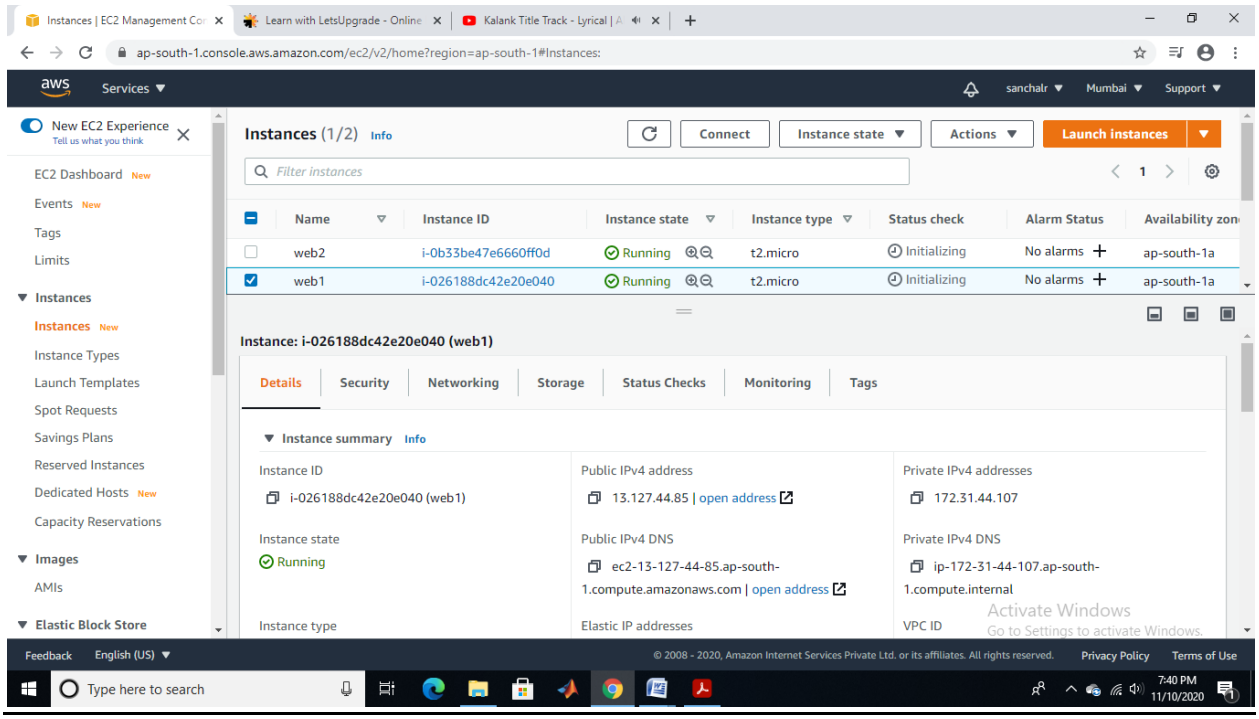
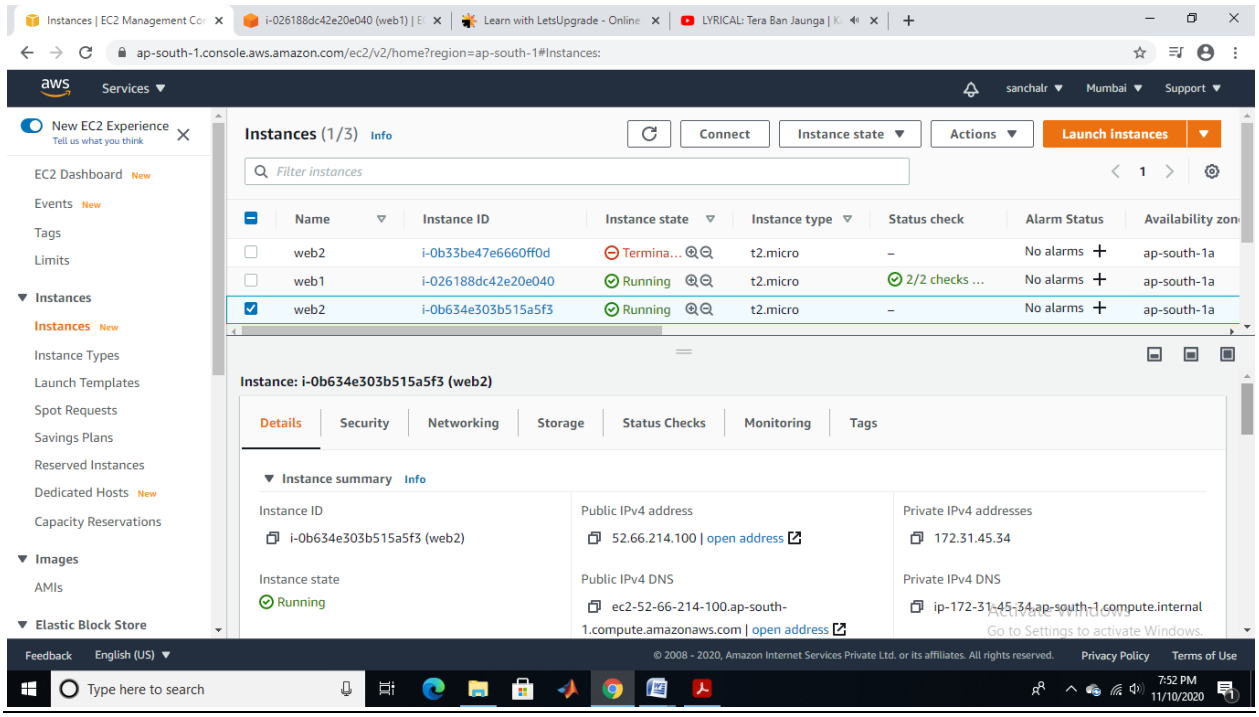
LOAD BALANCER

STEP 1: CREATE TWO LINUX INSTANCES.

