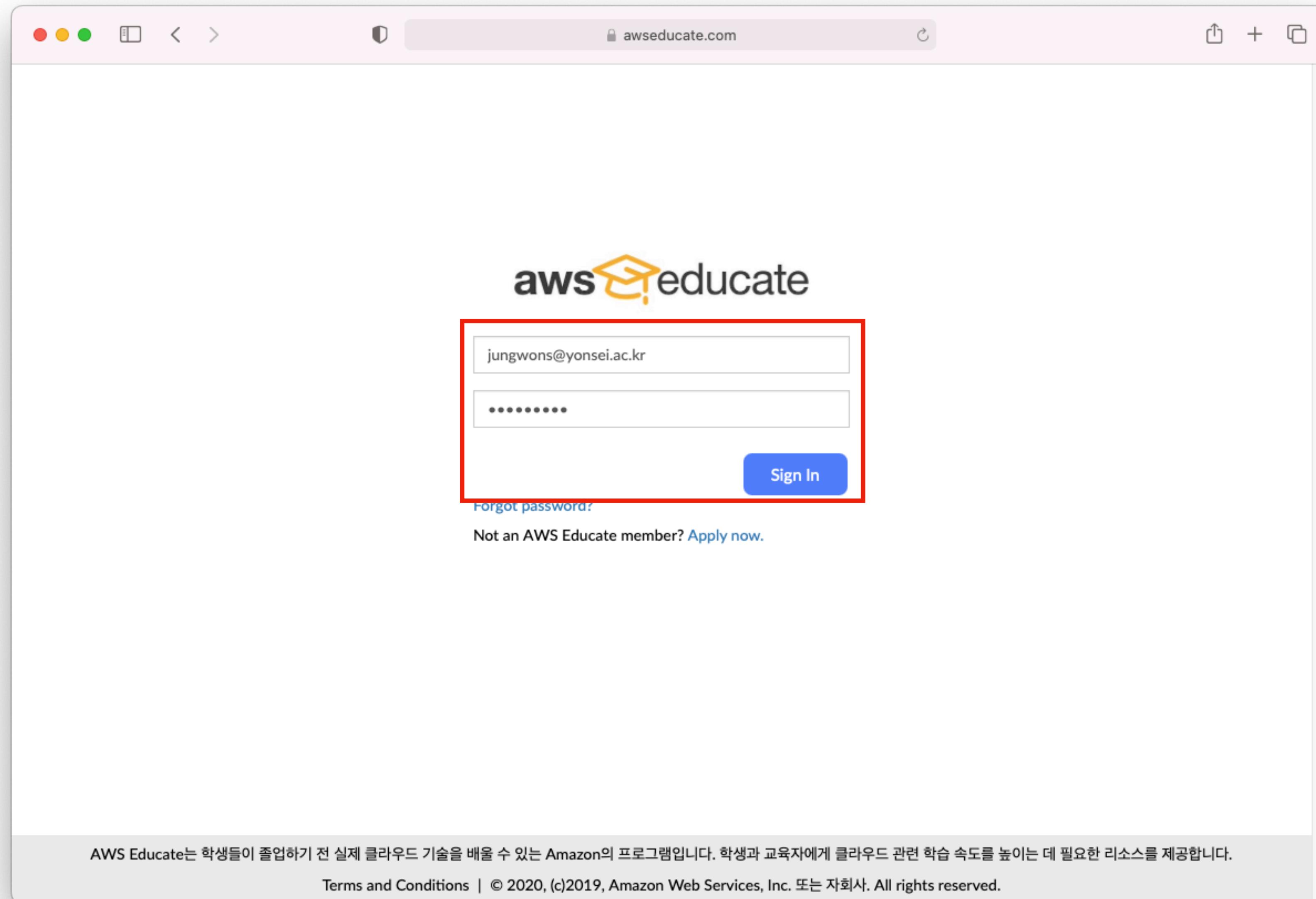


# **Big Data Analytics Programming**

**Week-12. Practice**

**Jungwon Seo, 2020-Fall**

<https://www.awseducate.com/signin/SiteLogin> 로 접속하여 로그인



## 우측 상단에 AWS Account 클릭

The screenshot shows the AWS Educate dashboard. At the top right, there is a navigation bar with several items: Portfolio, Career Pathways, Badges, Jobs, AWS Account, and Logout. The 'AWS Account' item is highlighted with a red rectangular box. Below the navigation bar, there is a user profile section for 'Jungwon Seo'. It displays the user's consecutive days (1), pathways completed (0), and badges earned (0). There is also a dropdown for 'Preferred Language' set to English. On the left side, there are three main sections: 'Career Path' (AWS Startups Badge), 'AWS Startups Badge' (Your Progress: 0 of 6 complete), and a 'CONTINUE LEARNING' button. In the center, there is a banner for 'awseducate' featuring a rocket and a robot. Below the banner, a message encourages users to watch a webinar if they missed it. On the right side, there is a 'Suggested Jobs' section with a job listing for 'Software Development Engineer Intern - Summer 2021 (Canada)' at Amazon, Inc., with a 'See More' button. At the bottom of the page, there are links for 'FAQs', 'AWS Support Forum', 'Contact Us', and 'Terms and Conditions', along with a copyright notice: '© 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved.'

The screenshot shows a web browser window for [awseducate.com](https://awseducate.com). The page is titled "AWS Educate Starter Account". At the top, there is a navigation bar with links for "Portfolio", "Career Pathways", "Badges", "Jobs", "AWS Account" (which is underlined in blue), and "Logout". Below the navigation bar, there is a cartoon illustration of a man with curly hair and a beard, wearing a black jacket over a red plaid shirt, standing next to a laptop screen that has a small burst effect around it. To the right of the illustration, the title "AWS Educate Starter Account" is displayed in large orange text. Below the title, there is a block of text: "Your cloud journey has only just begun. Use your AWS Educate Starter Account to access the AWS Console and resources, and start building in the cloud!" A large orange button with the text "AWS Educate Starter Account" is centered below this text, and it is enclosed in a red rectangular border. At the bottom of the page, there is a note: "Note: Clicking this button will take you to a third party site managed by Vocareum, Inc. ("Third Party Servicer"). In addition to the AWS Educate terms of service, your use of the AWS Educate Starter Account is governed by the Third Party Servicer's terms, including its Privacy Policy. AWS assumes no responsibility or liability and makes no representations or warranties regarding services provided by a Third Party Servicer." The URL "awseducate.com" is visible in the browser's address bar.

The screenshot shows a web browser window for [labs.vocareum.com](https://labs.vocareum.com). The title bar says "AWS Account". The main content area has a dark header with "Vocareum" and navigation links for "Home", "My Classes", "Help", and the user's email "jungwons@yonsei.ac..".  
  
The left side features a large heading "Welcome to your AWS Educate Account" and a paragraph about AWS Educate providing access to AWS services. Below this is a section titled "Please read the FAQ below to help you get started on your Starter Account." followed by a list of frequently asked questions.  
  
