How you implement search APIs, be it scaler dashboard -> it has search feature, Search is a crucial component in commerce website, your search phones a/c to your liking.

One more question is should a search API be a GET request or POST request

Agenda

① How Search APIs work → GET v/s POST

② Pagination
↳ and Sorting | Filtering

③ Implementing Paging and Sorting

How Search APIs work

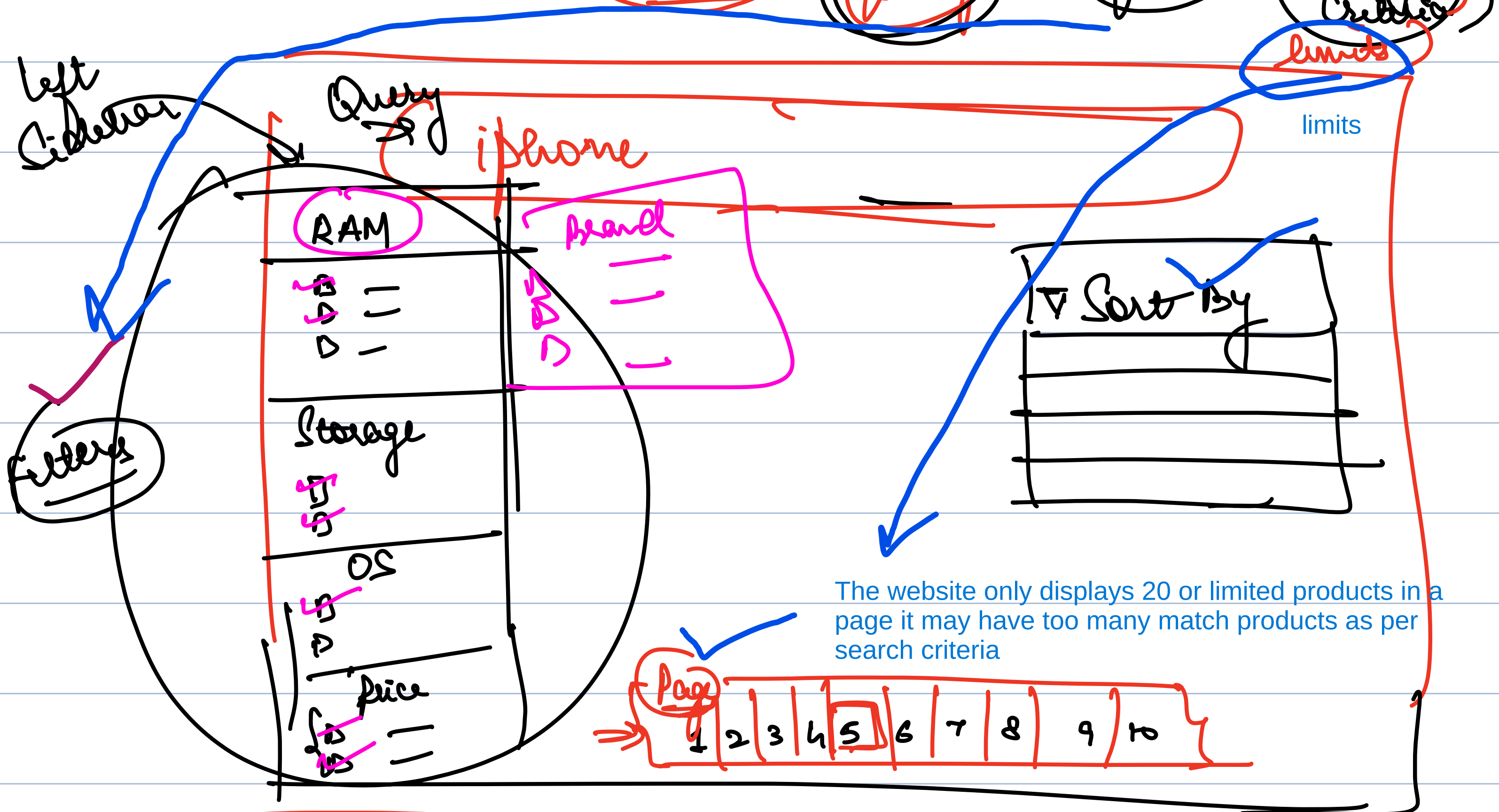
→ Product Service
↳ Search Controller

In ProductService we are creating a search controller and in the search controller we are creating a method called search. This search method, will have what all parameters, eg in an ecommerce website if you search something, what all info you give

sorting

filters

↳ Search(Query, filters, Sorting Criteria, limits)



limits

The website only displays 20 or limited products in a page it may have too many match products as per search criteria