INSTANCE-1 NAMED AS WEB1:

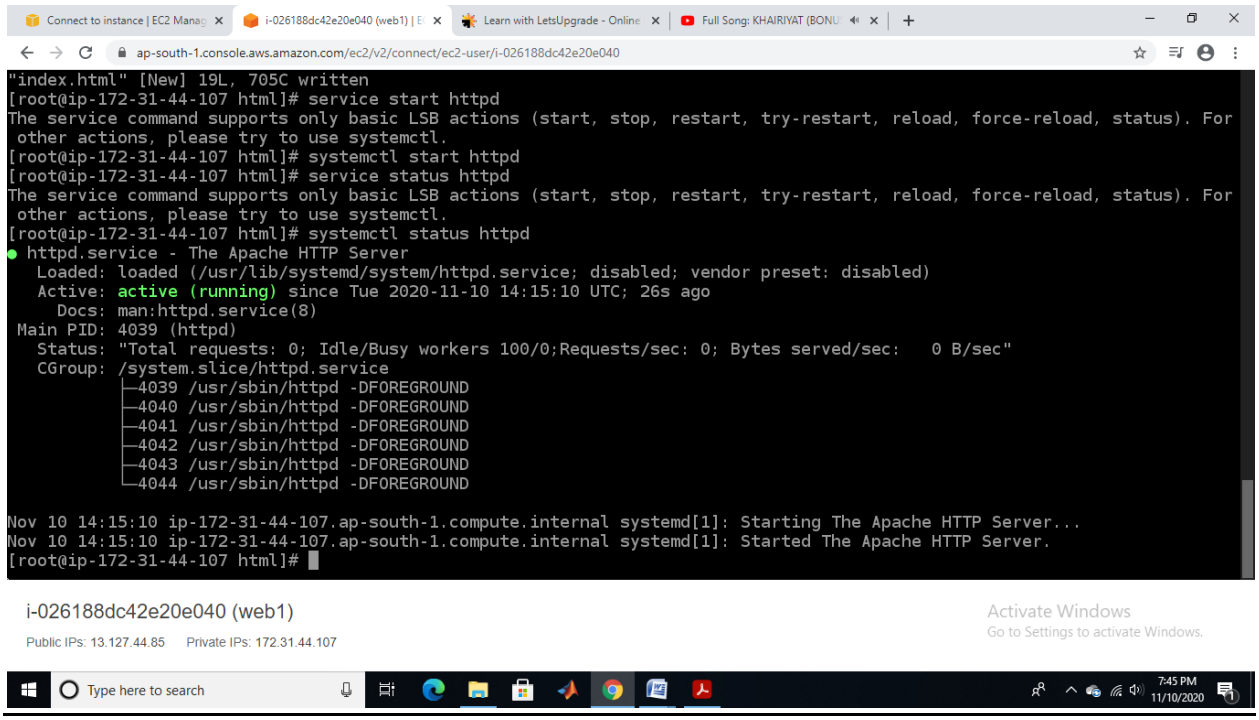


INSTANCE-2 NAMED AS WEB2:

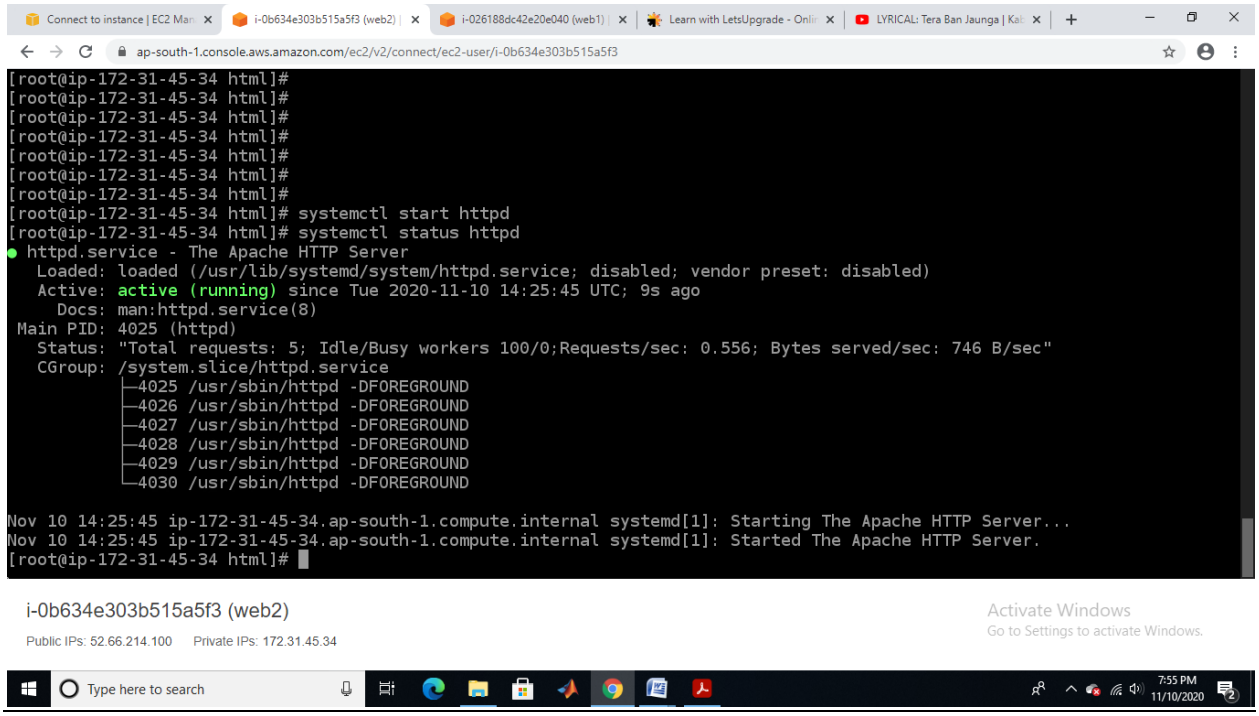


STEP2: CONNECTED TO INSTANCES

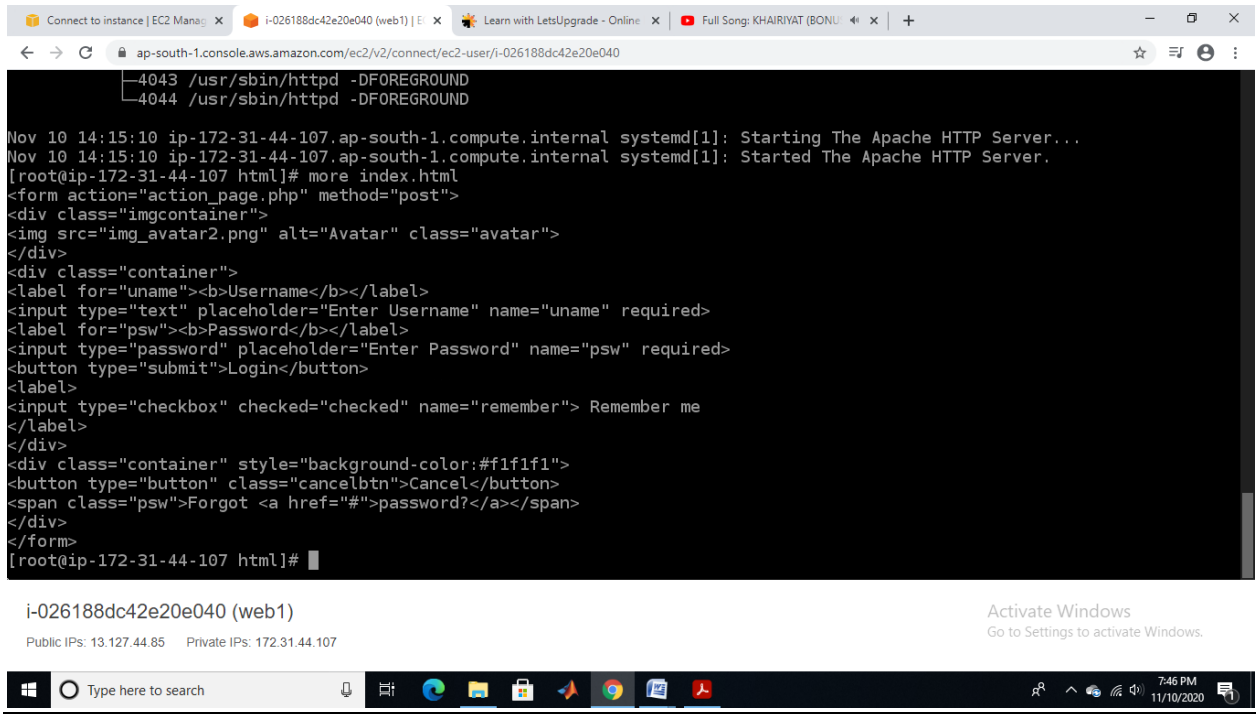
INSTANCE-1 INSTALLED APACHE



INSTANCE-2 INSTALLED APACHE

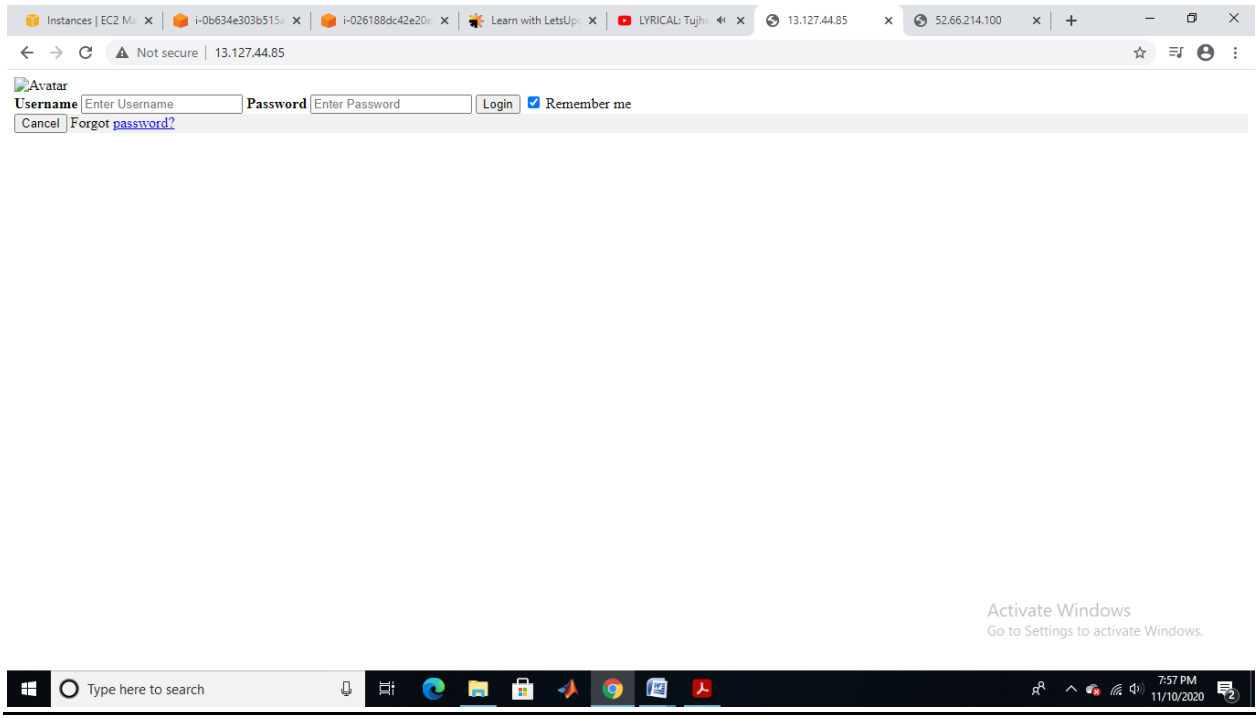


STEP3 : HOST HTML LOGIN WEBPAGE ON BOTH SERVERS.