The right side displays "Your AWS Account Status" with three items: "Active" (full access to [jungwons@yonsei.ac.kr](mailto:jungwons@yonsei.ac.kr)), "\$77.27" remaining credits (estimated), and "2:60" session time. At the bottom of this section are two buttons: "Account Details" and "AWS Console", with "AWS Console" being highlighted by a red box.  
  
A note at the bottom states: "Please use AWS Educate Account responsibly. Remember to shut down your instances when not in use to make the best use of your credits. And, don't forget to logout once you are done with your work!"  
  
A note at the bottom also says: "NOTE: CloudFront service is temporarily unavailable."

Welcome to your AWS Educate Account

AWS Educate provides you with access to a wide variety of AWS Services for you to get your hands on and build on AWS! To get started, click on the AWS Console button to log in to your AWS console.

Please read the FAQ below to help you get started on your Starter Account.

- What are the list of services supported?
- What regions are supported with Starter Accounts or Classroom Accounts?
- I can't start any resources. What happened?
- Can I create users within my Starter or Classroom Account for others to access?
- Can I create my own IAM policy within Starter Account or Classroom?
- Can I use marketplace software with my Starter Account or

Your AWS Account Status

**Active**  
full access ([jungwons@yonsei.ac.kr](mailto:jungwons@yonsei.ac.kr))

**\$77.27**  
remaining credits (estimated)

**2:60**  
session time

Account Details **AWS Console**

Please use AWS Educate Account responsibly. Remember to shut down your instances when not in use to make the best use of your credits. And, don't forget to logout once you are done with your work!

NOTE: CloudFront service is temporarily unavailable.

## 이곳이 AWS 콘솔의 메인페이지, 우선 EC2 클릭

The screenshot shows the AWS Management Console interface. At the top, there are three tabs: 'AWS Account' (selected), 'Workbench', and 'AWS Management Console'. Below the tabs, the AWS logo and a '서비스 ▾' button are visible. The main title 'AWS Management Console' is centered at the top of the content area.

**AWS 서비스**

**서비스 찾기**  
이름, 키워드 또는 약어를 입력할 수 있습니다.  
예: 관계형 데이터베이스 서비스, 데이터베이스, RDS

**전체 서비스**

- 컴퓨팅**
  - EC2** (highlighted with a red box)
  - Lightsail
  - Lambda
  - Batch
  - Elastic Beanstalk
  - Serverless Application Repository
  - AWS Outposts
  - EC2 Image Builder
- 컨테이너**
  - Amazon Elastic Container Registry

**Machine Learning**

- Amazon SageMaker
- Amazon Augmented AI
- Amazon CodeGuru
- Amazon Comprehend
- Amazon Forecast
- Amazon Fraud Detector
- Amazon Kendra
- Amazon Lex
- Amazon Personalize
- Amazon Polly
- Amazon Rekognition

**이동 중에도 AWS 리소스와 연결 유지**

AWS 콘솔 모바일 앱을 iOS 또는 Android 모바일 디바이스에 다운로드합니다.  
다. 자세히 알아보기

**AWS 탐색**

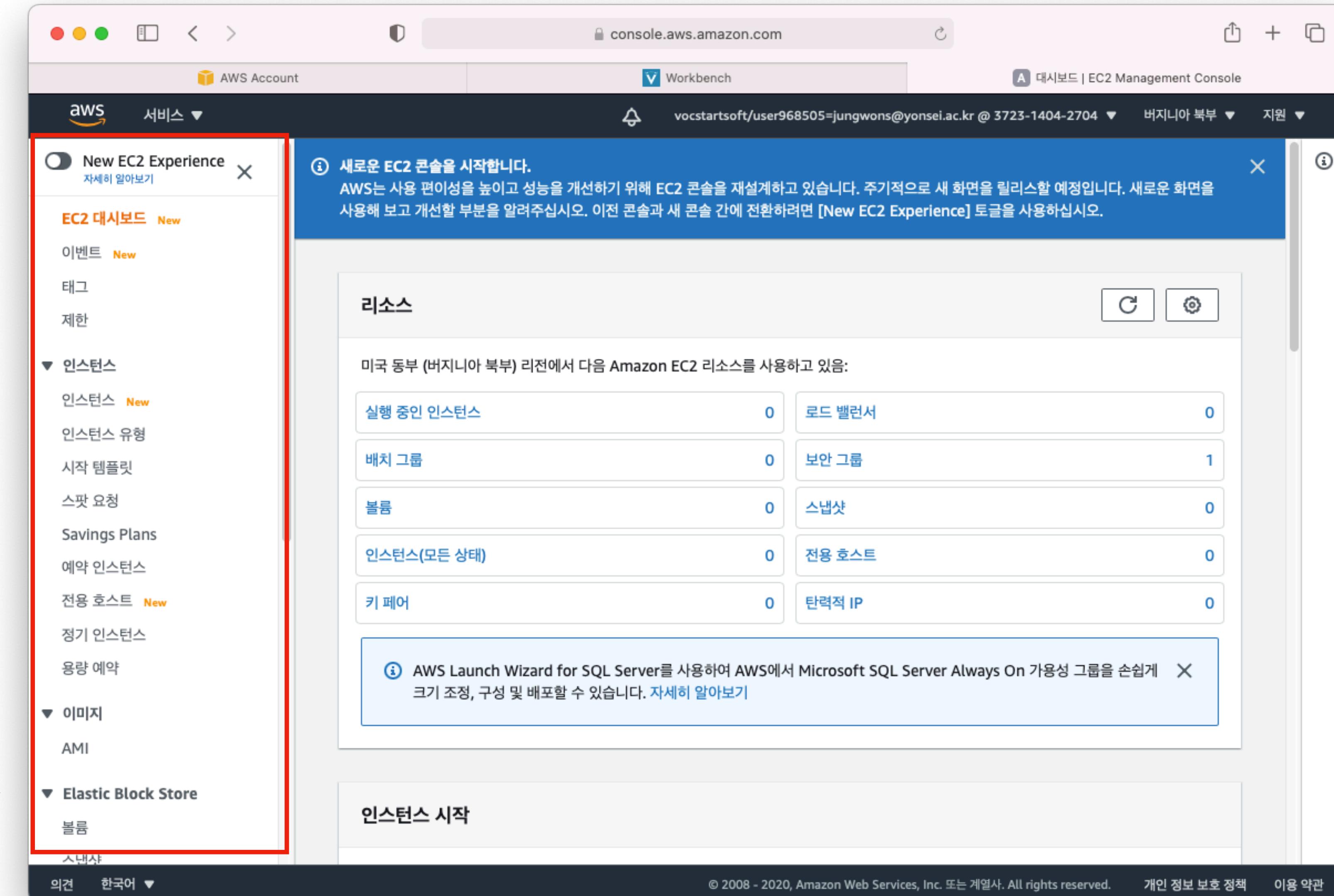
**Amazon Redshift**  
쿼리를 사용자 데이터 레이크로 확장할 수 있는 빠르고 간단하며 비용 효과적인 데이터 웨어하우스입니다.  
다. 자세히 알아보기