{ Search (query, filters, sorting Criteria, limit) }

```
class SearchController {
    HTTP Method -> GET
    List<ProductDto>    Search( query,
                                filters,
                                Sort Criteria,
                                limit) {

    }
}
```

filters can be attributes and values; values can be a list; attributes: brand, values =["apple", "samsung"]

HTTP Method

Op^n 1   GET

Lets Evalaute that HTTP method is a GET method

Query will be in request parameters -> with url

api.flipkart.com/search & q={iphone}

((brand == apple || brand == samsung) AND

(Ram == 16 GB)

```
filters = [
    { attr: brand , values: ["apple", "Samsung"] };
    AND
    { attr: ram, values : ["16 GB"] }
    AND
    { attr: OS, values : ["android" OR "iOS"] },
    { attr : low Price, values: ["12000"]
    { attr : high Price, values : ["50000"]
]
```

gt =
lt =
eq =

1 URL

api.flipkart.com/search?q=iphone&filter=[{attr:"brand", values:[]

If we write like this, the filters in url, the length of url will be too long. Again it can be good or bad (everything is a tradeoff)

BAD

1.) length of URL increases if multiple values are selected.

↳ Old Browsers : limit on URL length : 2048 chars → 2M chars in URL

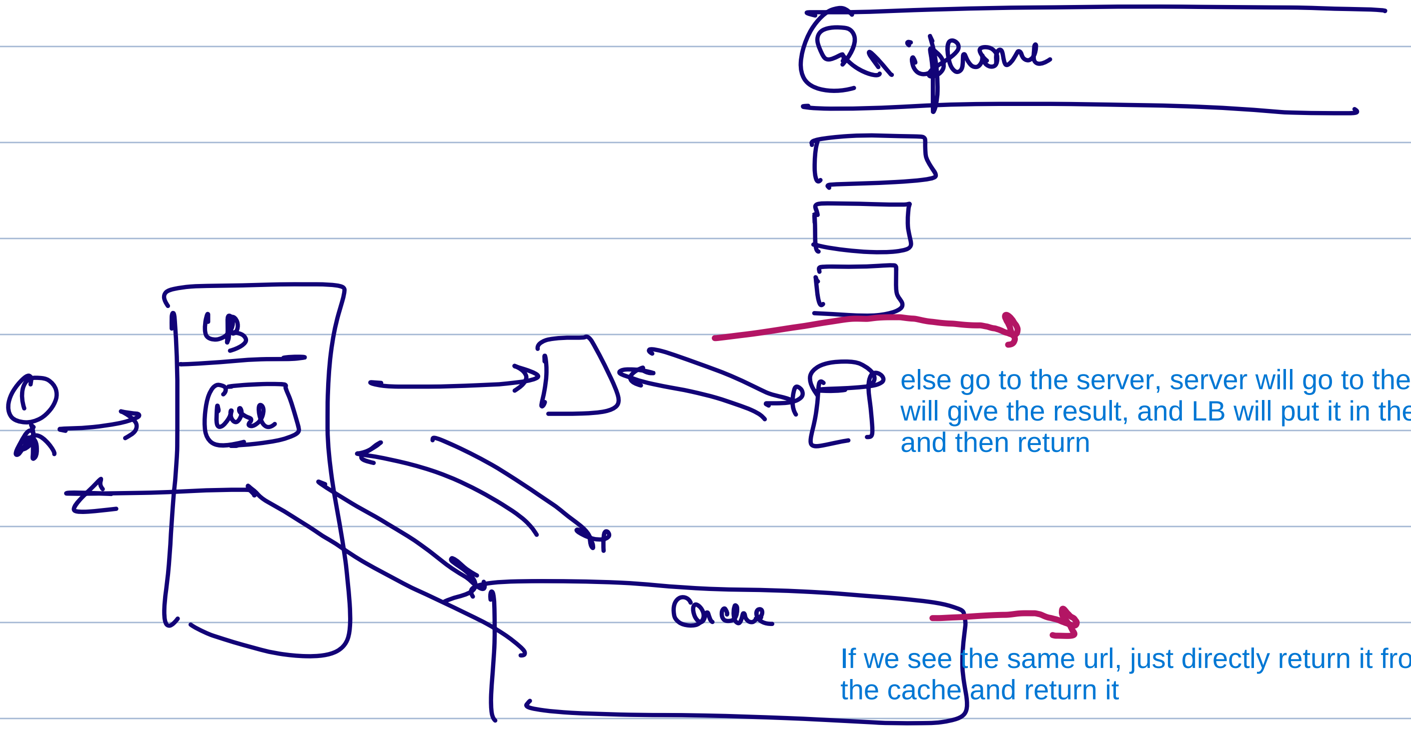
Bad for old browser since the limit on the length of url is 2048 chars or too old is 256 char -> incomptaible with old browser but in new browser it allows 2M char