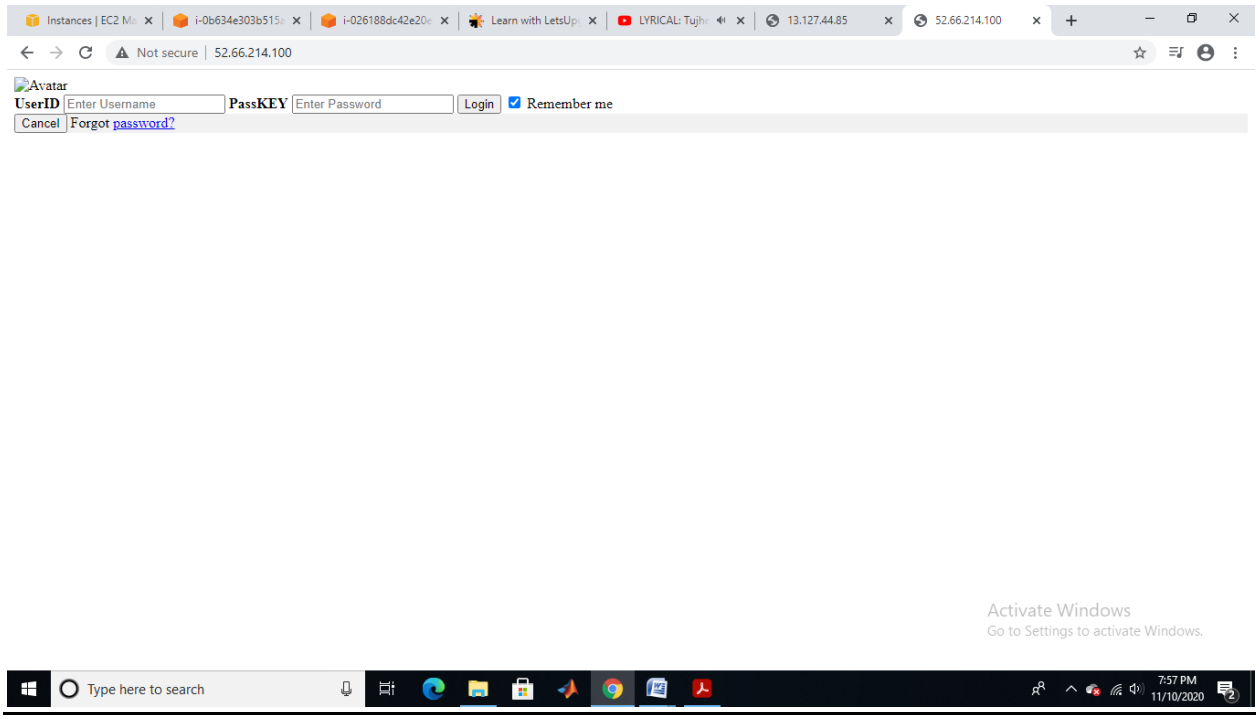


STEP4 : CHECK IF APPLICATION IS DEPLOYED ON BOTH SERVERS BY COPY PASTING THE PUBLIC IP OF THE SERVERS INTO THE BROWSER.

PUBLIC - IP OF INSTANCE-1 IS EXECUTED AND IS SHOWING THE USERNAME AND PASSWORD PAGE ON BROWSER.



PUBLIC - IP OF INSTANCE-2 IS EXECUTED AND IS SHOWING THE UserID AND PassKEY PAGE ON BROWSER.



STEP5 : CREATE A APPLICATION LOAD BALANCER WITH THE ABOVE TWO INSTANCES AS TARGETS.

LOAD BALANCER

- LOAD BALANCER, AS A TERM ITSELF, GIVES AN IDEA OF ITS WORKING WHICH IS BALANCING THE AMOUNT OF TRAFFIC ON A PARTICULAR SERVER BASED ON THE DEMAND OF SERVER.
- A LOAD BALANCER, OR SERVER LOAD BALANCER (SLB), IS A HARDWARE OR SOFTWARE-BASED DEVICE THAT EFFICIENTLY DISTRIBUTES NETWORK OR APPLICATION TRAFFIC ACROSS A NUMBER OF SERVERS.
- WITH A LOAD BALANCER, IF A SERVER'S PERFORMANCE SUFFERS FROM EXCESSIVE TRAFFIC OR IF IT STOPS RESPONDING TO REQUESTS, THE LOAD-BALANCING CAPABILITIES WILL AUTOMATICALLY SWITCH THE REQUESTS TO A DIFFERENT SERVER.
- THE BENEFITS OF USING LOAD BALANCER ARE AS FOLLOWS:
  - HIGH AVAILABILITY AND ELASTICITY
  - SECURITY
  - ROBUST MONITORING AND VISIBILITY
  - INTEGRATION AND GLOBAL REACH
  - FEATURE BREADTH
- THE TYPES OF LOAD BALANCER ARE AS FOLLOWS:
  - CLASSIC LOAD BALANCER
  - APPLICATION LOAD BALANCER
  - GATEWAY LOAD BALANCER
  - NETWORK LOAD BALANCER

APPLICATION LOAD BALANCER

- **AMAZON'S APPLICATION LOAD BALANCER (ALB) PROVIDES LOAD BALANCING, HEALTH MONITORING, AND URL-BASED REQUEST ROUTING ON THE AWS CLOUD.IT OFFERS HTTP AND HTTPS PROTOCOL LOAD BALANCING WITH CUSTOMER SSL CERTIFICATES LOADED FROM ONE OF THE AWS CERTIFICATE MANAGEMENT SERVICES.**
- **IN ADDITION, ALB ALLOWS AUTO SCALING OF BACKEND ELASTIC COMPUTE CLOUD (EC2) SERVER RESOURCES: WHEN THE TRAFFIC INCREASES, ALB TRIGGERS ADDITIONAL SERVERS TO BE DEPLOYED, AND ALSO REMOVE THEM WHEN DEMAND SUBSIDES. IT ALSO SUPPORTS LOAD BALANCING WEBSOCKET TRAFFIC.**
- **THE ALB SERVICE ALSO SCALES TO COPE WITH ADDITIONAL LOAD. AS APPLICATION NETWORK TRAFFIC INCREASES, ADDITIONAL ALB INSTANCES ARE CREATED AND REGISTERED WITH DNS, AND TRAFFIC IS THEN DISTRIBUTED TO THE ALB INSTANCES USING DNS ROUND ROBIN.**
- **FOR BEST PERFORMANCE UNDER SUDDEN WORKLOADS, PRE-WARMING OF ALB INSTANCES IS RECOMMENDED SINCE THE SPIN UP TIME FOR NEW INSTANCES CAN BE BETWEEN ONE AND SEVEN MINUTES.**
- **ALB CAN BE DEPLOYED VIA WEB CONSOLE, CLI, API, CLOUD FORMATION TEMPLATES (CFTS), AND MANY AUTOMATION TOOLS SUCH AS ANSIBLE.**

