**Day 14:**

**Reactive Programming:**

Reactive programming is a paradigm for building asynchronous, non-blocking and event – driven application.

Synchronous :it will execute the code or function call or client-server communication one by one or sequentially.

1st msg

2nd msg

3rd msg

Asynchronous : that code execute independently.

1st msg Asynchronous

2nd msg Asynchronous

3rd msg Asynchronous

5 client concurrently

1st client -------🡪 Server (1st thread assign to the client)

2nd client -------🡪 Server (1st thread assign to the client)

5th client -------🡪 Server (5th thread assign to the client)

Event driven loop

Client 1

Client 2 single thread -----🡪 event loop

Client 3 receive and pass to event task1

Client 4 taks2

Taks3

Reactive programming is about reacting to the data of any type as it comes. Not requesting it when needed like client send the request to server.

Reactive programming base upon Observable design pattern.

Reactive Programming concept

1. Publisher: it is use to publish or emit data of any type.
2. Subscriber : Listen or ready to handle published data or event.
3. Subscription : Subscription provide the link between publisher and subscriber.
4. Operator : which help to transform the data while subscribing filter, map, flatMap etc.
5. Subject : which is responsible to publish the type of data. Publisher only responsible to publish the subject of data.

Reactive library provided two API

Mono : Emit 0 or 1

Flux : Emit 0 or many

**Subscribe method takes 3 callback or lambda expression**

1st as next : to load the data one by one

2nd as error : if any error generate while loading the data it will call

3rd as complete : after loaded data successfully this code execute.

**Cold publisher Hot publisher**

Start emitting only start emitting regardless

When subscribed happen of subscriber

Get its own stream share the same stream

Watching movies live tv or match

File or database query Stock or gold price