# Types of Instances:

## 1. General Purpose:

-> 't' or 'm' type family.

-> When we do not require a very high compute capacity(memory & CPU), we use the General purpose.

-> Instance type have resources (CPU, RAM, networking) present in a balanced form.

-> can be used for learning purpose or a startup can host their company's website.

m8g.large

m8i

i -> Intel Xeon 8 processor

m -> family of the instance.

8 -> 8th generation/version

g -> type of processors

- graviton (g)
- intel (i)
- AMD (a)

large-> configuration & size of the instance.

i. nano:

>> smallest instance size

>> offers the least amount of resources.

ii.micro/small:

>> small but more capable than nano.

>> suitable for very light-weight production/ low-traffic server.

iii. medium:

>> balanced resources for small-medium workload.

>> eg: testing servers, small databases, etc.

iv. large:

>> much larger & powerful servers.

>> Instances made for demanding apps.

v. metal:

>> bare-metal instances.

>> provides direct access to the physical hardware w/o virtualization

## 2. Compute optimized:

-> 'c' type/family.

-> When we prepare high performance computing system which requires high performance & high amount of processors.

-> Ideal for applications which needs high performance processors, eg: app. server that millions requests/second.

## 3. Memory Optimized:

-> 'r' , 'x' & 'u' type/family.

-> When we prepare applications which needs to deliver data quickly, and requires fast performance.

-> Huge amount of RAM/memory.

-> Because we need to process huge amount of data & before data is processed, it is stored in RAM.

## 4. Accelerated Computing:

-> 'g' type/family.

-> When we need workloads for specialized hardware like GPU, for computational acceleration such as AI & ML work, online game, scientific researches, etc.

-> When compute intense task regular CPUs cannot handle efficiently.

## 5. Storage Optimized:

-> 'i' type/family.

-> When we are creating an application where disk read & write requirements are more & where we need rapidly store & retrieve a lot of data from the disk.

-> Best-suited for operations that performs a very large no. of input/output operations/second (IOPS).

Q. If my application demands high IOPS, what kind of instance we will use?

## 6. HPC Optimized:

-> 'p' type/family.

-> High-performance optimized.

-> comes with high performance CPU, large memory capacity & ultra-fast networking to handle demanding performance.