NETWORK LOAD BALANCER

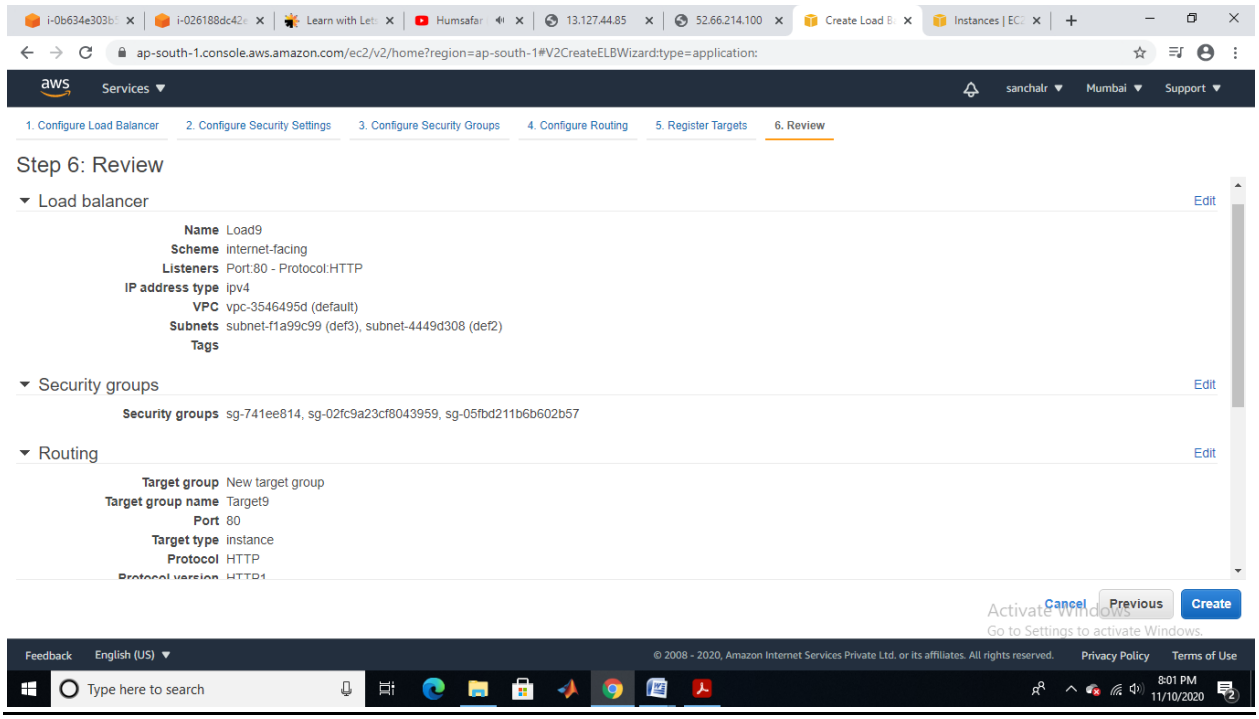
- **NLB OPERATES AT LAYER 4 AND OFFERS CONNECTION-BASED LOAD BALANCING AND NETWORK- AND APPLICATION-LAYER HEALTH CHECKS.**
- **NLB IS DESIGNED TO COPE WELL WITH TRAFFIC SPIKES AND HIGH VOLUMES OF CONNECTIONS. IN ADDITION, NLB ALLOWS TARGETS TO BE RFC 1918 PRIVATE IP ADDRESSES AS WELL AS EC2 INSTANCES. THE AUTOSCALING, SELF-SCALING, AND DEPLOYMENT OPTIONS ARE SIMILAR TO ALB.**

