 'Mihir'

Management group ID (Cannot be updated after creation)*
2811

Management group display name
Prac9

| Name |
|-------|
| Prac9 |

There are no child

Submit Cancel

Step 3: Go to the newly created management group and assign a policy.

Management groups

| Name | Type | ID | Total subscriptions | ... |
|--------------------|------------------|--------------------------------------|---------------------|-----|
| Tenant Root Group | Management group | a64aeab6-f01b-462b-aa9c-44546386ff31 | 1 | ... |
| Azure for Students | Subscription | 6fea2250-7715-4507-b177-9cdfa9f4b0d6 | 0 | ... |
| Mihir | Management group | CCPrac7 | 0 | ... |
| Prac9 | Management group | 2811 | 0 | ... |

Policy - Microsoft Azure Practical_7-11.pdf

Microsoft Azure

Search resources, services, and docs (G+)

Home > Management groups > Prac9 | Policy > Policy

Policy | Compliance

Assign policy Assign initiative Refresh

Overview

Getting started

Compliance (selected)

Remediation

Events

No assignments to display within the given scope

Authoring

Definitions

Assignments

Exemptions

Search

Filter by name or ID... Scope : 2811 Definition type : All definition types Compliance state : All compliance states

Step 4: Click on Add after selecting the policy.

Available Definitions - Microsoft Practical_7-11.pdf

Microsoft Azure

Search resources, services, and docs (G+)

Home > Management groups > Prac9 | Policy > Policy | Compliance > Assign policy

Assign policy

Basics Advanced Parameters Remediation Non-compliance messages Review + create

Scope Learn more about setting the scope * Prac9

Exclusions Optionally select resources to exclude from the policy assignment.

