

## **Azure Fundamental Assignment 1**

### **(Durgesh Kumar Shukla)**

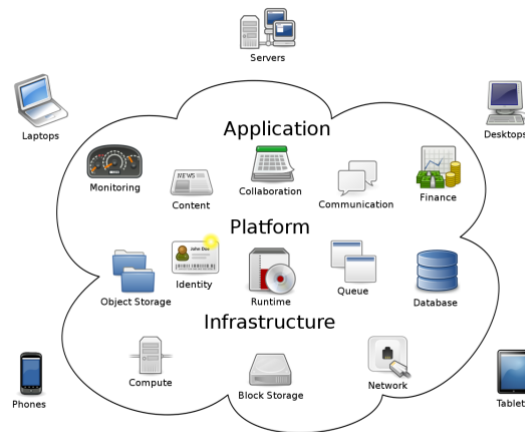
1. What is cloud computing? What is Azure?
2. How to create an Azure account list the steps and requirements?
3. Describe different types of cloud models.
4. Describe different cloud services.
5. What are some cloud computing advantages?
6. Differentiate Capital expenses vs. operating expenses.

#### **Question 1. What is cloud computing? What is Azure?**

**Answer:**

##### **Cloud Computing**

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet to offer faster innovation, flexible resources, and economies of scale. You typically pay only for cloud services you use, helping lower your operating costs, run your infrastructure more efficiently and scale as your business needs change.



##### **Azure**

Azure is a public cloud computing platform—with solutions including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) that can be used for services such as analytics, virtual computing, storage, networking, and much more. The Azure cloud platform is more than 200 products and cloud services designed to help you bring new solutions to life—to solve today's challenges and create the future. Build, run and manage applications across multiple clouds, on-premises and at the edge, with the tools and frameworks of your choice.