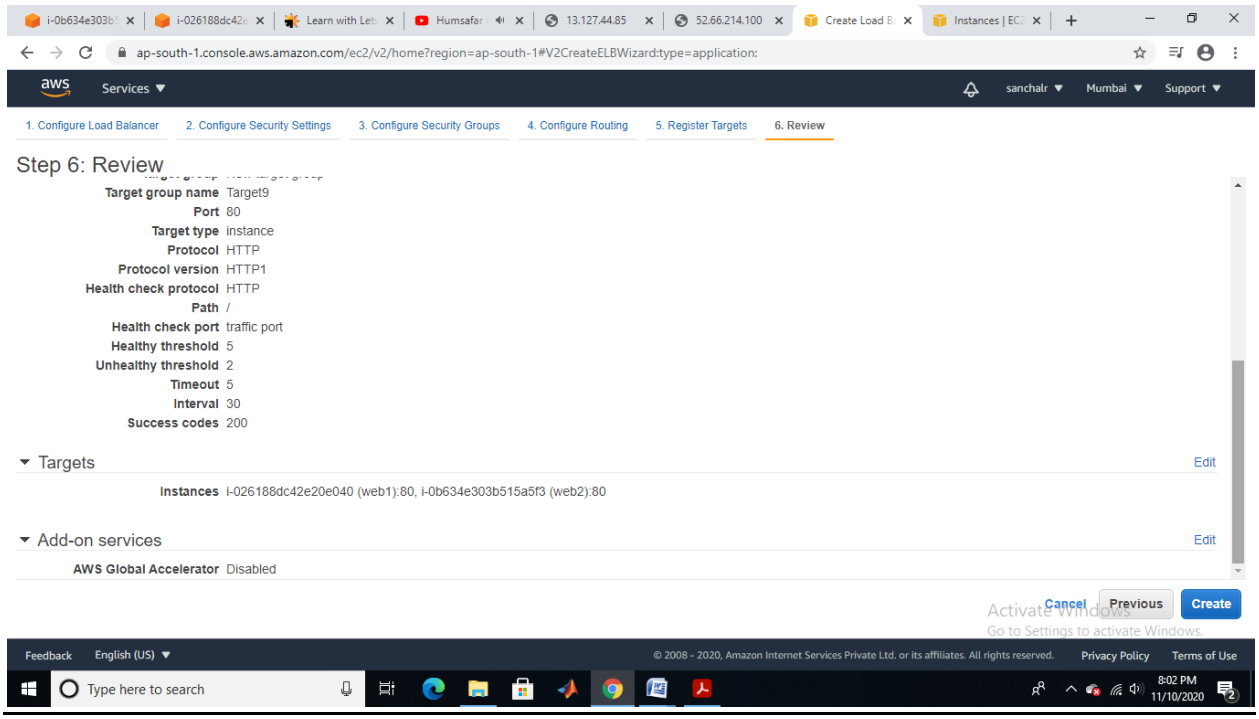
CLASSIC LOAD BALANCER

- **THE AWS CLASSIC LOAD BALANCER (CLB) OPERATES AT LAYER 4 OF THE OSI MODEL THAT DEPICTS THE LOAD BALANCER ROUTES TRAFFIC BETWEEN CLIENTS AND BACKEND SERVERS BASED ON IP ADDRESS AND TCP PORT.**
- **IN THE DEFAULT CONFIGURATION, THE CLASSIC LOAD BALANCER WILL ROUTE TRAFFIC EVENLY BETWEEN AVAILABILITY ZONES (AZ) THAT ARE ENABLED IN THE ELB. DUE TO THE WAY SOME CLIENTS HANDLE DNS, LOAD IMBALANCE CAN OCCUR IF THERE AREN'T AN EQUAL NUMBER OF SERVERS TO ANSWER REQUESTS IN EACH AZ WITH THIS CONFIGURATION.**
- **WITH CROSS-ZONE LOAD BALANCING ENABLED, TRAFFIC WILL BE DISTRIBUTED EVENLY AMONGST ALL INSTANCES IN ALL AVAILABILITY ZONES THAT ARE ENABLED IN THE ELB.**
- **ENABLING CROSS-ZONE LOAD BALANCING WILL HELP TO MITIGATE POTENTIAL LOAD IMBALANCE AND ALSO ENSURE BETTER AVAILABILITY OF YOUR APPLICATION.**

GATEWAY LOAD BALANCER

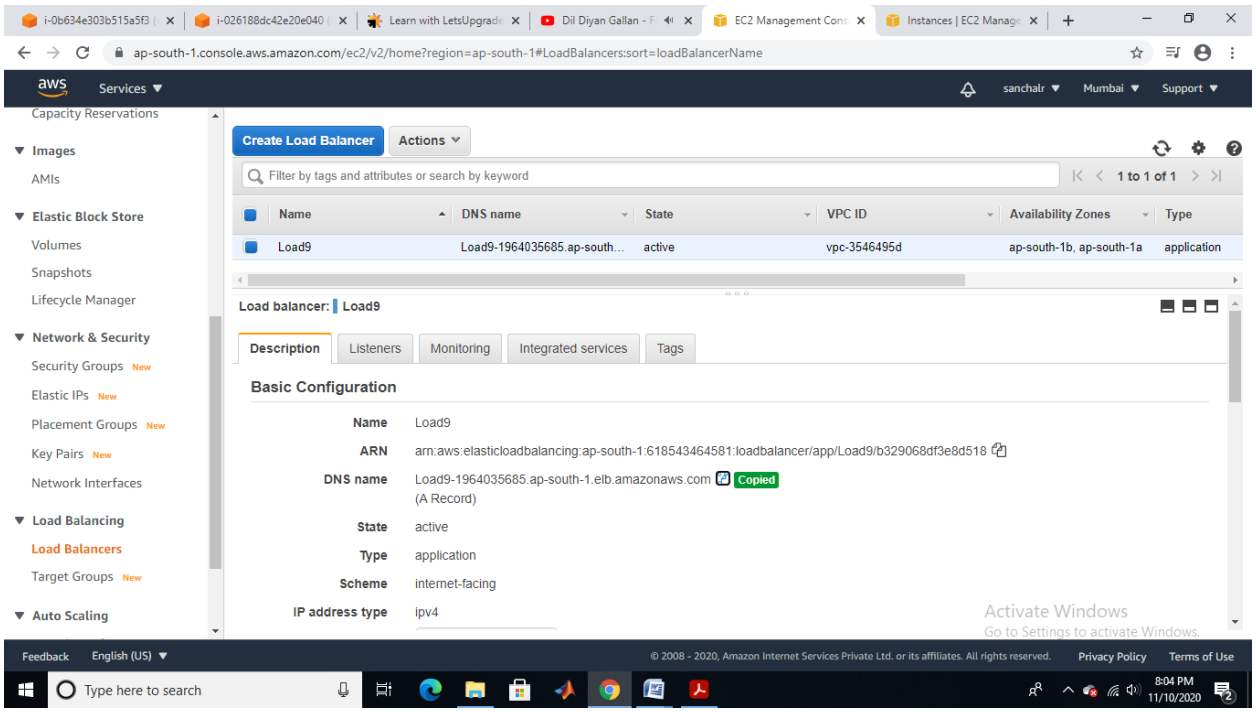
- **GATEWAY LOAD BALANCER MAKES IT EASY TO DEPLOY, SCALE, AND RUN THIRD-PARTY VIRTUAL NETWORKING APPLIANCES.**
- **GLB IS TRANSPARENT TO THE SOURCE AND DESTINATION OF TRAFFIC AND IT PROVIDES LOAD BALANCING AND AUTO SCALING FOR FLEETS OF THIRD-PARTY APPLIANCES.**
- **THIS CAPABILITY MAKES IT WELL SUITED FOR WORKING WITH THIRD-PARTY APPLIANCES FOR SECURITY, NETWORK ANALYTICS, AND OTHER USE CASES.**