Basics

Policy definition *

Assignment name *

Description

Policy enforcement ⓘ Enabled

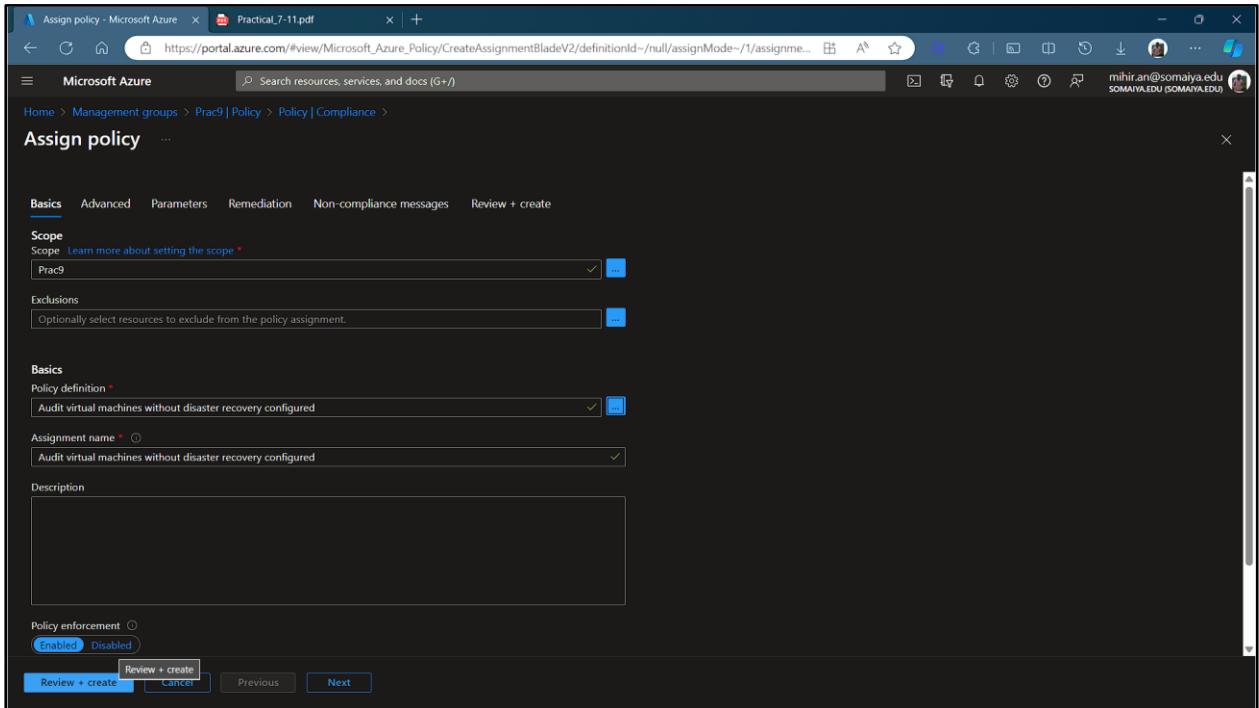
Available Definitions

Search Type : 2 selected

| POLICY NAME | CATEGORY | TYPE |
|---|------------------------|---------|
| Audit virtual machines without disaster recovery configured | Compute | Builtin |
| Vulnerability assessment should be enabled on your Synapse workspaces | Synapse | Builtin |
| SQL Server Integration Services integration runtimes on Azure Data Factory should ... | Data Factory | Builtin |
| [Preview]: Configure VMSS created with Shared Image Gallery images to install the ... | Security Center | Builtin |
| Private endpoint connections on Batch accounts should be enabled | Batch | Builtin |
| Enable logging by category group for microsoft.network/p2svpn gateways to Storage | Monitoring | Builtin |
| Azure Backup should be enabled for Virtual Machines | Backup | Builtin |