**AWS Fargate를 사용하여 서비스 컨테이너 실행**  
AWS Fargate는 서버 또는 클러스터를 관리할 필요 없이 컨테이너를 실행 및 확장합니다. 자세히 알아보기

**Amazon S3를 통해 확장 가능하고 내구성이 뛰어나며 안전한 대용량 미디어 스토리지**

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좌측의 메뉴에서 아래로 내려가서 키페어 클릭



## 키페어 생성 클릭

The screenshot shows the AWS EC2 Management Console interface. The left sidebar lists various services: AWS Account, Workbench, and Key Pairs (which is highlighted with a red box). The main content area is titled 'Key Pairs' and displays a table with columns for Name, Region, and ID. A message at the bottom of the table says 'No key pairs found'. The top right of the screen shows the user's email (vocstartsoft/user968505=jungwons@yonsei.ac.kr) and the region (Virginia North).

console.aws.amazon.com

AWS Account Workbench 키 페어 | EC2 Management Console

vocstartsoft/user968505=jungwons@yonsei.ac.kr @ 3723-1404-2704 버지니아 북부 지원

aws 서비스 ▾

스팟 요청  
Savings Plans  
예약 인스턴스  
전용 호스트 New  
정기 인스턴스  
용량 예약

이미지  
AMI

Elastic Block Store  
볼륨  
스냅샷  
수명 주기 관리자

네트워크 및 보안  
보안 그룹 New  
탄력적 IP New  
배치 그룹 New  
키 페어 New

네트워크 인터페이스 New

로드 밸런싱  
로드밸런서

C 작업 키 페어 생성

키 페어

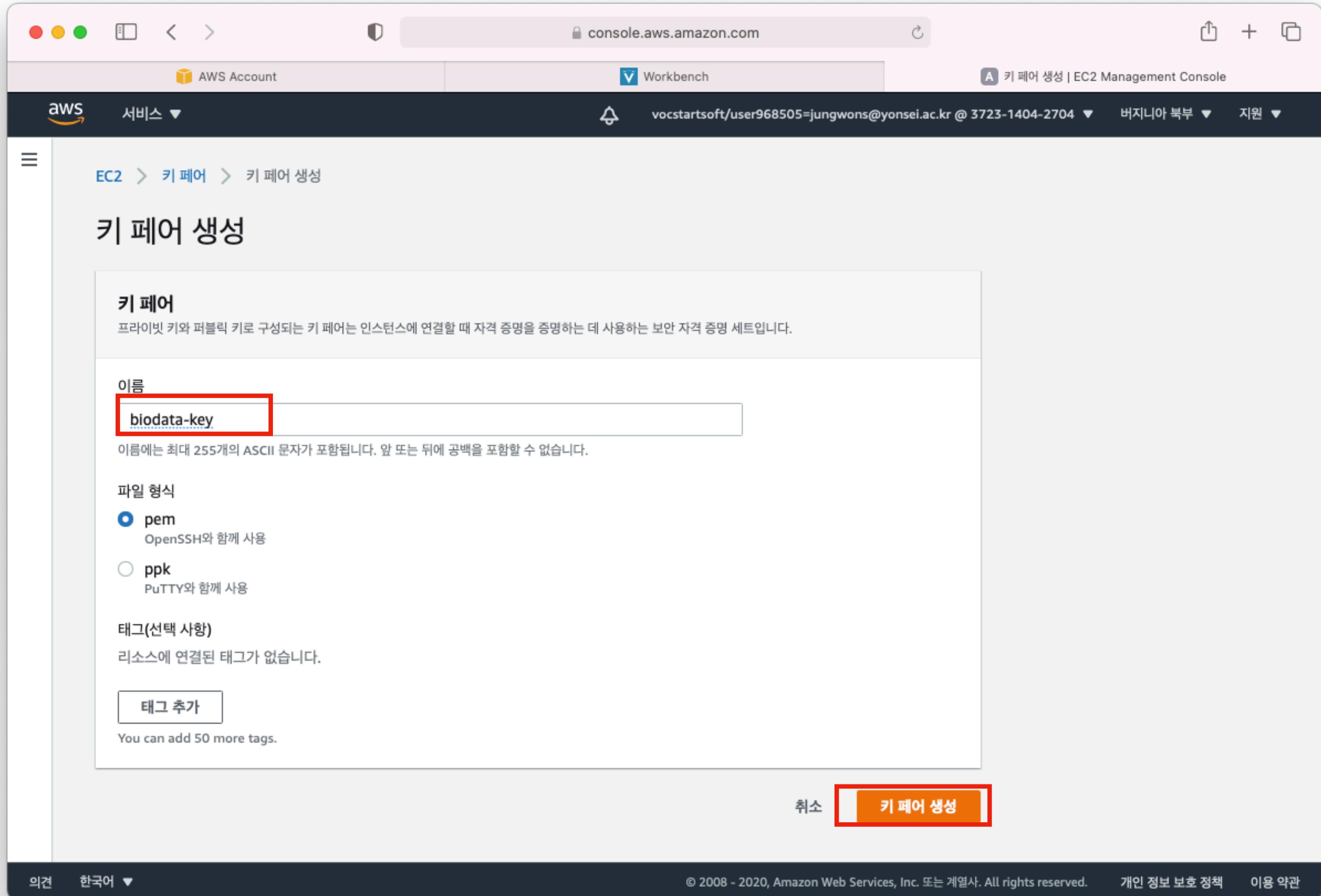
키 페어 필터링

이름 지문 ID

표시할 키 페어 없음

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## bigdata-key라고 이름을 짓고 키페어 생성



The screenshot shows the AWS EC2 Management Console with the 'Key Pair Creation' wizard open. The URL in the browser is `console.aws.amazon.com`. The top navigation bar includes tabs for 'AWS Account', 'Workbench', and 'Key Pair Creation | EC2 Management Console'. Below the navigation, it shows the user's email address and account ID: `vocstartsoft/user968505=jungwons@yonsei.ac.kr @ 3723-1404-2704`, location: 'Virginia North', and support: '지원'.

The main content area is titled 'Key Pair Creation'. It contains a section titled 'Key Pair' with a description: '프라이빗 키와 퍼블릭 키로 구성되는 키 페어는 인스턴스에 연결할 때 자격 증명을 증명하는 데 사용하는 보안 자격 증명 세트입니다.'.

The 'Name' field is highlighted with a red box and contains the value 'bigdata-key'. A note below says: '이름에는 최대 255개의 ASCII 문자가 포함됩니다. 앞 또는 뒤에 공백을 포함할 수 없습니다.'