GOOD

1. Easy to share URL
2. Cache Search Results

Good is coz if you wnat to share it with your friend, you just copy and share the link with all filters on

2nd reason is you can just cache the search result so that next time you can fetch the same result easily



else go to the server, server will go to the db, db will give the result, and LB will put it in the cache and then return

If we see the same url, just directly return it from the cache and return it

(2) Request Body

should not

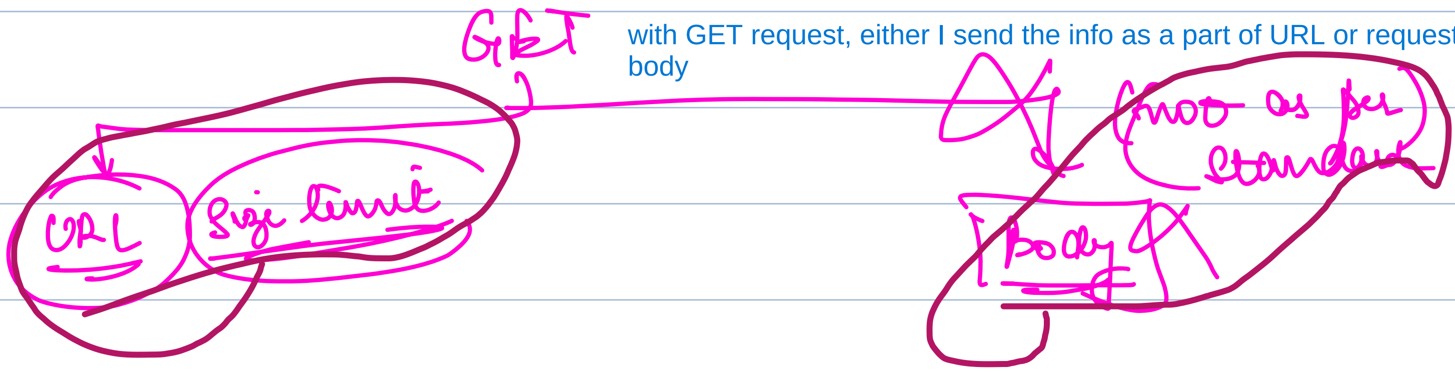
→ As per HTTP standard, GET req should have req, body !!!.

request

→ restTemplate.get for Obj(~~body~~)

There are some middleware which will remove the request body as a part of GET request

with GET request, either I send the info as a part of URL or request body



POST

Req Body

Since the limitations with GET request, many older developers used POST for search API coz in POST request you can send the req body and all of the filters can be a part of req body