| Configure App Service app slots to use the latest TLS version | App Service | Builtin |
| Enable logging by category group for Service Bus Namespaces (microsoft.servicebu...) | Monitoring | Builtin |
| Configure a private DNS Zone ID for table groupID | Storage | Builtin |
| Configure Azure Virtual Desktop workspaces with private endpoints | Desktop Virtualization | Builtin |
| [Preview]: Azure Security agent should be installed on your Windows Arc machines | Security Center | Builtin |
| Azure AI Services resources should restrict network access | Azure AI Services | Builtin |
| Enable logging by category group for Event Grid Domains (microsoft.eventgrid/do...) | Monitoring | Builtin |
| Azure Kubernetes Service Private Clusters should be enabled | Kubernetes | Builtin |
| Azure Kubernetes Service Clusters should enable node os auto-upgrade | Kubernetes | Builtin |

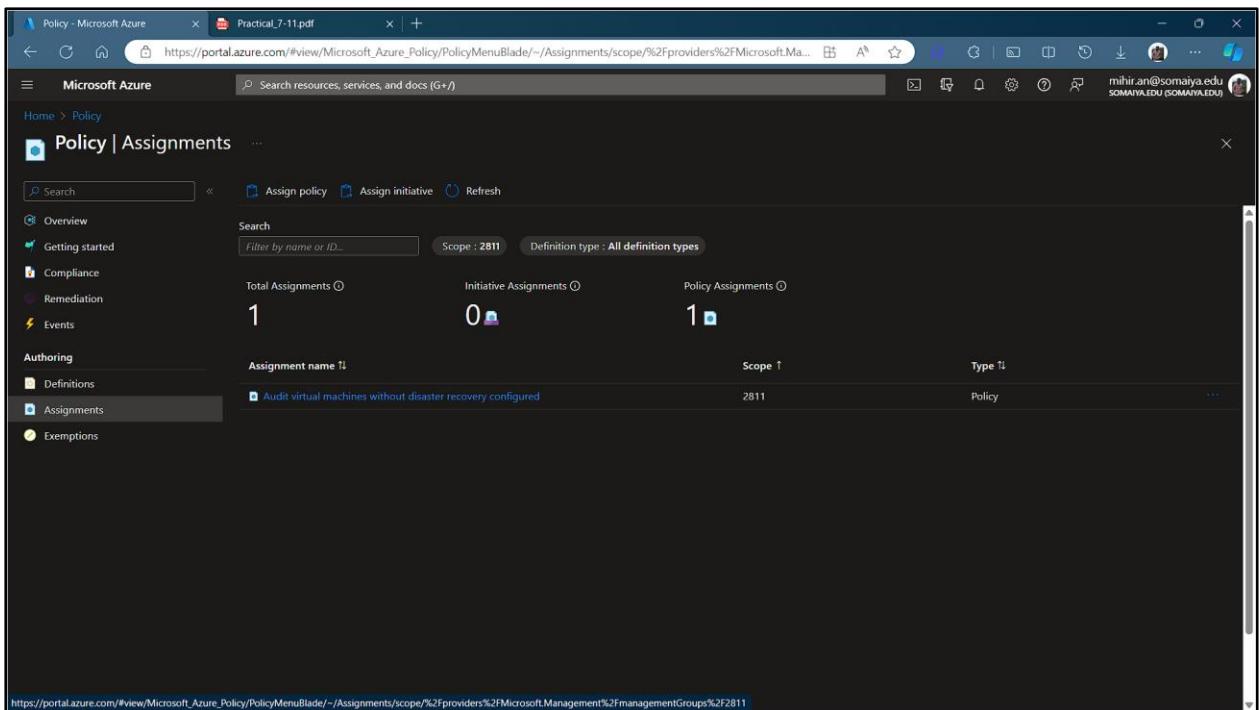
Review + create Cancel Previous Next Add Cancel