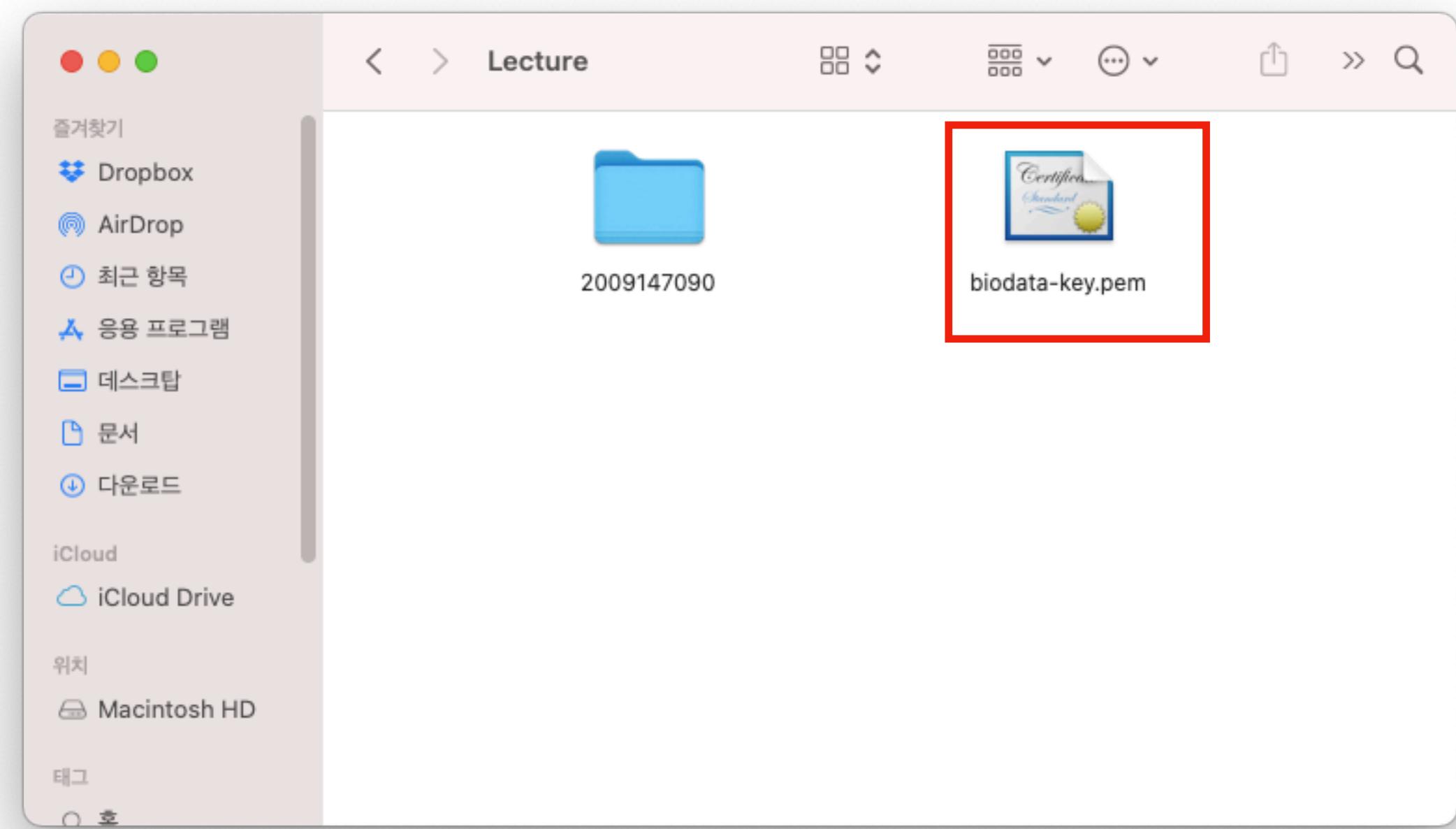
The 'File Format' section has two options: 'pem' (selected) and 'ppk'. 'pem' is described as 'OpenSSH와 함께 사용' and 'ppk' as 'PuTTY와 함께 사용'.

The 'Tags' section says '태그(선택 사항)' and '리소스에 연결된 태그가 없습니다.' There is a 'Tag Add' button and a note: 'You can add 50 more tags.'

At the bottom right of the wizard is a large orange 'Create Key Pair' button, which is also highlighted with a red box.

The footer of the page includes links for 'Feedback', 'Korean', 'Copyright notice' (© 2008 - 2020, Amazon Web Services, Inc. 또는 계열사. All rights reserved.), 'Privacy Policy', and 'Terms of Service'.

다운 받은 키페어를 나중에 찾아볼 수 있는 위치에 잘 두기



## 다시 AWS console로 와서 EMR 검색후 이동

The screenshot shows the AWS Management Console search interface. The search bar at the top contains the text 'EMR'. Below the search bar, the results are displayed under the heading '모든 서비스' (All Services). The first result, 'EMR', is highlighted with a red box. The 'EMR' service is described as a '관리형 하둡 프레임워크' (Managed Hadoop Framework). Other services listed include Lambda, Managed Services, Amazon CodeGuru, AWS AppSync, Batch, Activate for Startups, Amazon Comprehend, Device Farm, Elastic Beanstalk, Amazon Forecast, Serverless Application... (partially visible), Amazon Fraud Detection, AR 및 VR, AWS Outposts, Amazon Managed Bl..., Amazon Kendra, Amazon Sumerian, EC2 Image Builder, Amazon Lex, Amazon Personalize, Step Functions, Amazon Polly, Amazon Rekognition, Amazon AppFlow, Quantum Technologies, Amazon Textract, Amazon EventBridge, Amazon MQ, Amazon Translate, Simple Notification ..., Storage Gateway, Amazon Braket, AWS DeepComposer, Simple Queue Service, AWS Backup, AWS Organizations, SWF, Amazon DeepLens, Amazon DeepRacer, 관리 및 거버넌스 (Management and Governance), CloudWatch, AWS Panorama, AWS Auto Scaling, Amazon Monitron, AWS Cost Explorer, AWS Backup, AWS Organizations, CloudFormation, Amazon Lookout for..., and AWS 비용 관리 (AWS Cost Management).

## 클러스터 생성 클릭

The screenshot shows the AWS EMR console interface. On the left, there's a sidebar with various options like 'Cluster 목록' (Cluster List) and 'VPC 서브넷'. The main area has a title bar with 'console.aws.amazon.com', the user 'vocstartsoft/user968505=jungwons@yonsei.ac.kr @ 3723-1404-2704', and the region '버지니아 북부'. Below the title bar, there are tabs for 'AWS Account', 'Workbench', and 'EMR – AWS Console'. A red box highlights the '클러스터 생성' (Create Cluster) button, which is blue with white text. To its right are buttons for '세부 정보 보기' (View Details), '복제' (Copy), and '종료' (Terminate). The main content area shows a table with one row, indicating '0개의 클러스터(모두 로드됨)'. The columns of the table are '이름' (Name), 'ID', '상태' (Status), '생성 시간 (UTC+9)' (Creation Time), and '경과 시간' (Elapsed Time).

