## 1. What is caching?

Caching is a mechanism to enhance the performance of a system. It is a temporary memory that lies between the application and the persistent database. Cache memory stores recently used data items in order to reduce the number of database hits as much as possible.

#### 1.1. Why we need caching?

Caching of frequently used data in application is a very popular technique to increase performance of application. With caching, we store such frequently accessed data in memory to avoid hitting the costly backends every time when user requests the data. Data access from memory is always faster in comparison to fetching from storage like database, file system or other service calls.

#### 1.2. What data should be cached?

This is mostly opinionated decision about the type of data which should reside in cache and go through cache lifecycle. It varies in different scenario and requirement on how much time we can tolerate stale data.

So caching candidates will vary on each project, still those are few examples of caching –

* List of products available in an eCommerce store
* Any Master data which is not frequently changed
* Any frequently used database read query, where result does not change in each call at least for a specific period.

## 3. Spring boot cache annotations

#### @Cacheable

It is used on the method level to let spring know that the response of the method are cacheable. Spring manages the request/response of this method to the cache specified in annotation attribute. For example, @Cacheable ("cache-name1")

The @EnableCaching annotation triggers a post processor that inspects every Spring bean for the presence of caching annotations on public methods. If such an annotation is found, a proxy is automatically created to intercept the method call and handle the caching behavior accordingly.

The annotations that are managed by this post processor are Cacheable, CachePut and CacheEvict. You can refer to the javadocs and the documentation for more details.

<https://docs.spring.io/spring/docs/current/spring-framework-reference/integration.html#cache>