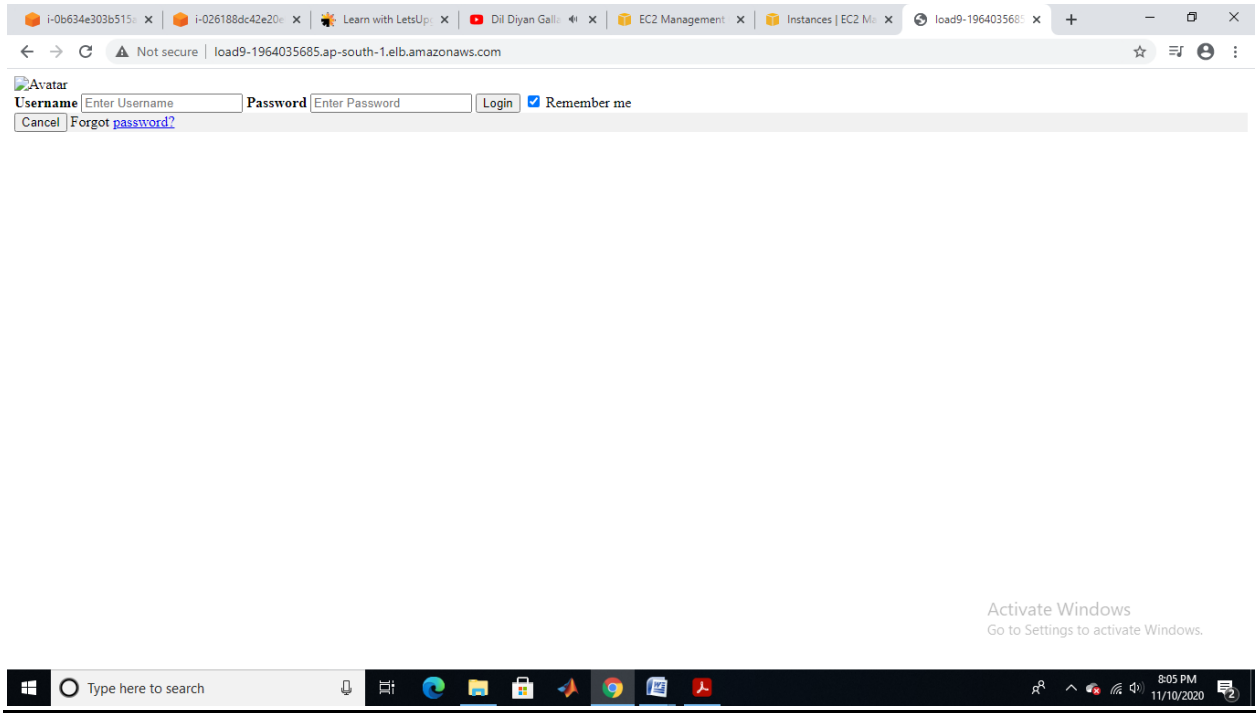


STEP6 : CHECK THE FUNCTIONING OF ELB USING THE DNS OF THE ELB .

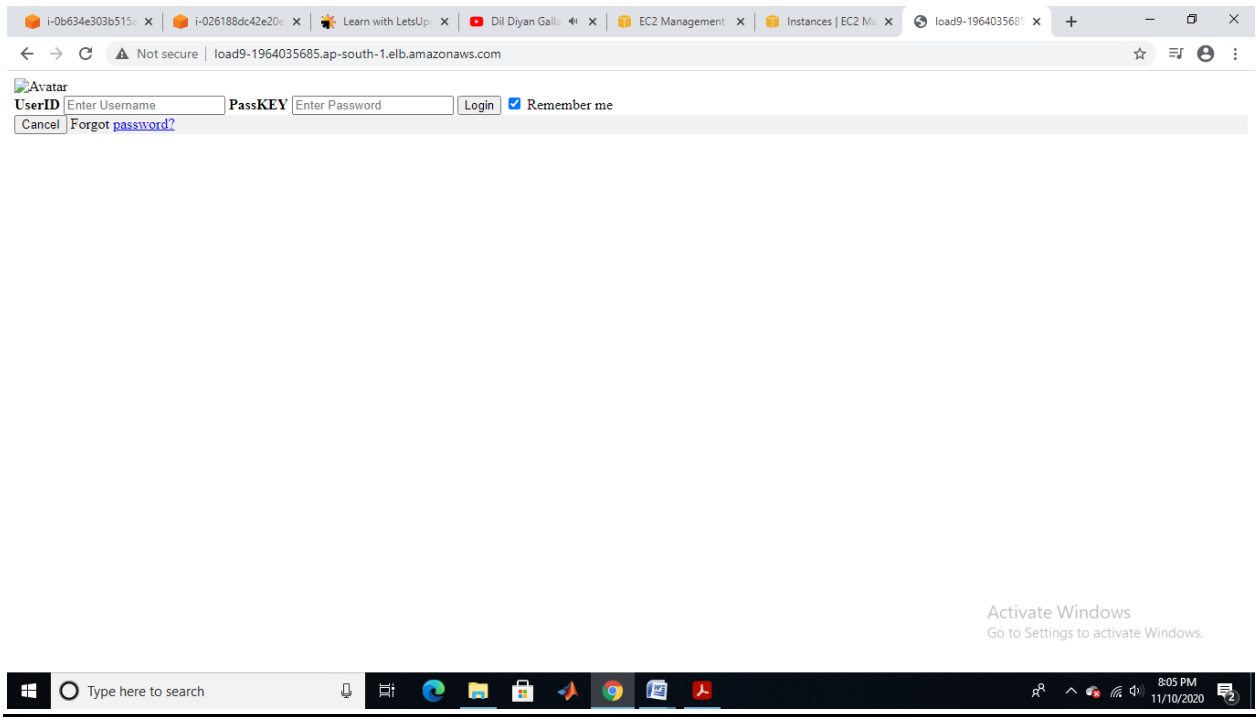
DNS NAME OF APPLICATION LOAD BALANCER IS COPIED FROM DESCRIPTIN TAB AND PASTED IN BROWSER TO CHECK THE WORKING OF IMPLEMENTATION