#### **Question 2. How to create an Azure account list the steps and requirements?**

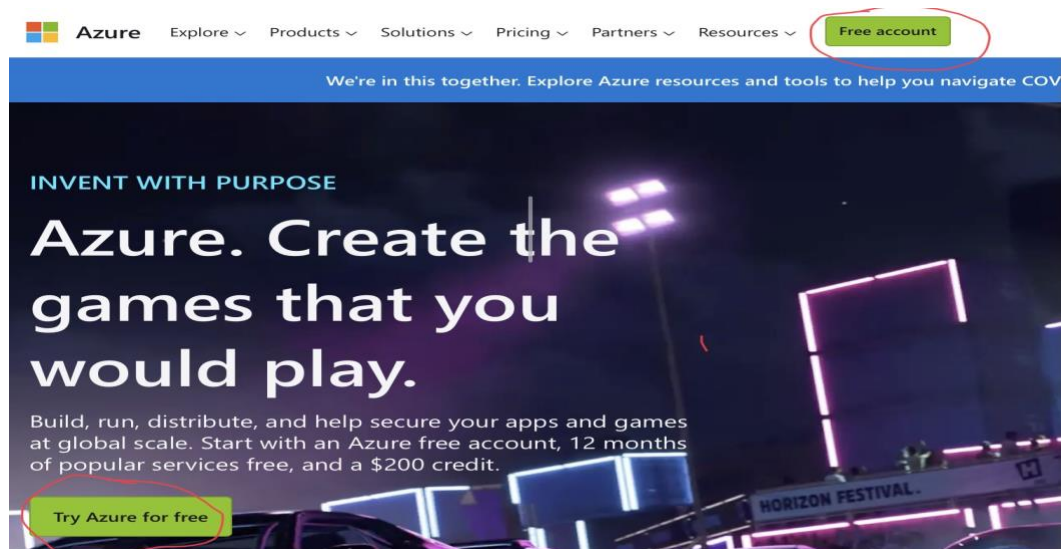
**Answer:**

##### **Key Requirements**

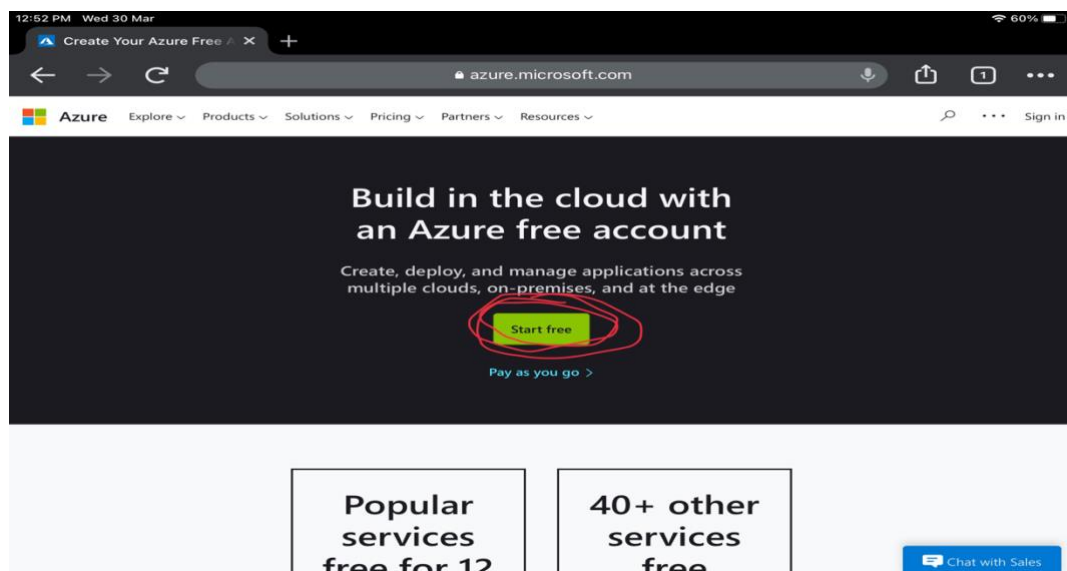
1. You should have a Credit Card, an email address, and phone number.
2. If you don't have a Credit Card, you can register with valid student college email id.

##### **Steps To Register For Azure Account**

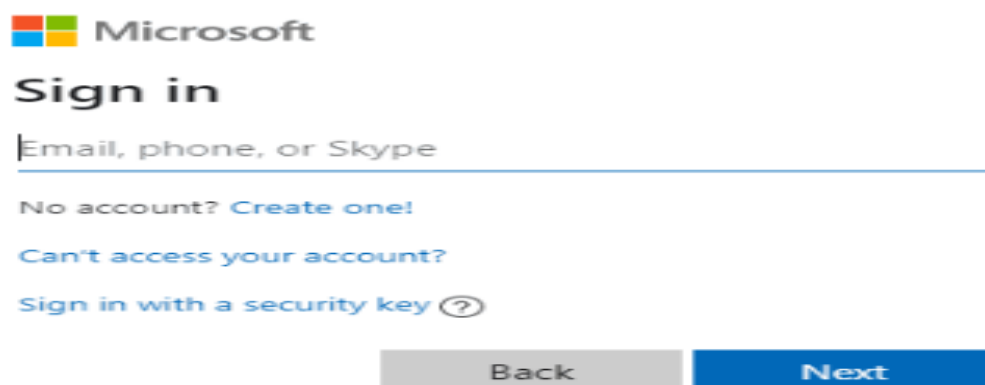
1. Go to the Azure Home Page.
2. Click on Free Azure Account on the top right corner.



3. Click on Start Free.



4. Sign-in/Sign-up for a Microsoft account using an email address and password.



5. Enter your Country/Region and Date of Birth and click next.
6. Enter the verification code received on the email address and click next.
7. Type the captcha you see on your screen and click on next.
8. You'll be redirected to the Azure Sign-up page. Enter your Region, Name, Phone number, Email address. Note: You should use the same email address for Azure sign-up and for the Microsoft account.
9. Verify your phone number by clicking Text Me or Call Me and enter the verification code received.

The screenshot shows the Azure Sign-up page at the 'Identity verification by phone' step. The sidebar on the right lists the following benefits:

- 12 months of free products:** Get free access to popular products like virtual machines, storage, and databases in your first 30 days, and for 12 months after you upgrade your account to pay-as-you-go pricing.
- £150 credit:** Use your £150 credit to experiment with any Azure service in your first 30 days—beyond the free product amounts.
- 25+ always-free products:** Take advantage of more than 25 products, including serverless, containers, and artificial intelligence, that are always free. Get these in your first 30 days, and always—once you choose to upgrade.
- No automatic charges:** You won't be charged unless you choose to upgrade. Before the end

The main form area includes:

- A dropdown menu for 'Country code' set to 'United Kingdom (+44)'.
- A text input field for 'Phone number'.
- Buttons for 'Text me' and 'Call me'.
- A message: 'We delivered a code to your phone.'
- A text input field for 'Verification code' containing '363026'.
- A 'Next' button.

