**Azure Cloud**

Azure can be described as the managed data centers that are used to build, deploy, manage the applications and provide services through a global network. This Data center has many of many servers (each server called hoster) in the rack and each server is like personal computer but with very high CPU, Ram, HDD. And Azure use Windows server 2019 as an operating system to run the server. and each server has 1000 VM. Hyper-V (hyper – vision) it’s like Vmware. Hyper-v create many virtual machines inside host server those VM called Worker not VM Each Worker by default has IIS(web app server) inside it to run the code as .NET code. Inside the server there is a Cluster. Cluster is a group of (services and configurations) we use it to run fast and robust automated jobs.

Architecture of Cloud Computing

* Front-end device: the devices that are used by clients to access the data
* Back-end platform: computers, servers, virtual machines, etc
* Cloud-based delivery
* Network

The storage options on cloud in 3 forms −

* Public(open): These clouds are accessed through internet by users. These are open to public and their infrastructure is owned and operated by service providers
* Private(locked): he data stored on private cloud can't be shared with other organizations. The cloud is managed either by the organization itself or by the third party.
* Hybrid(open + locked):

## Azure has 3-types of Cloud: IAAS, PAAS, SAAS

## The client need to choice one of these to upload his material to cloud

## SPI (S stand for Software, P stands for Platform and I for Infrastructure in SPI)

SaaS is Software as a service; PaaS is Platform as a service and IaaS is Infrastructure as a Service.

Examples of these models:

1. **SAAS Model** − E-mail (Gmail, Yahoo, etc.)
2. **PAAS Model** − Microsoft Azure, in PAAS we do not have to create VM and OS, Azure will created to us, we only need to develop our code and deploy it
3. **IAAS Model** – Here we should create VM and OS and then we login to VM(by using RDP in our computer to login Remotely to our VM computer in the Cloud) as we do when we create V-mware in our local computer. Here, we will be more control on our work and the things we want to build and install (will be more scalable)

## Azure as PaaS:  a platform is provided to clients to deploy their software. Cloud company provides hardware and software tools over the internet, and people use these tools to develop applications Here user do not need to manage, monitor the Data center by themselves also client only need to deploy their app everything else like storge, Virtual machine, IIS server, DB, ..etc will be created by default and will be hidden from Customer.

## Azure as IaaS: It is a managed compute service that gives complete control of the operating systems and the application platform stack to the application developers. It lets the user to access, manage and monitor the data centers by themselves. Here Customer will need to create Virtual machine, OS, storge account, DB, DB server ,.. etc and manage & setting up them.

**Azure as IaaS:** SaaS platforms make software available to users over the internet, usually for a monthly subscription fee. With [SaaS](https://learn.g2crowd.com/what-is-saas), you don’t need to install and run software applications on your computer (or any computer).Everything is available over the internet when you log in to your account online. Here user can not deploy of do anything in Cloud only can access app been build by Company like: MS 365

* IaaS: cloud-based services, pay-as-you-go for services such as storage, networking, and virtualization.
* PaaS: hardware and software tools available over the internet.
* SaaS: software that’s available via a third-party over the internet.
* On-premise: software that’s installed in the same building as your business.

**Graphical user interface

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**The Blue color: Mean the client do manage on it and build it manually.**

**The light blue color: Mean the Cloud company do manage and build it automatically whenever client need it in his app.**

**NOTES:**

* 1. **we need to create mysql server and inside it we create mysql to do DB and tables**
  2. **when we create VM and select Java we choice tomcat to let our program run**
  3. **To upload our Project to Cloud**

**TO UPLOAD CODE PROJECT TO THE CLOUD (WEB APP)**

* + - 1. **Use Visual Studio -> right click on your project -> publish -> publish**

**A screenshot of a computer

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* + - 1. **Use file zilla app inside app enter**

**Host: waws-prod-dm1-169.ftp.azurewebsites.windows.net**

**User:**

**Password:**

**connect**

**Graphical user interface, text

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**Kudu : (scm) use to open files of web app to drop and drag. This is available only in PAAS. To access Kudu we can type in search bar Kude -> advance tool -> go**