Step 5: Click on Review and Create.



The screenshot shows the 'Assign policy' step in the Azure portal. The 'Scope' dropdown is set to 'Prac9'. The 'Policy definition' dropdown is set to 'Audit virtual machines without disaster recovery configured'. The 'Assignment name' dropdown is also set to the same value. The 'Description' field is empty. The 'Policy enforcement' section shows 'Enabled' is selected. At the bottom, the 'Review + create' button is highlighted.

Step 6: Policy has been assigned.

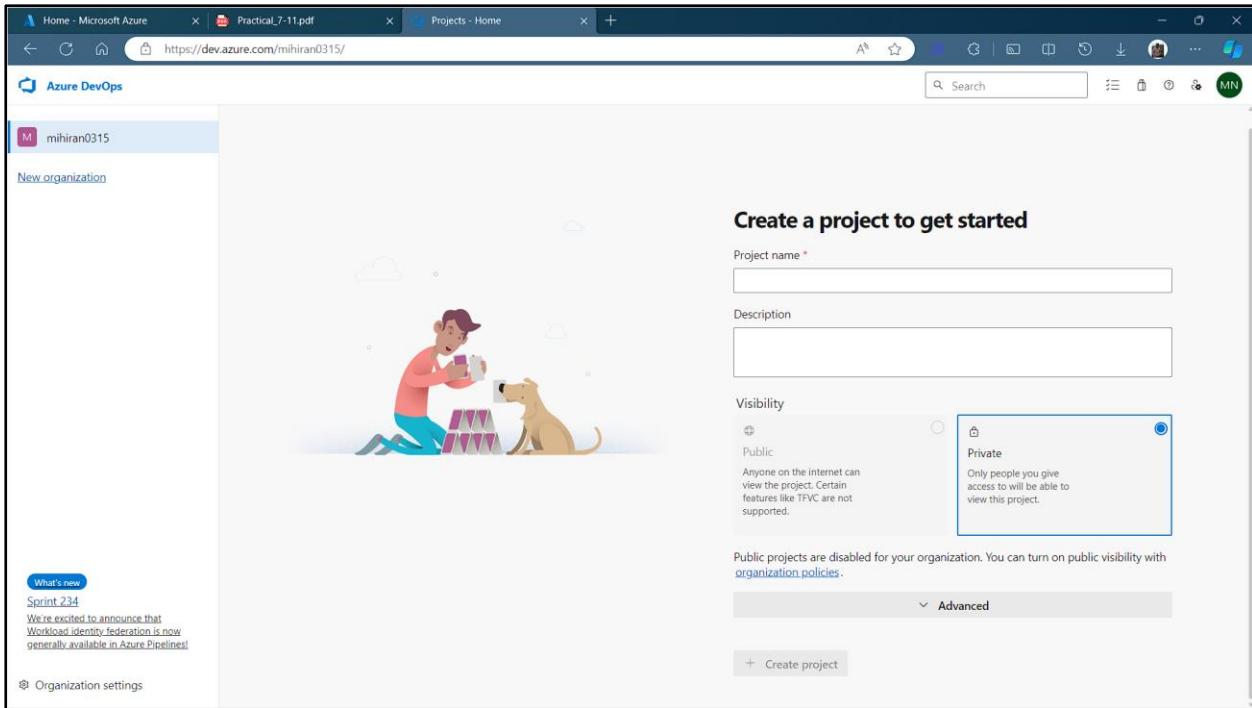


The screenshot shows the 'Policy | Assignments' page in the Azure portal. It displays one assignment named 'Audit virtual machines without disaster recovery configured' with a scope of '2811' and a type of 'Policy'. The 'Assignments' tab is selected in the sidebar.

Practical 9A: Establishing a Connection between two virtual machines

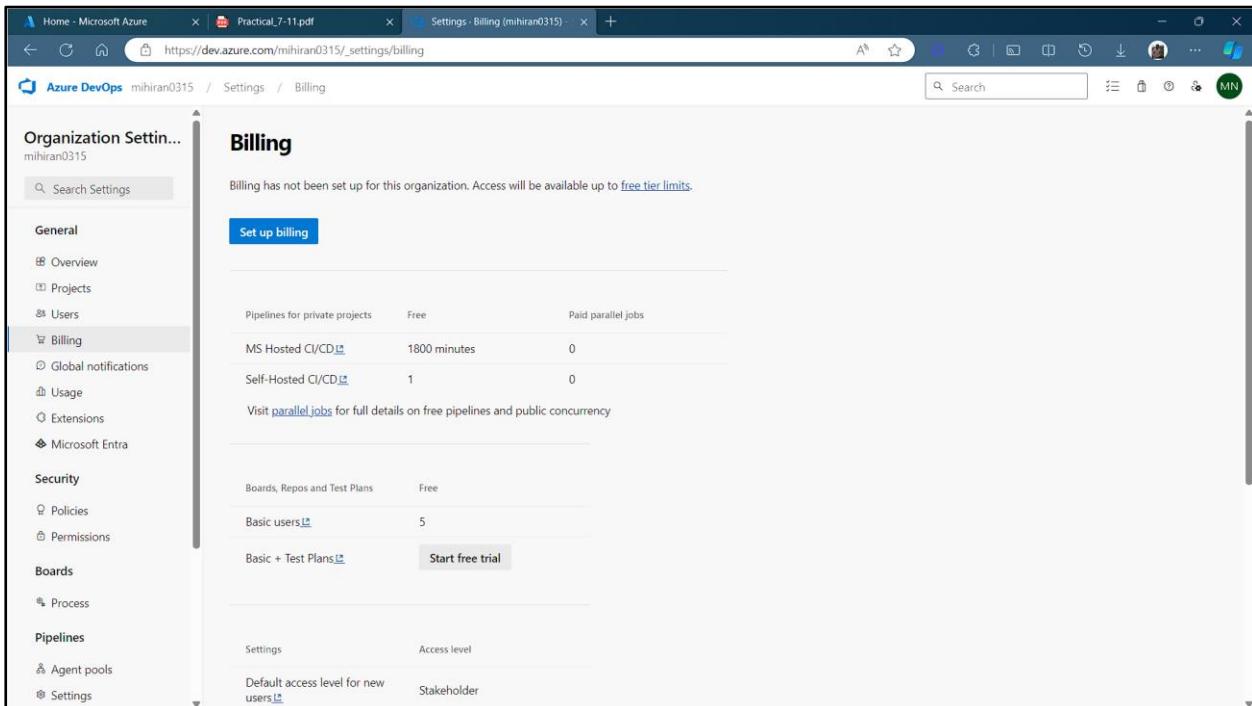
Practical 10: Cost Management

Step 1: Go to Azure Devs and go to your organization.



