```
    SpringOuthApp-For-Gmail-Login [boot] [devtools]

          # src/main/java
              in.ineuron.nitin
                 > 🛽 SpringOuthAppApplication.java
              in.ineuron.nitin.configuration ("/","/home","/login")
                  in.ineuron.nitin.controller
                  > 🛮 RedBusUserOperationsController.java
          static

\[
\sigma \begin{aligned}

                    login.html <a href="/oauth2/authorization/google">Google LOGIN</a>

→ application.yml 

← client-id, secrete-id of gmail

             > 👺 src/test/java
           Maven Dependencies
            > 🗁 src
              🗁 target
              HELP.md
              mvnw
              mvnw.cmd
              pom.xml
                 Authentication

    Stateful Authentication

                                                                                                                                                                            webapplication(server)
                           browser(client)
                                                                                                                                                                                             HttpSession
                                                                            request(un,pwd)
                                                                                                                                                                                       un = XXXXXX
                                                                              cookie with sessionId
       cookies
                                                                                                                                                                                      pwd = XXXXXX
                                                                                    response
            jsessionId
   6576357265272ABCD11
                                                                                request
                                                                                                                                                                            sessionId = 6576357265272ABCD11
                                                                             (/signout)
                                                                                                                                         session.invalidate()
           (remember)
           Stateful Authentication Time Flow Diagram
                        browser
client
                                                                                                                                                                               webapplication(server)
                                                                                                                                                                                                                                                Validate uname,pwd
                                                                      request(/login with uname,pwd)
             sessionId
                                                                           response(cookie-sessionId)
                                                                                                                                                                                                                                                   uname = XXXXX
                                                                                                                                                                                                                                                                                              HttpSession
                                                                                                                                                                                                                                                    pwd = XXXXX
                                                                         request(/viewTickets)
                                                                            response
                                                                                                                                                                                                                                               sessionId=4553456
                                                                         . . . . . . .
                                                                                                                                                                                                                      session.invalidate()
                                                                        . . . . . . .
                                                                                               request(/signout)
                                                                                response (showLoginPage)
(don't remember)
            Stateless Authentication in Time Flow Diagram
                                                                                                                                                                                                           → Validation of un,pwd
                                                                         request -login(un,pwd)
       cookies
                                                                                                                                                                                                                                                                                      sessionObject
          tokens
                                                                              response (token)
                                                                                                                                                                                                                        Token Generated
                                                                                                                                                                                                              (with expiry time like 15mins)
                                                                                       (token)
                                                                                request(/viewTicket)
                                                                                                                                                                                                         ─➡ TokenValidation
                                                                                                                                                                                                                                                                     secretekey will be given the server while generating and validating the webtoken
                                                                                response
                                                                                                             until token not expried
                                                                                                                    (token)
request
                                                                                                                                                                                                          response(showLoginPage)
                                                      No signout or logout while working with tokens
                                                                                                                   flipkart.com(server)
              browser
                                                 (uname,pwd)
                                                                                                                                                                                                                                                           GPAYSERVER
                                                    request
                                                                                                                                                                                                            request
un,pwd
                                                                                                                                                                                                          STATELESS
                                                                                                                                                                                                                                                              TOKEN
                                                 Statefull
                                                                                                            pwd
                                                authentication
                                                                                                                                                                                                             response
                                                                                                                                                                                                                (token)
                                                                                                  HttpSession object
                                                                                                                                                                                                               ShoppingService
                                                                                                                                                                                                                                                      ShoppingService
                                                                                                                                                               ShoppingService
                                                                                                                                                                                                                                                             instance#3
                                                                                                                                                                    instance#1
                                                                                                                                                                                                                                         STATELESS-COMMUNICATION
                                                                                                                                                                                                             BillingService
                                                                                                                                                                                                                                                          BillingService
                                                                                                                                                                BillingService
                                                                                       (LoadBalancer)
                                                                                                                                                                                                                  instance#2
                                                                                                                                                                                                                                                           instance#3
                                                                                                                                                                   instance#1
                                                                                                                                                                                                                  Facebook
                                                                                                4. request for validation client id
                                                                                                             secrete id + userGrant
                                       ClientApp
                                         (Redbus)
                                                                                                                                                                                                                 Auth Server
                                                                                                 5. Provides aouth Access Token
                                                            3.provide grant\f
                                                             confirmation
                                                                                                                                                 6. request for user

    Fb login

                                                                                                                                                       data by giving
                                                                                                                                                      access token
                                                              . request for grant
                                                                                                                                                                                                                   Resource Server
                                                                                                                                                                                                                    (verification)
                                                                                                                                                 7. provide user data
                                                                                       provide reponses/services
                                      Browser
                                                                                                                                                       like email
                                                                                          to end user
                                                                                                                                                        password.