Today

In case of No filter or less filter -> use GET req with URL

(1) No filter / less filter → GET Req + URL

(2) large # filter ⇒ POST + Req Body

large #of filters -> POST in Req body

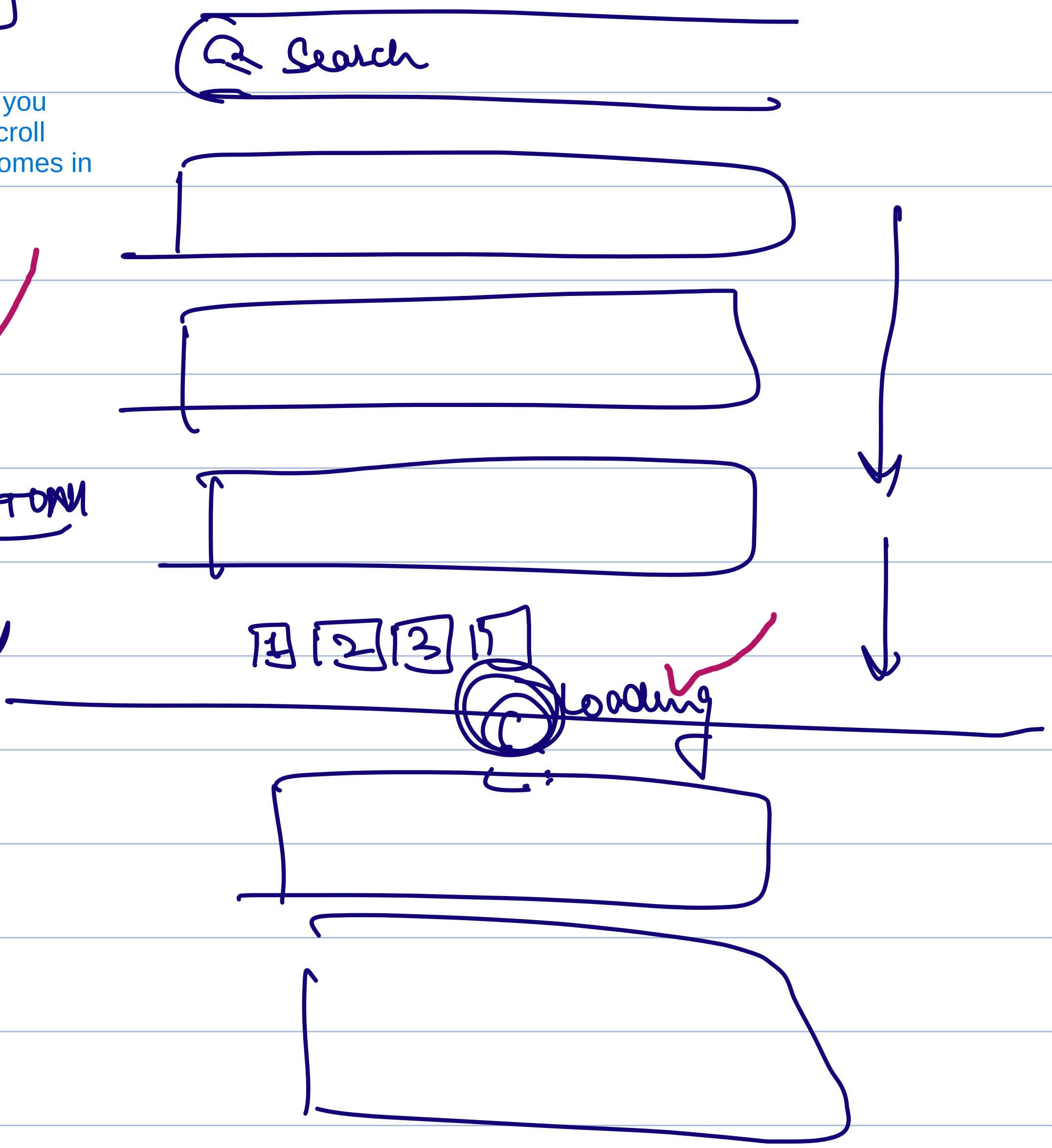
Pagination

In pagination, when you search things and scroll down, more feeds comes in

Insta feed

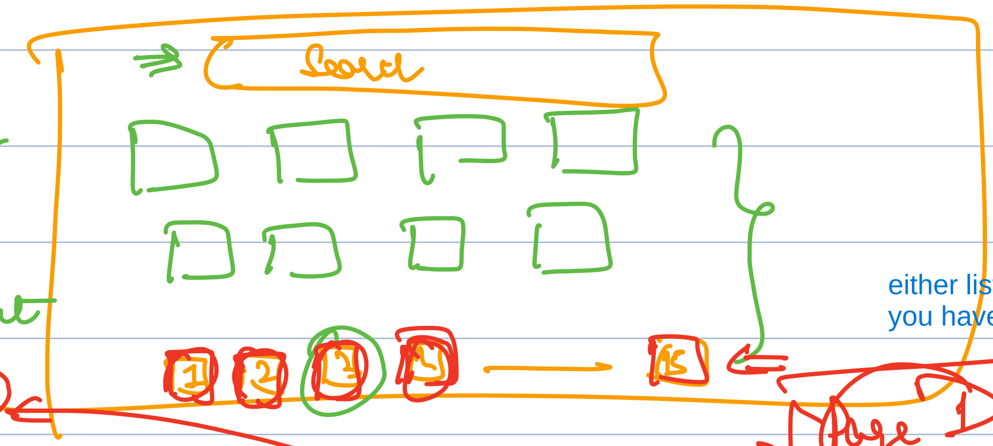
Infinite scroll

BOTTOM



Pagination

→ Not sending all results together but as chunks of a given size



called 'page'