The screenshot shows the Microsoft Edge browser with the Azure DevOps organization homepage loaded. The URL is https://dev.azure.com/mihiran0315/. The page features a central illustration of a person sitting on the ground with a dog, surrounded by clouds, with the text "Create a project to get started". On the left, there's a sidebar with "mihiran0315" and "New organization" buttons, a "What's new" section about "Sprint 234", and an "Organization settings" link. On the right, there's a "Project name *" input field, a "Description" input field, and a "Visibility" section with "Public" and "Private" options. The "Private" option is selected and highlighted with a blue border. Below it, a note states: "Public projects are disabled for your organization. You can turn on public visibility with organization policies." At the bottom right is a "Create project" button.

Step 2: Click on billing and check your billing details.



The screenshot shows the Microsoft Edge browser with the Azure DevOps Settings - Billing page loaded. The URL is https://dev.azure.com/mihiran0315/_settings/billing. The page has a left sidebar with "Organization Settings" and various sections like General, Security, Boards, Pipelines, and Agent pools. The "Billing" section is currently selected. The main content area is titled "Billing" and displays a message: "Billing has not been set up for this organization. Access will be available up to [free tier limits](#)". It includes a "Set up billing" button. Below this, there are two tables: one for Pipelines and another for Boards, Repos, and Test Plans. The Pipelines table shows "MS Hosted CI/CD" with 1800 minutes and 0 paid parallel jobs. The Boards, Repos, and Test Plans table shows "Basic users" at 5. There's also a "Start free trial" button for Basic + Test Plans. At the bottom, there's a table for "Default access level for new users" which is set to "Stakeholder".

Home - Microsoft Azure | Practical_7-11.pdf | Settings - Billing (mihiran0315) | +

https://dev.azure.com/mihiran0315/_settings/billing

Azure DevOps mihiran0315 / Settings / Billing

Search

Organization Settings... mihiran0315

Search Settings

General

- Overview
- Projects
- Users
- Billing**
- Global notifications
- Usage
- Extensions
- Microsoft Entra

Security

- Policies
- Permissions

Boards

- Process

Pipelines

- Agent pools
- Settings

Boards, Repos and Test Plans Free

Basic users 5

Basic + Test Plans [Start free trial](#)

Settings Access level

Default access level for new users Stakeholder

Advanced Security Used

Unique active committers 0

Advanced Security is billed based on the number of unique active committers in repositories. Active committers are users that have committed to an Advanced-Security-enabled repository in the last 90 days. [Learn more](#)

Resources Free Used Usage limit

Artifacts 2 GiB* Less than 1 GiB Up to 2 GiB free

*Artifacts now bills for packages-only. For other updates, please see <https://aka.ms/artbilling>.

Organization Settings... mihiran0315

Search Settings

General

- Overview
- Projects
- Users
- Billing**
- Global notifications
- Usage
- Extensions
- Microsoft Entra

Security

- Policies
- Permissions

Boards

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Resources Free Used Usage limit

Artifacts 2 GiB* Less than 1 GiB Up to 2 GiB free

*Artifacts now bills for packages-only. For other updates, please see <https://aka.ms/artbilling>.