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**OR from our Wep app link Like:**

**https://aimen87.scm.azurewebsites.net/**

**A screenshot of a computer

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1. **In case we need to use CMD or Shell commands**

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1. **After click on site folder**

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1. **Here our Project file will be inside folder wwwroot**

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**HOW CREATE Web APP USING PAAS**

1. **Search of Web APP -> create -> enter resource group -> enter Web app name -> click code -> select runtime stack (java) -> select java webserver (tomcat) -> Region: central US -> Review + Create -> Create.**

**EX:** [**https://aiman-abdullah.azurewebsites.net/**](https://aiman-abdullah.azurewebsites.net/)

**NOTE: TO get information like Url link , connection string , username, password, … etc**

**On overview page we click on Get publish profile**

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**To upload Our project to Web App location we use the information from picture above and we use the ways :**

1. **Use Visual Studio -> right click on your project -> publish -> publish**
2. **Use file zilla app inside app enter:**

**Host:**

**User:**

**Password:**

**connect**

1. **Create mySQL server to deal with mySQL DB.**

**Search for “Azure database for MySQL servers” -> create -> select “Single server” -> create -> Enter Resource name , name of MySQL server , data source: none , admin username, password -> Review + Create.**

**NOTE: TO Connect to the Server we need to do the next because security of Cloud will prevent the connection:**

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**=================================================================================**

## Connect to the server by using mysql.exe

You can use either [mysql.exe](https://dev.mysql.com/doc/refman/8.0/en/mysql.html) or [MySQL Workbench](https://docs.microsoft.com/en-us/azure/mysql/connect-workbench) to connect to the server from your local environment. In this quickstart, we'll use mysql.exe in [Azure Cloud Shell](https://docs.microsoft.com/en-us/azure/cloud-shell/overview) to connect to the server

1. Click on the Power Shell icon on the Top

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1. Run the following command in the Azure Cloud Shell terminal. Replace the values shown here with your actual server name and admin user name. For Azure Database for MySQL, you need to add @\<servername> to the admin user name, as shown here:

**mysql --host=** database87.mysql.database.azure.com **--user=** aiman87@database87 **-p**

1. In the same Azure Cloud Shell terminal, create a database named guest:

CREATE DATABASE guest;

1. Switch to the guest database:

USE guest;

## Connect to the server by using Workbench IDE

1. **In cloud we need to Get:**
   * + 1. **Server name:**
       2. **Server admin login name**

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1. **Enter information above in Work bench:**

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**Then Enter Azure MySQL server password:**

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1. **Test Connection to make sure Connection successful:**

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1. **close**

**NOTE:** Single server and Flexible server support **only the InnoDB storage engine**

**Now to Upload our local DB to Cloud we need: click on Server on Row bar -> click on Export Data -> Select which DB you want to upload - > Export**

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**NOTE: TO CONNECT OUR CODE TO DB SERVER WE USE STRING CONNECTION from Cloud DB server**

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**CONNECT Web App Project to Storge account**

**After we done with created Storge Account in Cloud we have to go to Access Keys -> click show keys**

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**We use Connection string link to link from any place to the Storge account.**

**SERVICES IN AZURE CLOUD PORTAL**

* 1. **Storge Account:**

**If we want to create anything in cloud we have to do the next:**

1. **We need to access to** [**https://portal.azure.com**](https://portal.azure.com)
2. **We need to have an account in cloud**
3. **We select + Create Resourse -> select what we want to build(for example Storge account) so select storge account -> enter name , Resource group -> review + create->create -> go to resource.**

**Now to upload and file to storge:**

**Container -> + container -> Enter name of container -> create -> click on created container -> click on upload->select file from local computer -> upload.**

**NOTE:** Blobs include binary data in the form of images, audio, video, and text files.

* 1. **Web App:** Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform.

**To create a web App:**

**On search bar search for “Web App” -> click create -> enter Resource group name , app name, select Run time stack:java 8, Java web server:tomacat 8.0 -> review+create.**

**Note: There is another way to create a Web app**

**EX: my Web app address:** <https://cloudcomputingapp6331.azurewebsites.net>