either list all the pages or you have an infinite scroll

Page 1 150
2 150

Or

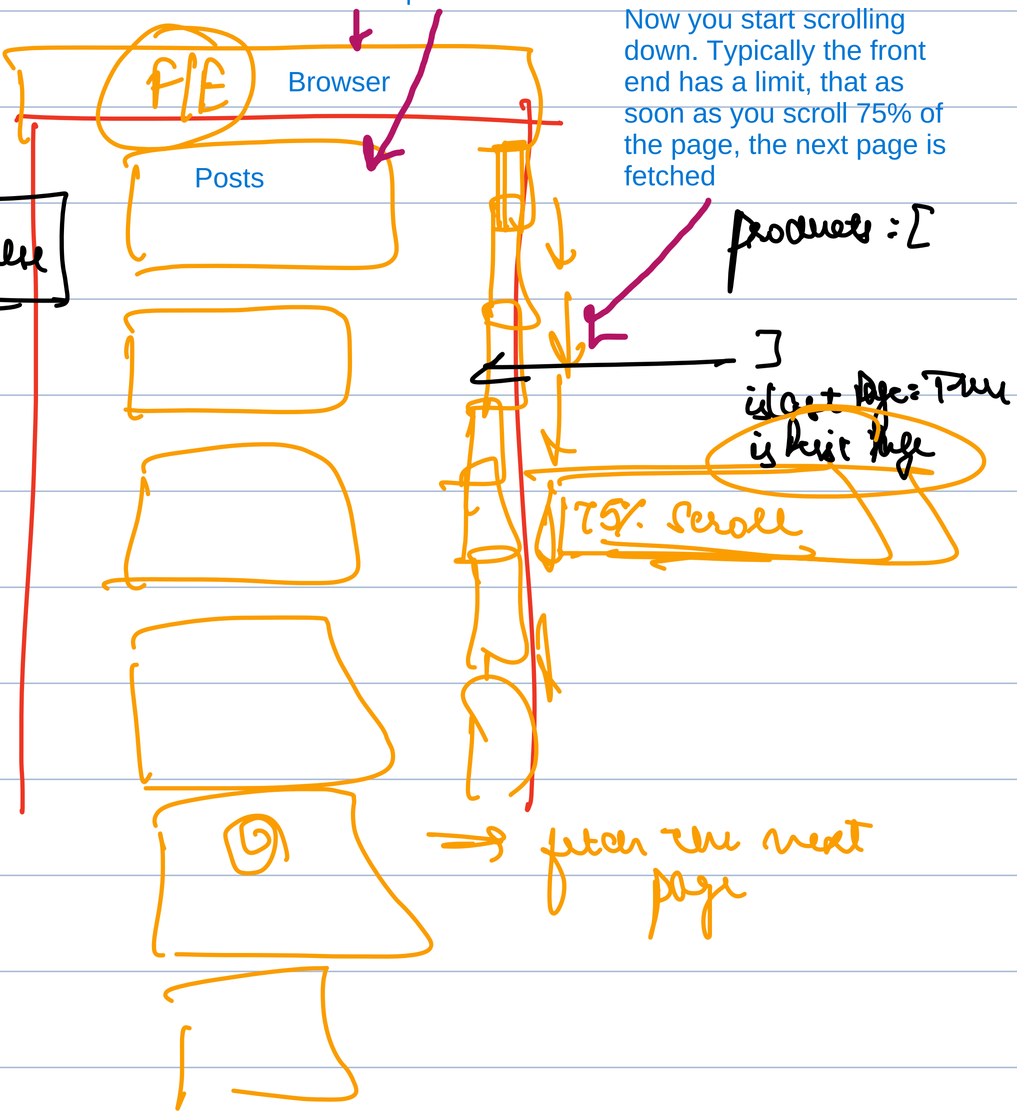
Infinite Scroll

① lot of data over N/W
② Waste

Infinite Scroll

⇒ is Next Page? : True / False

But for the browser to fetch the next page, it should know whether there is a next page to scroll: True or False



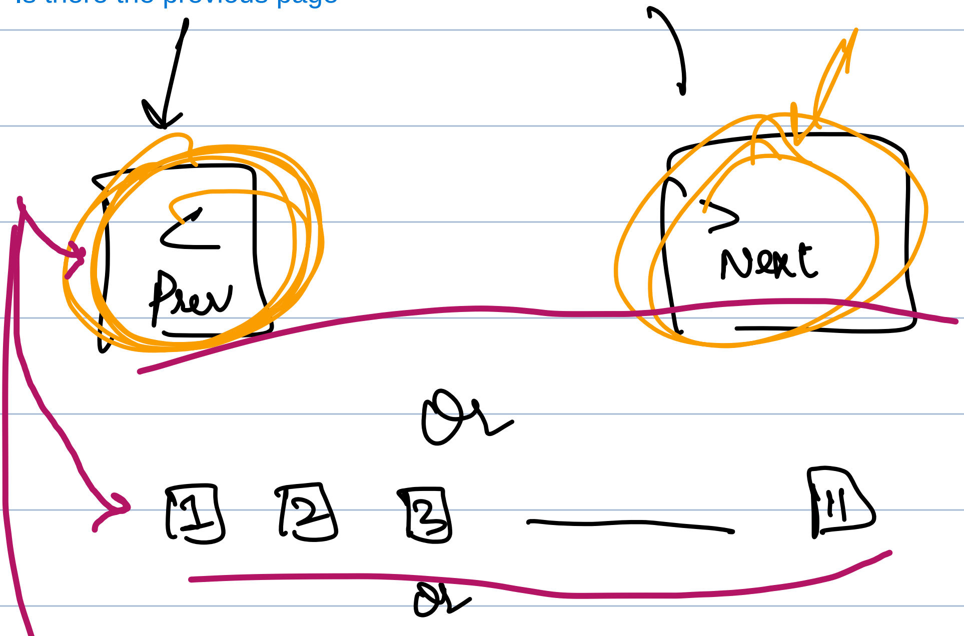
Lets a say this is your browser, these are lot of posts that are there.

Now you start scrolling down. Typically the front end has a limit, that as soon as you scroll 75% of the page, the next page is fetched

Is there the previous page

Is there the next page

There are 3 types of variations seen on the website



Infinite Scroll

Q =

When you send a search request, along with it you send 2 more parameters:- 1. page size, how many results to show in a page
2. Offset or page # --> Offset is showing 24 iphones in one page and starting 25th from the next page.

2 more params :

Page Size | 10 | 20 | 50

Offset / Page Number

limit / offset

Break till 10:10