10. Agree to agreement boxes.

The screenshot shows the Azure Sign-up page at the 'Agreement' step. The sidebar on the right lists the following details:

- Create your Azure free account**
- Popular services free for 12 months**
- 40+ services always free**
- £13,300 credit to use in your first 30 days**
- No automatic charges:** After your credit is over, we'll ask you if you want to continue with pay-as-you-go. If you do, you'll only pay if you use more than the free amounts of service.
- Chat with Sales** button.

The main form area includes:

- A 'Next' button.
- A dropdown menu for 'Identity verification by card'.

11. Enter the payment details. Make sure you have a Master Card/American Express/ Visa Credit card and international payments should be enabled.  
**Note:** If you are a student and don't have a credit card, then you can also register using your student ID.

**Identity verification by card**

Please provide a credit card or debit card. We'll make a temporary authorization on this card, but **you won't be charged unless you move to pay-as-you-go pricing**. We don't accept prepaid cards because they do not support monthly payments in your location.

We accept the following cards:

**VISA**

Cardholder Name

Card number

Expires

CVV

**Create your Azure free account**

- Popular services free for 12 months
- 40+ services always free
- ₹13,300 credit to use in your first 30 days

**No automatic charges**

After your credit is over, we'll ask you if you want to continue with pay-as-you-go. If you do, you'll only pay if you use more than the free amounts of services.

[Chat with Sales](#)

12. You have successfully created a Microsoft Azure free account and now have a lump-sum balance of \$200.

13. Click on Portal on the top right corner of the screen. You'll be redirected to the Azure portal.

### Question 3. Describe different types of cloud models.

**Answer:** There are two fundamentally different types of cloud models, **public and private**. Each has its own advantages and disadvantages. However, cloud computing is continually evolving and cloud-service providers (CSPs) may offer **hybrid** clouds that combine features of both the public and private models. **Community clouds** are a recent variant of hybrid clouds that are built to serve the specific needs of different business communities.

#### Public Cloud Model

In a public cloud, individual businesses share on premise and access to basic computer infrastructure (servers, storage, networks, development platforms etc.) provided by cloud service provider (CSP). Each company shares the CSP's infrastructure with the other companies that have subscribed to the cloud. Payment is usually pay-as-you-go with no minimum time requirements.

#### Private Cloud Model

In a private cloud, a business has access to infrastructure in the cloud that is not shared with anyone else. The business typically deploys its own platforms and software applications on the cloud infrastructure. The business's infrastructure usually lies behind a firewall that is accessed through the company intranet over encrypted connections. Payment is often based on a fee-per-unit-time model.

#### Hybrid Cloud Model

In a hybrid cloud, a company's cloud deployment is split between public and private cloud infrastructure. Sensitive data remains within the private cloud where high security standards can be maintained. Operations that do not make use of sensitive data are carried out in the public cloud where infrastructure can scale to meet demands and costs are reduced.

#### Community Cloud Model

Community clouds are a recent variation on the private cloud model that provide a complete cloud solution for specific business communities. Businesses share infrastructure

provided by the CSP for software and development tools that are designed to meet community needs.

#### Question 4. Describe different cloud services.

**Answer:** Cloud computing services fall into 3 main categories: **Infrastructure as a Service (IaaS)**, **Platform as a Service (PaaS)**, **Software as a Service (SaaS)**. **Functions as a Service (FaaS)** is a relatively new Cloud service model. These are sometimes called the Cloud computing stack because they build on top of one another.

#### Infrastructure-as-a-service (IaaS)

Infrastructure as a Service (IaaS) contains the most basic building blocks for Cloud infrastructure and offers services on top of it such as renting IT infrastructure (virtual or physical) and networking features. IaaS mainly includes Cloud-based services on a pay-as-you-go model.

