Solutions to Special Issues

Special Issue 1: What Happens When an Instance Stops Running?

When an EC2 instance stops, any data stored in **ephemeral storage** (also known as **instance store**) is lost. This storage is tied to the lifecycle of the instance and is not persistent. However, data stored on **Elastic Block Store (EBS) volumes** persists even after the instance is stopped or restarted.

Solution:

To prevent data loss when an instance stops, I would **freeze the instance** by creating an **Amazon Machine Image (AMI)**. This allows me to save the complete state of the instance, including its configuration, data, and software setup. Later, if I need to reinstate the environment, I can simply launch a new instance from the AMI, and it will be exactly the same as the original.

Costs:

Storing an AMI incurs charges for the **Amazon S3** storage used to save the image. The exact cost depends on the size of the instance and the amount of data being stored. Additionally, running instances from the AMI will incur the standard **EC2 instance costs**, which depend on the type of instance and the region it's being run in.

Special Issue 2: What Happens When Rebooting an Instance?

One of the challenges I encountered is that when an EC2 instance is stopped and restarted, it often receives a new public IP address. This can be problematic if I want to provide a **consistent URL** to access the website. Each time the instance is restarted, the new IP would need to be updated in the DNS settings.

Solution:

To ensure the website's public IP address remains the same even after a reboot, I would associate an **Elastic IP (EIP)** with the instance. An Elastic IP is a static, public IPv4 address that can be associated with an EC2 instance. Once it's attached to the instance, it will remain the same across reboots and stop-start cycles.

Costs:

Elastic IPs are **free** as long as they are associated with a running instance. However, if the Elastic IP is not attached to any instance, AWS charges a small fee. This encourages efficient use of Elastic IPs.

Learner Lab:

In AWS Learner Lab environments, it is possible to use Elastic IPs, but I would need to confirm whether they are allowed based on the specific policies of the lab environment. If Elastic IPs are not available in Learner Lab, I could explore other solutions like using **DNS services** (e.g., Amazon Route 53) to map domain names to dynamic IP addresses, though this would add complexity to the deployment.