week 1 Lec 1

- Cloud Computing main components

1- Network with well-performing computers
   - have high throughput -

2- Internet

3- payment based on how much I utilized it.

- The most famous cloud providers :
  - Google - Microsoft - Amazon

- There are 3 models of the cloud :
  - IaaS : Infrastructure as a Service.
  - PaaS : Platform as a Service.
  - SaaS : Software as a sevice.

Iaas → build a machine with an OS

Paas → Iaas + Middleware : Special kind of software that makes sure your applications run smoothly regardless your OS.

Week 1 Lec 1

SaaS → you get a user application, you use the application without needing to install it on your machine

- There are 3 types of Clouds:
  - Private clouds: only a certain Company/institution can access it. (your infra on the cloud is just for you)
  - Community clouds: hybrid between private and public.
  - public clouds: you share the cloud infra with everybody else.

- Actual VS Virtual Servers
  - when you get a machine on the cloud, most probably it is a hypothetical machine build on top of huge big server, that hosts many such machines (tenants!)

- study p1-11,14 from the slides - (chapter 1 page 11 and 14 and 15)

Week 1 Lec 2

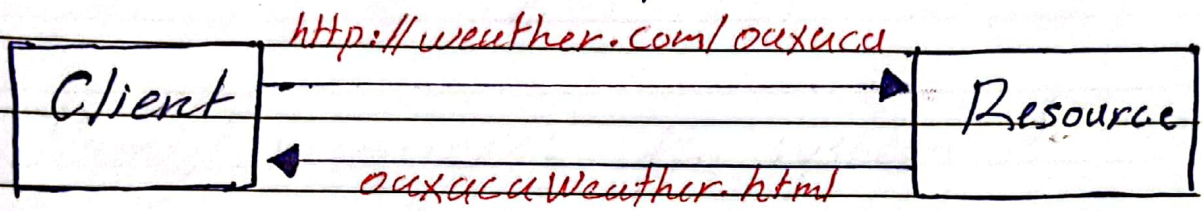
- HTTP: is a language that web clients and web servers use to talk to each other.

- Parts of a message :-
1- the request or the response line.
2- A header section.
3- the body of the message.

- The HTTP methods (commands) :-
- GET or POST are the most famous.
- HEAD : like GET, but ask that only a header be returned
- PUT : Request to store the entity body at the URI
- DELETE : Request removal of data at the URI
- LINK : Request header information be associated with a document on the server.
- UNLINK : Request to undo a link req
- OPTIONS : Request information about Communications options on the server.
- TRACE : Request that the entity-body be returned as received.
  - used for debugging

- REST: Representational State Transfer.

- Elements of REST style:
  - Components (Proxy, Gateway etc)
  - Connectors (client, server etc)
  - Data (resource, representation etc)



- REST based web services:
  - Online shopping.
  - Search sevices.
  - Dictionary Services.

- Go to page 9 in George-Ann REST file -

- Stateless: each request from client to server must contain all the information necessary to understand the request.

- Client-server: a pull-based interaction style (client request data from servers and when needed).

- Cache: to improve network efficiency responses must be capable of being labeled as cacheable or not.

- Uniform interface: all resources are accessed with a generic interface. (e.g. HTTP GET, POST, PUT, DELETE)

- Named resources: the system is comprised of resources which are named using a URL.

- Interconnected resource representations the representations of the resources are inter connected using URLs, thereby enabling a client to progress from one state to another.

- go to page 14 -

Week 1 Lec 3

• Serverless computing : an approach to sftware design that allows developer to build and run services without having to manage the underlying infrastructure

ما يحتاج المبرمج السيرفر وصيانة ونظام التشغيل حتى أي شيء من كلفة السحابة بتوفر لي الموارد المطلوبة.

- the cloud dynamically scale up and down recources according to your current demands.

يزيد الموارد او يقللها بناءً على الاستخدام

- Serverless doesn't mean that there is no servers, it just mean that the developers don't need to care about the server they work in.

• AWS Lambda is the serverless service from amazon.

• microservices is an architectural design for building applications, each function in the application operates in an independent server كل جزء من البرنامج منفصل عن الباقي ويشتركوا مع بعض بالآخر