                                                                                                                                                                                                                                                                                                                                                                          HEADER: ALGORITHM & TOKEN TYPE
                                                                                                                                                                                               HEADER: ALGORITHM & TOKEN TYPE
                         Microservices in Java
                                                                                                                                                                                                                                                                                                                                                                                   "alg": "HS256"
                                                                                                                                                                                                     "alg": "HS256",
                                                                                                                                                                                                                                                                                                                     (ALGORITHM)
                                                                                                                                                                                                       "typ": "JWT"
                                                                                                                                                                                                                                                                                                                         HEAD
                                                                                                                                                                                                                                                                                                                                                                            PAYLOAD: DATA
                                                                                                                                             (ALGORITHM)
                                                                                                                                                 HEAD
                                                                                                                                                                                                                                                                                                                      (PAYLOAD)
                                                                                                                                                                                               PAYLOAD: DATA
                                                                                                                                                                                                                                                                                                                                                                                   "jti": "23452",
                                                                                                                                                                                                                                                                                                                          BODY
                                                                                                                                                                                                                                                                                                                                                                                    "sub": "PINCARD",
                                                                                                                                               (PAYLOAD)
                                                                                                                                                                                                                                                                                                                                                                                     "iss": "PWSKILLS",
                                                                                                                                                                                                       "sub": "1234567890",
                                                                                                                                                                                                                                                                                                                                                                                     "iat": 1695541886,
                                                                                                                                                  BODY
                                                                                                                                                                                                         "name": "John Doe",
                                                                                                                                                                                                                                                                                                                                                                                    "exp": 1695541946
                                                                                                                                                                                                         "iat": 1516239022
       Filter Routing Spring Cloud Gateway Spring Cloud Ga
                                                                                                                                                                                                                                                                                                                        SIGNATURE
                                                                                                                                                                                                                                                                                                                                                                           VERIFY SIGNATURE
                                                                                                                                                                                                                                                                                                                      ALGORITHM
                                                                                                                                                                                               VERIFY SIGNATURE
                                                                                                                                                                                                                                                                                                                     PAYLOAD
                                                                                                                                              SIGNATURE
                                                                                                                                                                                                                                                                                                                     SECRETE-KEY
                                                                                                                                                                                                                                                                                                                                                                               HMACSHA256(
                                                                                                                                              ALGORITHM
                                                                                                                                                                                                 HMACSHA256(
                                                                                                                                                                                                                                                                                                                                                                                 base64UrlEncode(header) + "." +
                                                                                                                                             PAYLOAD
SECRETE-KEY
                                                                                                                                                                                                     base64UrlEncode(header) + "." +
                                                                                                                                                                                                                                                                                                                                                                                 base64UrlEncode(payload),
                                                                                                                                                                                                     base64UrlEncode(payload),
                                                                                                                                                                                                                                                                                                                                                                                your-256-bit-secret
                                                                                                                                                                                                     your-256-bit-secret
                                                                                                                                                                                                                                                                                                                                                                               ) □ secret base64 encoded
                                                                                                                                                                                                ) □ secret base64 encoded
```