Practical 11: Web Hosting on Cloud

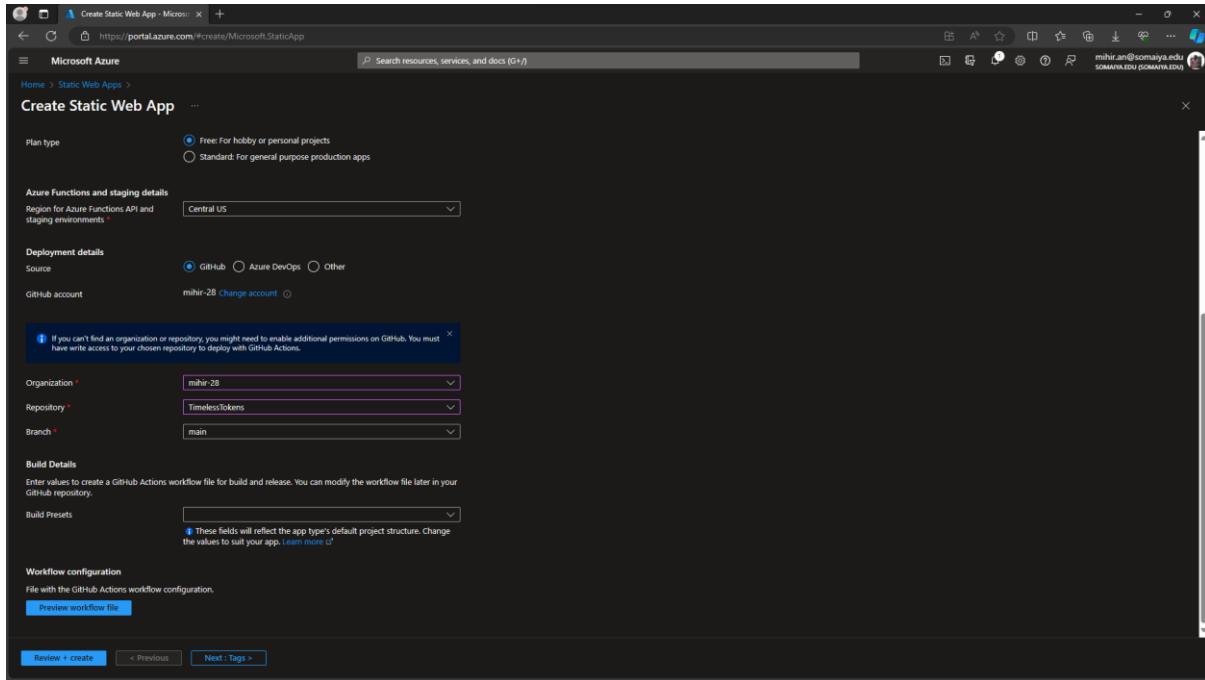
Step 1: Create a Static Web App on Azure

The screenshot shows the Microsoft Azure portal homepage. In the center, there is a section titled "Static Web Apps" with a "Create" button. To the left, there's a sidebar with sections for "Resources" (Recent and Favorite), "Navigate" (Subscriptions), and "Tools" (Microsoft Learn, Azure Monitor, Microsoft Defender for Cloud, Cost Management). Below the main content area, there are "Useful links" and "Azure mobile app" sections.