이 부분은 일단 기본 설정으로 놔두고 아래로 내려가기

The screenshot shows the 'Cluster 생성 - 빠른 옵션' (Cluster Creation - Quick Options) page in the AWS EMR console. The '일반 구성' (General Configuration) section includes:

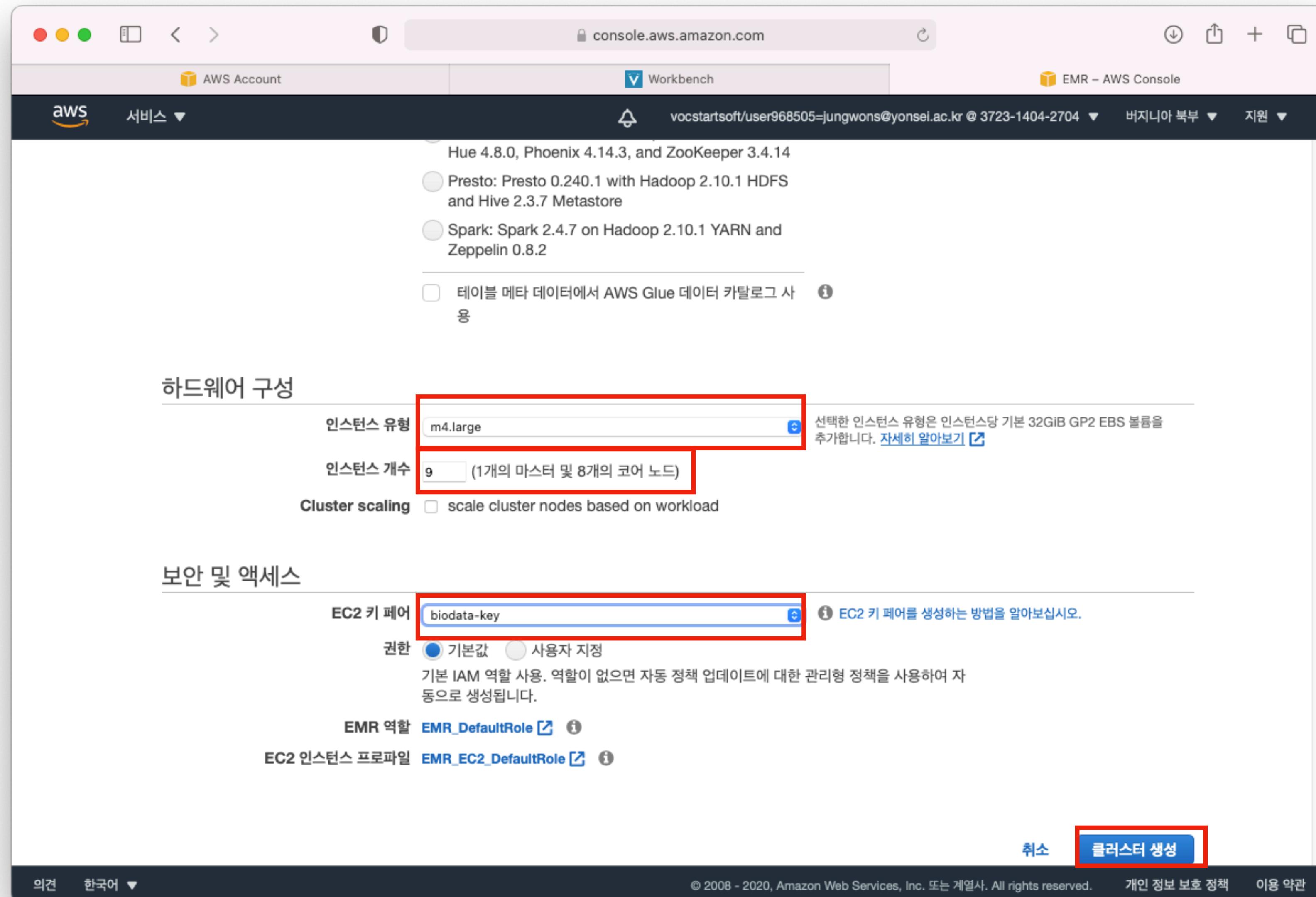
- Cluster 이름: 내 클러스터
- 로깅: S3 폴더: s3://aws-logs-372314042704-us-east-1/elasticmapreduce/
- 시작 모드: 클러스터 (selected)

The '소프트웨어 구성' (Software Configuration) section includes:

- 릴리스: emr-5.32.0
- 애플리케이션:
  - Core Hadoop: Hadoop 2.10.1, Hive 2.3.7, Hue 4.8.0, Mahout 0.13.0, Pig 0.17.0, and Tez 0.9.2 (highlighted with a red box)
  - HBase: HBase 1.4.13, Hadoop 2.10.1, Hive 2.3.7, Hue 4.8.0, Phoenix 4.14.3, and ZooKeeper 3.4.14
  - Presto: Presto 0.240.1 with Hadoop 2.10.1 HDFS and Hive 2.3.7 Metastore
  - Spark: Spark 2.4.7 on Hadoop 2.10.1 YARN and Zeppelin 0.8.2
- 테이블 메타 데이터에서 AWS Glue 데이터 카탈로그 사용

The '하드웨어 구성' (Hardware Configuration) section is partially visible at the bottom.

인스턴스 유형 m4.large로 변경하고 인스턴스 개수 9개로 지정, EC2 키페어는 아까 키페어 선택, 그리고 클러스터 생성 클릭



생성시작!

The screenshot shows the AWS EMR console interface. At the top, there are tabs for 'AWS Account', 'Workbench' (which is selected), and 'EMR – AWS Console'. Below the tabs, the URL is 'console.aws.amazon.com' and the session information is 'vocstartsoft/user968505=jungwons@yonsei.ac.kr @ 3723-1404-2704'. The region is set to '버지니아 북부' (Virginia North) and the language is '한국어' (Korean). The main navigation bar on the left includes 'Amazon EMR', '클러스터 목록' (Cluster List), '노트북' (Notebook), 'Git repositories', '보안 구성' (Security Configuration), '퍼블릭 액세스 차단' (Public Access Block), 'VPC 서브넷' (VPC Subnet), '이벤트' (Events), '도움말' (Help), and '새로운 소식' (New). The current view is under the 'AWS CLI 내보내기' (Export to AWS CLI) tab. The main content area displays the progress of creating a cluster named '내 클러스터'. The '요약' (Summary) tab is selected, showing the following details:

- ID: j-16QFIS9N3O966
- 생성 날짜: 2020-12-03 14:45 (UTC+9)
- 경과 시간: 0초
- 자동 종료: Cluster waits
- 종료 보호: 해제 변경
- 태그: -- [모두 보기/편집](#)
- 마스터 퍼블릭 DNS: --

Below the summary, there are sections for '구성 세부 정보' (Configuration Detailed Information) and 'Application user interfaces'.

Configuration Detailed Information:

- 릴리스 레이블: emr-5.32.0
- Hadoop 배포: Amazon 2.10.1
- 애플리케이션: Hive 2.3.7, Hue 4.8.0, Mahout 0.13.0, Pig 0.17.0, Tez 0.9.2
- 로그 URI: s3://aws-logs-372314042704-us-east-1/elasticmapreduce/
- EMRFS 일관된 보기: 비활성화
- 사용자 지정 AMI ID: --

Application user interfaces:

- 기록 서비스: [?] --
- 연결: [?] --

At the bottom, there are links for '의견' (Feedback), '한국어' (Korean), '© 2008 - 2020, Amazon Web Services, Inc. 또는 계열사. All rights reserved.', '개인 정보 보호 정책' (Privacy Policy), and '이용 약관' (Terms of Service).