#### Platform as a service (PaaS)

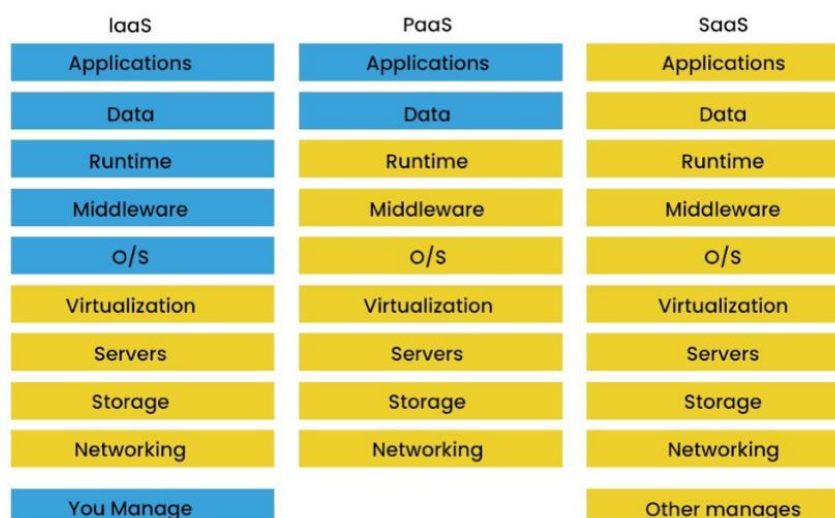
Platform-as-a-service (PaaS) refers to the supply of on-demand tools for developing, testing, delivering, and managing software applications. PaaS delivers a framework for developers and IT architects to create web or mobile apps that are scalable, without worrying about setting up or managing the underlying infrastructure of servers, storage, network, and databases needed for development.

#### Software as a service (SaaS)

Software-as-a-service (SaaS) is a method for delivering on-demand software applications through Cloud on a subscription basis. A CSP takes care of managing the Cloud infrastructure and offers SaaS applications over the internet to a user that are accessible through a web browser. These applications are also available on multiple devices which can be accessed from anywhere.

#### Functions as a Service (FaaS)

Functions as a Service (FaaS) adds another layer of abstraction to PaaS so that developers are completely isolated from everything in the stack below their code. FaaS is the concept of Serverless Computing. Instead of handling the hassles of virtual servers, containers, and application runtimes, they upload narrowly functional blocks of code and set them to be triggered by a certain event.



**Question 5.What are some cloud computing advantages?**

**Answer:**

**Cloud computing Advantages**

Here's a list of key advantages an enterprise can expect to achieve when adopting cloud infrastructure.

1. High Speed – Quick Deployment
2. Automatic Software Updates and Integration
3. Efficiency and Cost Reduction
4. Data Security
5. Scalability
6. Collaboration
7. Unlimited Storage Capacity
8. Back-up and Restore Data
9. Disaster Recovery
10. Mobility
11. Data loss Prevention
12. Control
13. Competitive Edge

**Question 6. Differentiate Capital expenses vs. operating expenses.**

**Answer:** When it comes to cloud ROI, comparing capital expenses (CapEx) to operational expenses (OpEx) reveals the cloud is a great way to switch IT spending to a pay-as-you-go model and reduce CapEx costs, as well as reap other benefits.

**Capital Expenses(CapEx) and Operating Expenses(OpEx)**

If you're looking to make changes in your business's IT capabilities and equipment, you have two financial models to choose from: capital expenditure (CapEx) or operating expenditure (OpEx).Let's explore the differences between CapEx and OpEx and how they apply to IT expenditures.

**CapEx** is defined as business expenses incurred in order to create long-term benefits in the future, such as purchasing fixed assets like a building or equipment. Some examples of IT items that fall under this category would be whole systems and servers, printers and scanners, or air conditioners and generators. You buy these items once and they benefit your business for many, many years. Maintenance of such items is also considered CapEx, as it extends their lifetime and usefulness.

**OpEx** is your operating costs, the expenses to run day-to-day business, like services and consumable items that get used up and are paid for according to use. This includes printer cartridges and paper, electricity, and even yearly services like website hosting or domain registrations. These things are necessary for your business's success but are not considered major long-term investments like CapEx items.

- **Here is a comparison chart that breaks down the important differences between capital and operational IT expenditures:**

**CapEx**

1. Long lead times for new equipment; significant staff integration effort required
2. Equipment failures
3. Overprovisioning/wasted capacity
4. HVAC, electricity, facility rental, insurances
5. Low-value maintenance staff required
6. Contracts lock you into an approach
7. Configuration errors can be costly and difficult to remediate
8. New initiatives undergo a slow, rigid provisioning process
9. Significant monitoring tooling investments, with limited automation
10. TCO contains many hidden charges
11. Financing includes debt service

**OpEx**

1. On-demand services are designed for plug-and-play (PaaS)
2. Automated instance health maintenance
3. Buy only what you need; use metrics to resize on-the-fly
4. None of these things are required
5. Cloud provider maintains underlying hardware
6. Adopt new approaches as skills and services allow
7. Software-defined services are easily reconfigured and deliver repeatable results
8. Stand up assets as you need them, delete what you no longer need
9. Monitoring and alerting built into each service; significant automated remediation opportunities
10. TCO is completely transparent
11. Significant pricing breaks for prepayment

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