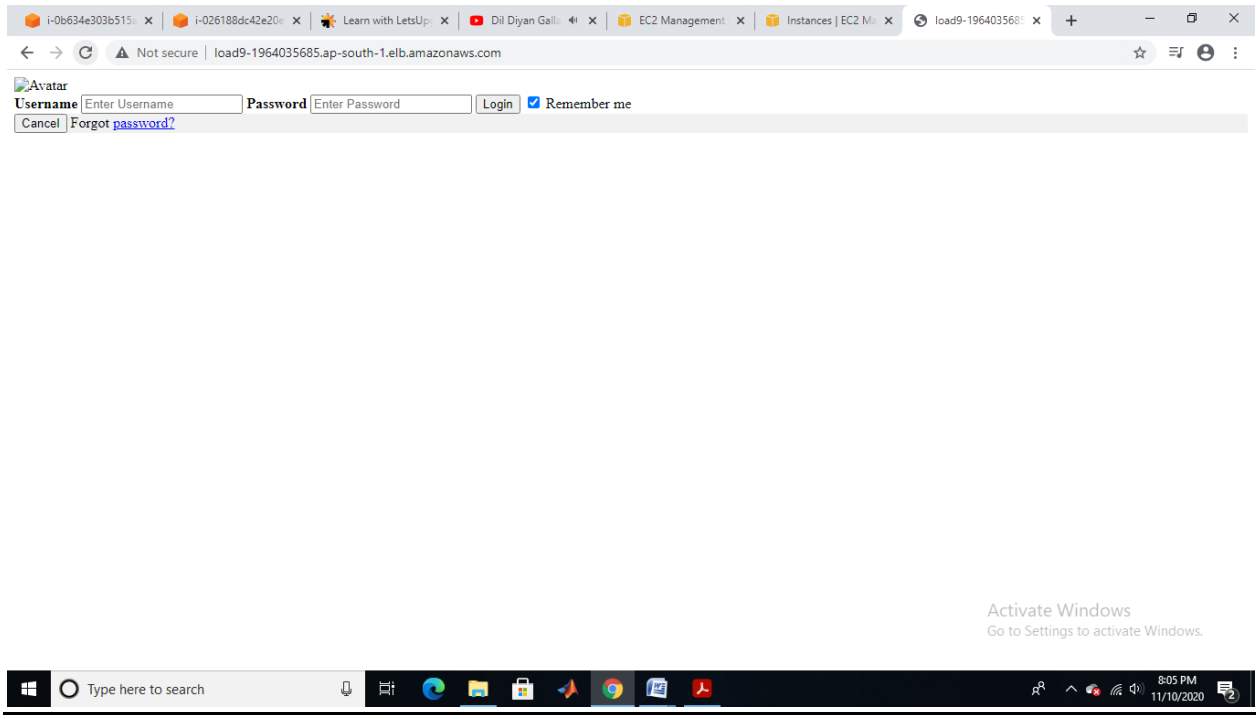
AFTER EXECUTING IN BROWSER, SERVER1 USERNAME AND PASSWORD PAGE IS DISPLAYED ACCORDING TO LOAD.

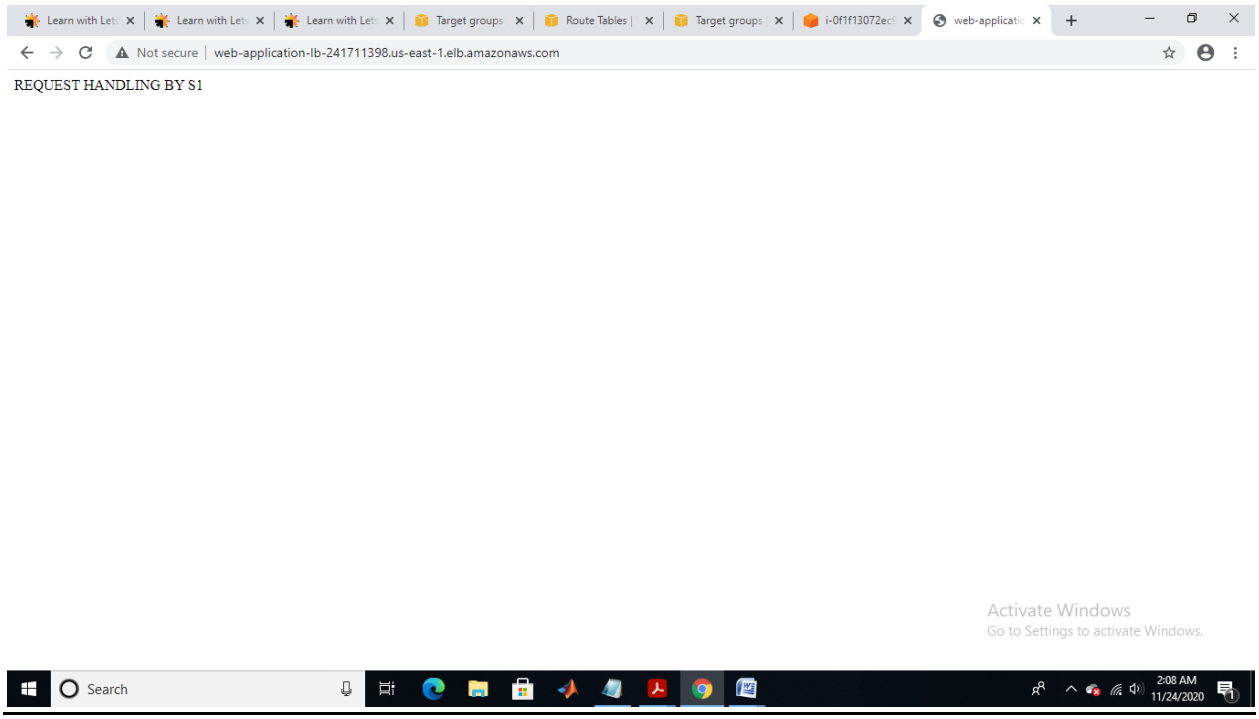


AFTER EXECUTING IN BROWSER THE NEXT TIME, SERVER2 USERID AND PASSKEY PAGE IS DISPLAYED ACCORDING TO LOAD.



AND THE PROCESS CONTINUES ACCORDING TO THE DEMAND INCREASE AND DECREASE. HENCE, ALB DISTRIBUTES THE LOAD AMONG SERVERS DEPENDING ON DEMAND AND BALANCES LOAD, EVEN WHEN DEMAND SUBSIDES.

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