**10분 뒤**

SSH 접속을 하기 위해, 포트 열기 진행, 아래 페이지에서 아래로 이동

The screenshot shows the AWS EMR Cluster Details page. The URL in the browser is `console.aws.amazon.com`. The main content area displays a cluster named "내 클러스터" (My Cluster) with ID `j-16QFIS9N3O966`, created on `2020-12-03 14:45 (UTC+9)`. The "요약" tab is selected, showing basic cluster details like release version `emr-5.32.0`, Hadoop version `Amazon 2.10.1`, and application stack `Hive 2.3.7, Hue 4.8.0, Mahout 0.13.0, Pig 0.17.0, Tez 0.9.2`. A large red arrow points downwards from the top of the screenshot towards the bottom of the page.

Amazon EMR

클러스터 목록

노트북

Git repositories

보안 구성

퍼블릭 액세스 차단

VPC 서브넷

이벤트

도움말

새로운 소식

클러스터: 내 클러스터    시작

복제    종료    AWS CLI 내보내기

요약    애플리케이션 이력    모니터링    하드웨어    구성    이벤트    단계    부트스트랩 작업

요약

ID: j-16QFIS9N3O966  
생성 날짜: 2020-12-03 14:45 (UTC+9)  
경과 시간: 0초  
자동 종료: Cluster waits  
종료 보호: 해제 변경  
태그: --    모두 보기/편집  
마스터 퍼블릭 DNS: --

구성 세부 정보

릴리스 레이블: emr-5.32.0  
Hadoop 배포: Amazon 2.10.1  
애플리케이션: Hive 2.3.7, Hue 4.8.0, Mahout 0.13.0, Pig 0.17.0, Tez 0.9.2  
로그 URI: s3://aws-logs-372314042704-us-east-1/elasticmapreduce/

EMRFS 일관된 보기: 비활성화  
사용자 지정 AMI ID: --

Application user interfaces

기록 서비스: : --  
연결: : --

의견    한국어 ▾    © 2008 - 2020, Amazon Web Services, Inc. 또는 계열사. All rights reserved.    개인 정보 보호 정책    이용 약관

## 마스터 보안그룹 링크 클릭

The screenshot shows the AWS EMR console for a cluster named 'vocstartsoft/user968505=jungwons@yonsei.ac.kr @ 3723-1404-2704'. The left sidebar lists various cluster management options. The main content area displays cluster configuration details, including Hadoop version (2.10.1), applications (Hive 2.3.7, Hue 4.8.0, Mahout 0.13.0, Pig 0.17.0, Tez 0.9.2), log URI (s3://aws-logs-372314042704-us-east-1/elasticmapreduce/), and application user interfaces (YARN timeline server, Tez UI). It also shows network and hardware settings (VPC subnet ID: subnet-01832f67, master instance type: m4.large, core instance type: m4.large, and no pending tasks). The 'Cluster scaling' section indicates it is not enabled. Under '보안 및 액세스' (Security and Access), it shows key pair (biodata-key), EC2 instance profile (EMR\_EC2\_DefaultRole), and EMR role (EMR\_DefaultRole). It also lists who can access the cluster (all users can access) and provides links to the master and core/slave security groups. The master security group link is highlighted with a red box.

Hadoop 배포: Amazon 2.10.1  
애플리케이션: Hive 2.3.7, Hue 4.8.0, Mahout 0.13.0, Pig 0.17.0, Tez 0.9.2  
로그 URI: s3://aws-logs-372314042704-us-east-1/elasticmapreduce/  
EMRFS 일관된 보기: 비활성화  
사용자 지정 AMI ID: --

**Application user interfaces**

기록 서비스: YARN timeline server, Tez UI  
연결: Not Enabled 웹 연결 활성화

**네트워크 및 하드웨어**

가용 영역: us-east-1b  
서브넷 ID: subnet-01832f67  
마스터: 실행 1 m4.large  
코어: 실행 8 m4.large  
작업: --

Cluster scaling: Not enabled

**보안 및 액세스**

키 이름: biodata-key  
EC2 인스턴스 프로파일: EMR\_EC2\_DefaultRole  
EMR 역할: EMR\_DefaultRole  
모든 사용자가 볼 수 있음: 모두 변경  
마스터 보안 그룹: sg-092c54d5269b78376 (ElasticMapReduce-master)  
코어 및 작업 보안 그룹: sg-0184016083876b812 (ElasticMapReduce-slave)

## ElasticMapReduce-master 클릭

The screenshot shows the AWS EC2 Management Console with the 'Security Groups' page open. The search bar at the top contains 'search: sg-092c54d5269b78376'. The table below lists two security groups:

Name	보안 그룹 ID	보안 그룹 이름	VPC ID
-	sg-0184016083876b812	ElasticMapReduce-slave	vpc-7feb1302
-	sg-092c54d5269b78376	ElasticMapReduce-mas...	vpc-7feb1302

The bottom right corner of the table row for the second security group is highlighted with a red box.

## 인바운드 규칙 편집 클릭

The screenshot shows the AWS EC2 Management Console interface for managing a security group named 'sg-092c54d5269b78376 - ElasticMapReduce-master'. The 'Inbound Rules' tab is selected. A red box highlights the 'Edit Inbound Rules' button at the top right of the table.

**보안 그룹 정보**

보안 그룹 이름 ElasticMapReduce-master	보안 그룹 ID sg-092c54d5269b78376	설명 Master group for Elastic MapReduce created on 2020-11-24T18:03:22.270Z	VPC ID vpc-7feb1302
소유자 372314042704	인바운드 규칙 수 18 권한 항목	아웃바운드 규칙 수 1 권한 항목	

**인바운드 규칙 편집**

유형	프로토콜	포트 범위	소스	설명 - 선택 사항
모든 TCP	TCP	0 - 65535	sg-0184016083876b812 (ElasticMapReduce-slave)	-

## 아래로 내려가기

The screenshot shows the AWS EC2 Management Console with the URL `console.aws.amazon.com` in the address bar. The navigation bar includes links for AWS Account, Workbench, EMR – AWS Console, and EC2 Management Console. The main menu shows 'aws' and '서비스 ▾'. The current view is under the 'EC2' service, specifically in the '보안 그룹' (Security Groups) section for the group 'sg-092c54d5269b78376 - ElasticMapReduce-master'. The sub-menu '인바운드 규칙 편집' (Edit Inbound Rules) is selected.

The main content area is titled '인바운드 규칙 편집' (Edit Inbound Rules) with a '정보' (Information) link. A sub-section title '인바운드 규칙 정보' (Inbound Rule Information) is visible. The interface displays three rows of inbound rule configurations:

- Row 1:** Protocol: TCP, Port Range: 0 - 65535, Source: 사용자 지정 (Custom), Description: sg-0184016 083876b 812. This row has a delete button ('삭제') and a search input field.
- Row 2:** Protocol: TCP, Port Range: 0 - 65535, Source: 사용자 지정 (Custom), Description: sg-092c54d 5269b78 376. This row has a delete button ('삭제') and a search input field.
- Row 3:** Protocol: 사용자 지정 TCP (Custom TCP), Port Range: 8443, Source: 사용자 지정 (Custom), Description: 207.171. 167.25/. This row has a delete button ('삭제') and a search input field.

