→ Amazon SQS queues: where messages are placed until they are processed

→ Amazon SNS: same as SQS we can send messages, but it can also send out notifications to end users
It does this in a different way called a publish/subscribe (pub/sub model)
- Amazon SNS topic: A channel for messages to be delivered.

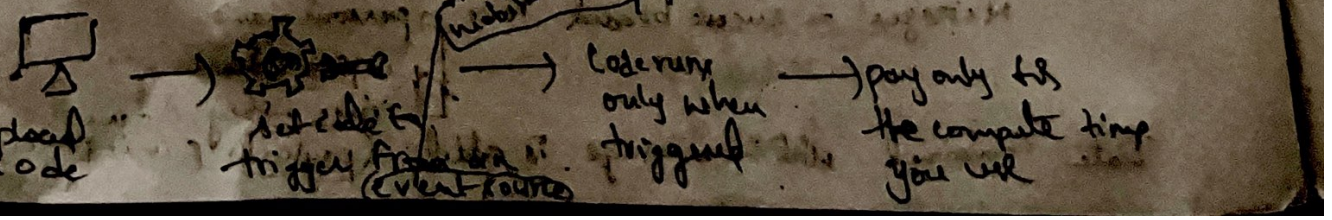
Additional compute services

EC2 is
- Flexible
- Reliable
- Scalable

AWS offers multiple ~~cloud~~ serverless compute options.

~~AWS~~ Serverless: you cannot see or access the underlying infrastructure & instances that are hosting your application. Instead, all the management of underlying environment from a provisioning, scaling, high availability & maintenance perspective, are taken care of for you.

AWS Lambda: It is one serverless compute option.
Lambda is a service that allows you to upload your code in to Lambda function.



If don't want serverless or you need access to underlying environment but still want efficiency and portability you should use AWS container services like → Amazon Elastic Container service (Amazon ECS)
→ Amazon Elastic Kubernetes service (Amazon EKS

Both Amazon ECS & Amazon EKS are container orchestration tools

A container in this case is docker container, which is widely used platform that uses operating system level virtualization to deliver softwares in containers

Container : It is a package of our code

These containers run on top of EC2 instances and run isolation from each other similar to virutal machine

- When you use docker containers on AWS you need processes to start, stop, restart and monitor containers running accross not just one EC2 instance but a number of them together which is called a cluster
- the process of doing these tasks is called container orchestration ;

Orchestration helps you to manage containers

ECS helps you run your containerized applications at scale

EKS does the same thing but with different tools & features

Both ECS & EKS can run top on of EC2

If u don't want to use EC2 to host containers we can use a compute platform called

AWS Fargate : It is a serverless compute platform for ECS & EKS

1) If we want to host traditional applications & want full access to underlying operating system like linux or windows, we can use EC2

-) If we want to host short running functions, service oriented or event driven applications & don't want to manage the underlying environment at all look into serverless AWS Lambda

-) If we want to run docker container based workloads on AWS first we need to choose

Orchestration tool
- -) Amazon ECS
- -) Amazon EKS

. Then choose

Platforms
- -) EC2 instances
- or
- -) in a serverless Environment like AWS Fargate

. Amazon Elastic compute cloud (Amazon EC2), with EC2 we can dynamically spin up and spin down virtual servers called EC2 instances

Module 3:

High availability and fault tolerance

AWS global infrastructure

Data centers are built in large groups, called Regions

AWS builds regions throughout the globe.

Locations like:- Tokyo, Sao Paulo, Dublin

Inside every region there will be many data centers that all have compute, storage and other services you need

-) Each region can be connected to another region with high speed fiber network - Controlled by AWS.