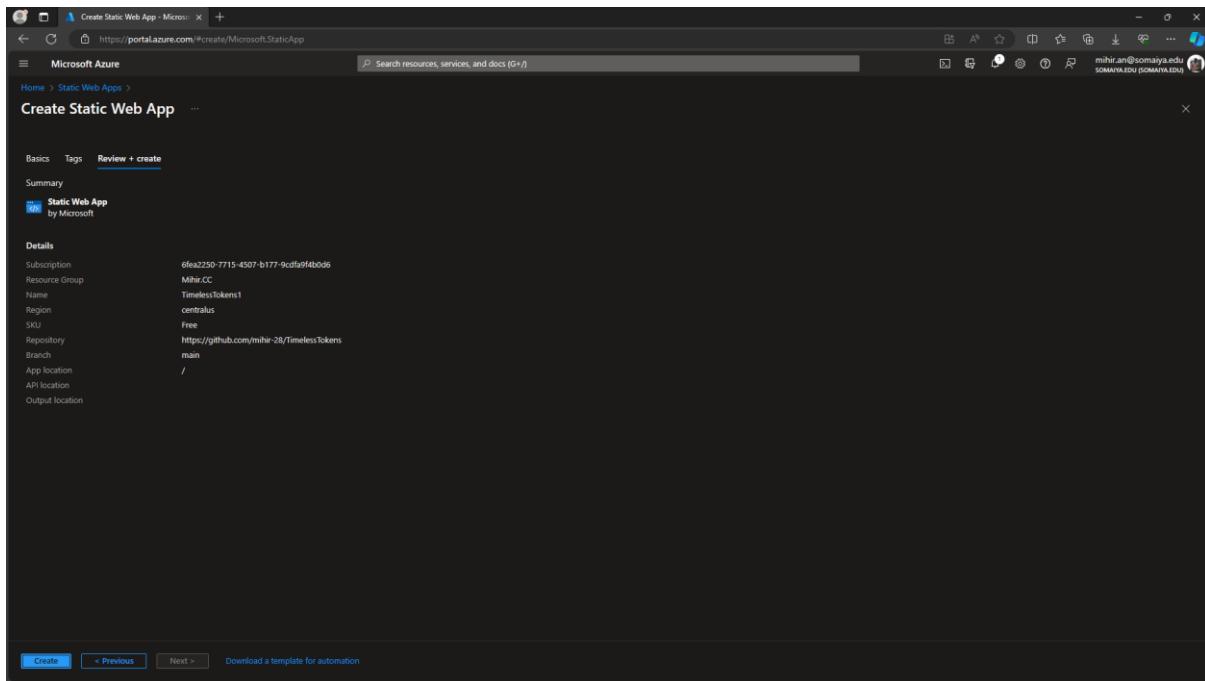
Step 2: Fill in the required details

The screenshot shows the "Create Static Web App" wizard in the Microsoft Azure portal. The current step is "Basics". The form includes fields for "Subscription" (selected: "Azure for Students"), "Resource Group" (selected: "Mahir.CC"), "Name" (input: "TimelessTokens"), "Hosting plan" (radio button selected: "Free: For hobby or personal projects"), "Region for Azure Functions API and staging environments" (selected: "Central US"), "Deployment details" (radio button selected: "GitHub" - "mahir-28 Change account"), and a note about GitHub Actions permissions. At the bottom, there are "Review + create" and "Next : Tags" buttons.

Step 3: Sign in to your GitHub Account and select a static webpage you already have or create a new one and push it into a new repository.



Step 4: Click on Review and Create and wait for the deployment to get finished.



Step 5: Once the deployment is complete wait for the website to get live.

The screenshot shows the Azure portal interface for a static web app named "TimelessTokens". The left sidebar contains navigation links like Home, Overview, Access control (IAM), Tags, Diagnose and solve problems, Settings, Configuration, Environment variables, Application insights, Custom domains, APIs, Database connection (preview), Environments, Role management, Identity, Enterprise-grade edge, Hosting Plan, Private endpoints, Locks, Automation, CLI / PS, Tasks (preview), Export template, Help, Support + Troubleshooting, and TimelessTokens (Static Web App). The main content area displays the deployment status: "Status: Waiting for deployment", "Environment: Production", "Domain: https://witty-grass-0fbcfa104.azurestaticapps.net", and "Hosting plan: Free". A message at the top right says, "Thank you for using Azure Static Web App! We have not received any content for your site yet. Click here to check the status of your GitHub Action runs." Below the status, there are sections for "Get started" and "Monitoring". Under "Get started", there are links for "View your application" (Status: Waiting for deployment), "Prepare for production (0/3 completed)" (Add a custom domain, Upgrade your hosting plan, Enable enterprise grade edge), and "Make the most of your Static Web App" (Database connections, Add a serverless backend, Use preview environments, Streamline development with IDE, Install SWA CLI). The URL in the browser bar is <https://portal.azure.com/#@somaiya.edu/resource/subscriptions/6fea2250-7715-4507-b177-9cf9a94fb0d6/resourcegroups/Mihir.CC/providers/Microsoft.Web/staticSites/TimelessTokens/staticsite>.

Step 6: Click on Visit site once you get the status as Ready. Your website is live.

The screenshot shows the deployed static web app "Timeless Tokens" at the URL <https://witty-grass-0fbcfa104.azurestaticapps.net>. The page has a dark, abstract background with swirling patterns. At the top, there is a navigation bar with links: Home, About, Services, Team, Reviews, Contact Us, and Keep In Touch. Below the navigation bar, there is a search bar and a large white rectangular placeholder box. In the center, there is a promotional banner with the text "Capturing Moments" and "We Snap Your Memories". It includes two buttons: "Subscribe" and "Watch Latest Video". The overall theme is a professional yet modern look.

Step 7: You can view the link and share it with others so that even they can see your website.

<https://witty-grass-0f0efca10.4.azurestaticapps.net/>

(The link won't open as the resource has been deleted)