At the bottom of the page, there are links for '의견' (Feedback), '한국어 ▾' (Korean), and copyright information: © 2008 - 2020, Amazon Web Services, Inc. 또는 계열사. All rights reserved. Additionally, there are links for '개인 정보 보호 정책' (Privacy Policy) and '이용 약관' (Terms of Use).

## 규칙추가

The screenshot shows the AWS Management Console interface for managing security groups. The top navigation bar includes tabs for AWS Account, Workbench, EMR – AWS Console, and EC2 Management Console. The main content area displays three security group rules, each with a delete icon (X). The rules are:

- sg-092c54d 5269b78 376
- sg-0184016 083876b 812
- sg-092c54d 5269b78 376

Below these rules are several filter and search controls:

- 모든 ICMP - IPv4 ▾
- ICMP
- 전체
- 사용자 지정 ▾
- 검색
- 검색
- 삭제
- 모든 ICMP - IPv4 ▾
- ICMP
- 전체
- 사용자 지정 ▾
- 검색
- 검색
- 삭제
- 모든 ICMP - IPv4 ▾
- ICMP
- 전체
- 사용자 지정 ▾
- 검색
- 검색
- 삭제

A prominent red arrow points from the bottom right towards the "규칙 저장" (Rule Save) button.

**참고:** 기존 규칙을 편집하면 편집된 규칙이 삭제되고 새 세부 정보로 새 규칙이 생성됩니다. 이렇게 하면 새 규칙이 생성될 때까지 해당 규칙에 의존하는 트래픽이 잠시 중단될 수 있습니다.

At the bottom, there are buttons for 취소 (Cancel), 변경 사항 미리 보기 (Preview changes), and **규칙 저장** (Rule Save).

## 22번 포트 추가하고, 위치무관으로 설정, 그리고 규칙저장 클릭

The screenshot shows the AWS Management Console interface for creating a new security rule. A red box highlights the configuration area where a new rule is being defined:

- Port:** 22
- Protocol:** TCP
- Source:** 0.0.0.0/0
- Destination:** ::/0
- Action:** 위치 무관 (Location Independent)

A warning message in a callout box states: "참고: 기존 규칙을 편집하면 편집된 규칙이 삭제되고 새 세부 정보로 새 규칙이 생성됩니다. 이렇게 하면 새 규칙이 생성될 때까지 해당 규칙에 의존하는 트래픽이 잠시 중단될 수 있습니다." (Note: Editing an existing rule will delete the edited rule and create a new rule with the new details. This will cause traffic dependent on this rule to be temporarily interrupted until the new rule is created.)

At the bottom right, the **규칙 저장** (Rule Save) button is highlighted with a red box.

성공!

The screenshot shows the AWS EC2 Management Console interface. The top navigation bar includes links for AWS Account, Workbench, EMR – AWS Console, and EC2 Management Console. The main content area displays a success message: "✓ 보안 그룹의 인바운드 보안 그룹 규칙이 수정되었습니다. (sg-092c54d5269b78376 | ElasticMapReduce-master)" (The inbound security group rule was successfully modified). Below this, the breadcrumb navigation shows EC2 > 보안 그룹 > sg-092c54d5269b78376 - ElasticMapReduce-master. The main title is "sg-092c54d5269b78376 - ElasticMapReduce-master".  
**세부 정보**

보안 그룹 이름	보안 그룹 ID	설명	VPC ID
ElasticMapReduce-master	sg-092c54d5269b78376	Master group for Elastic MapReduce created on 2020-11-24T18:03:22.270Z	vpc-7feb1302
소유자	인바운드 규칙 수	아웃바운드 규칙 수	
372314042704	20 권한 항목	1 권한 항목	

  
**인바운드 규칙**  
The "Inbound Rules" tab is selected, showing a table with columns: Rule ID, IP Range, Port, Protocol, and Actions. One row is visible: "sg-092c54d5269b78376 - ElasticMapReduce-master" with IP range "0.0.0.0/0", port "22", protocol "tcp", and actions "Allow".  
**Actions**

- 수정
- 삭제
- 선택된 항목

At the bottom, there are links for "인바운드 규칙 편집" (Edit Inbound Rules), "선택된 항목" (Selected Items), and "선택된 항목" (Selected Items).

다시 EMR 페이지로 돌아와서 준비가 다 되었는지 확인, 그리고 Connect to the Master Node using SSH 클릭

The screenshot shows the AWS EMR console interface. On the left, there's a sidebar with options like '클러스터 목록', '노트북', 'Git repositories', etc. The main area displays a cluster named '내 클러스터' which is 'Cluster ready after last step completed'. Below the cluster name, there are tabs for '요약' (selected), '애플리케이션 이력', '모니터링', '하드웨어', '구성', '이벤트', '단계', and '부트스트랩 작업'. Under the '요약' tab, it shows the cluster ID (j-16QFIS9N3O966), creation time (2020-12-03 14:45 UTC+9), duration (14분), and cluster waits. It also lists the master public DNS (ec2-3-236-93-152.compute-1.amazonaws.com) and a blue link 'Connect to the Master Node Using SSH' which is highlighted with a red box. Further down, there's a '구성 세부 정보' section with details about the release, Hadoop version, applications, log URI, and EMRFS. At the bottom, it lists application user interfaces like YARN timeline server and Tez UI.

## Master 노드에 접속하기 위해 해당 명령어 복사

The screenshot shows the AWS EMR console interface. In the center, a modal dialog titled "SSH" is open, providing instructions for connecting to the master node via SSH. The dialog includes tabs for "Windows" and "Mac/Linux", with the "Mac/Linux" tab selected. It lists three steps: 1. Open Terminal, 2. Enter the command `ssh -i ~/biodata-key.pem hadoop@ec2-3-236-93-152.compute-1.amazonaws.com`, and 3. Enter "yes" when prompted. The command in step 2 is highlighted with a red box. Below the dialog, the main EMR console shows cluster details and application interfaces like YARN timeline server and Tez UI.

Amazon EMR

클러스터 목록

노트북

Git repository

보안 구성

퍼블릭 액세스

VPC 서브넷

이벤트

도움말

새로운 소식

클러스터: 내 클러스터 대기 Cluster ready after last step completed.

AWS CLI 내보내기

복제 종료 AWS CLI 내보내기

SSH

SSHD를 사용하여 마스터 노드에 연결

SSHD를 사용하여 Amazon EMR 마스터 노드에 연결하면 대화형 쿼리 실행, 로그 파일 검사, Linux 명령 제출 등을 수행할 수 있습니다. 자세히 알아보십시오.

Windows Mac/Linux

- 터미널 창을 엽니다. Mac OS X에서는 [Applications] > [Utilities] > [Terminal]을 선택합니다. 다른 Linux 배포에서는 일반적으로 [Applications] > [Accessories] > [Terminal]에서 터미널을 찾을 수 있습니다.
- 마스터 노드에 대한 연결을 설정하려면 다음 명령을 입력합니다. `~/biodata-key.pem`을 클러스터 실행에 사용된 프라이빗 키 파일(.pem)의 위치와 파일 이름으로 바꿉니다.

```
ssh -i ~/biodata-key.pem hadoop@ec2-3-236-93-152.compute-1.amazonaws.com
```

3. "yes"를 입력하여 보안 경고를 무시합니다.

닫기

1/elasticmapreduce/

EMRFS 일관된 보기: 비활성화

사용자 지정 AMI ID: --

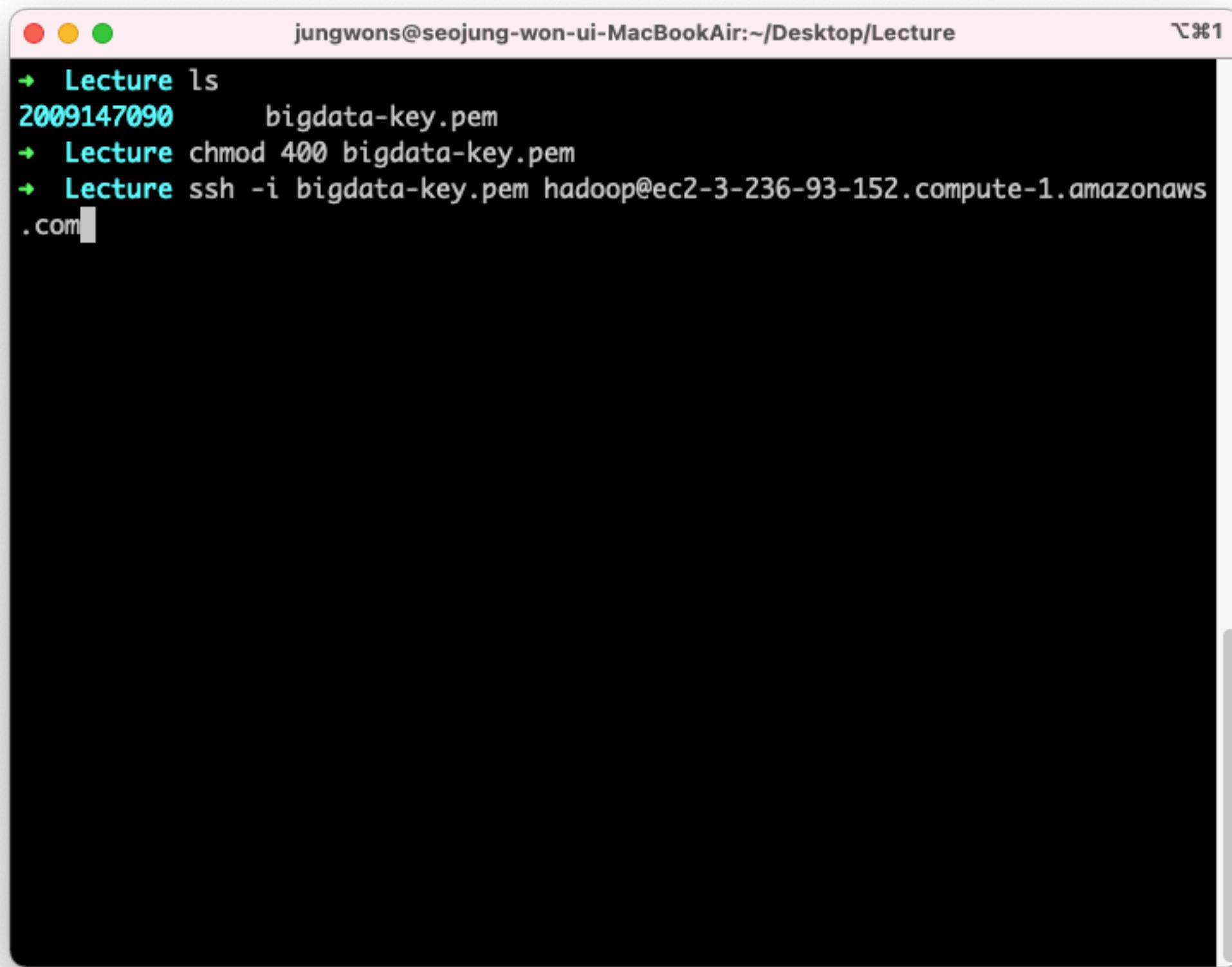
Application user interfaces

기록 서비스: YARN timeline server, Tez UI

의견 한국어 ▾

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아까 받은 키를 이용하여, terminal 또는 gitbash를 이용하여 다음과 같이 입력



A screenshot of a Mac OS X terminal window titled "jungwons@seojung-won-ui-MacBookAir:~/Desktop/Lecture". The window shows the following command sequence:

```
→ Lecture ls
2009147090    bigdata-key.pem
→ Lecture chmod 400 bigdata-key.pem
→ Lecture ssh -i bigdata-key.pem hadoop@ec2-3-236-93-152.compute-1.amazonaws.com
```

The terminal window has a dark background and light-colored text. The cursor is visible at the end of the third line.

## EMR 마스터 노드에 접속 성공!

A screenshot of a terminal window titled "hadoop@ip-172-31-7-179:~". The window shows the following text:

```
Last login: Thu Dec  3 05:57:14 2020
 _I _I_ )
 _I (   /  Amazon Linux 2 AMI
 ___\___|_|

https://aws.amazon.com/amazon-linux-2/
9 package(s) needed for security, out of 14 available
Run "sudo yum update" to apply all updates.

EEEEEEEEEEEEEEEEEE MMMMMMM          MMMMMMM RRRRRRRRRRRRRR
E:::::::E M:::::M          M:::::M R:::::::::::R
EE:::::E EEEEEEEEEE:::E M:::::M          M:::::M R:::::RRRRRR:::::R
  E:::E     EEEE M:::::M          M:::::M RR:::::R      R:::::R
  E:::E     M::::M:::M          M:::M::::M R::::R      R:::::R
  E:::::E EEEEEEEEEE M::::M M:::M M::::M M:::::M R:::::RRRRRR:::::R
  E:::::::::::E M::::M M:::M::::M M:::::M R:::::::::::RR
  E:::::E EEEEEEEEEE M::::M M:::::M M:::::M R:::::RRRRRR:::::R
  E:::E     M::::M M:::M          M:::::M R::::R      R:::::R
  E:::E     EEEE M::::M     MMM  M:::::M R::::R      R:::::R
EE:::::E EEEEEEEEEE:::E M:::::M          M:::::M R::::R      R:::::R
E:::::::::::E M:::::M          M:::::M RR:::::R      R:::::R
EEEEEEEEEEEEEEEEEE MMMMMMM          MMMMM RRRRRRRR      RRRRRR

[hadoop@ip-172-31-7-179 ~]$
```

**E.O.D**