In this assignment you will create IAM users,  apply S3 bucket policy and modify EC2 security groups.

**Only one attempt is allowed. You will not be able to resubmit this assignment.  So, review the assignment before submitting.**

**Look at the slides for additional information**

**Part 1:  IAM User Creation**

1. First enable access to billing to other users by following Step 1 in this article.      
   http://docs.aws.amazon.com/IAM/latest/UserGuide/tutorial\_billing.html#tutorial-billing-step1
2. Create 3 IAM users containing your name in the format,   
   John-FinUser, John-ITUser and John-AirlineUser and assign passwords
3. Note down the user ARNs of all 3 users
4. Assign **EC2, S3-full** access to John-ITUser
5. Assign **only Billing and S3-full** access to John-FinUser
6. Assign **only full-S3** to the airline user
7. Take screenshots of each user's setup
   1. A computer screen shot of a computer program

      Description automatically generated
8. Login as each user and answer the following:
   1. Is John-FinUser able to view and/or create an EC2 instance?  Provide screenshots
      1. No
      2. A screenshot of a computer

         Description automatically generated
   2. Is John-FinUser able to access billing?  Provide screenshots.
      1. Yes
      2. A screenshot of a computer

         Description automatically generated
   3. Is John-ITUser able to view EC2 instances?
      1. Yes
      2. A screenshot of a computer

         Description automatically generated
   4. Is John-ITUser able to view Billing information?  Provide screenshots
      1. No
      2. A screenshot of a computer

         Description automatically generated
   5. Are both users able to access S3 ?
      1. Yes
      2. ITUser
         1. A screenshot of a computer

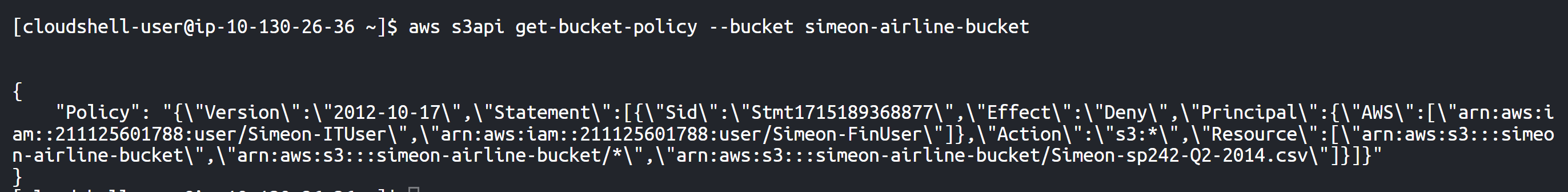
            Description automatically generated
   6. Is the John-AirlineUser able to access :  S3, Billing and EC2?  Provide screenshots
      1. Yes, No, No
      2. S3 A screenshot of a bucket

         Description automatically generated
      3. Billing A screenshot of a computer

         Description automatically generated
      4. EC2 A screenshot of a computer

         Description automatically generated

**Part 2:  Deny access using an S3 bucket policy**

1. Login as the John-AirlineUser
2. Use the existing bucket that you created for Week 6 and 7 assignments or create a new one with your name.
3. Note down the bucket's ARN
4. Upload the Airline ontime performance data file if it isn't there already.  (Use the file that you already used for Week 6/7, such as Jan2021 or Q1-2021.csv etc.. )
5. Create a bucket policy, using the Policy Generator, to deny all S3 access to John-FinUser and John-ITUser
6. Attach the bucket policy to the S3 bucket containing Airline data
7. **You must provide a screenshot of the bucket policy**
   1. 
8. Logout from this user
9. Login as each user (John-AirlineUser, John-FinUser, John-ITUser) one by one and answer the following:
   1. Is John-AirlineUser able to view and access the bucket and its contents?  Provide screenshots
      1. Yes
      2. A screenshot of a computer

         Description automatically generated
   2. Is John-ITuser able to view and access the airline bucket and its contents? Provide screenshots
      1. No
      2. A screenshot of a computer

         Description automatically generated
   3. Is John-FinUser able to view and access the bucket and its contents? Provide screenshots
      1. No
      2. A screenshot of a computer

         Description automatically generated

**Part 3:  Secure EC2 instances**

1. Start an EC2 instance and then connect using ssh
2. Provide screenshots of the EC2 instance’s public and private IP addresses.
   1. A screenshot of a computer

      Description automatically generated
3. Disconnect from the EC2 instance
4. Modify the EC2 security group associated with the Linux VM and remove the SSH entry
5. Try to reconnect to EC2.    
   What did you notice? Provide screenshots of the security group and ssh screen.
   1. I wasn’t able to connect
   2. A screenshot of a computer

      Description automatically generated
   3. A screen shot of a computer

      Description automatically generated
6. Re-add the SSH entry and try to ssh again.    
   Did ssh work ? Provide screenshots of the security group and ssh screen.
   1. Yes it did work
   2. A screenshot of a computer

      Description automatically generated
   3. A screen shot of a computer

      Description automatically generated
7. You can disconnect ssh now.  But don't stop the instance
8. Checking connectivity with any instance using the ping command.
   1. Using your PC/Mac, **can you ping the EC2 instance** using its public IP address or hostname?  Provide screenshots.
      1. No I can’t
      2. A computer screen with white text

         Description automatically generated
   2. Modify the EC2 security group and add the ICMP rule to the security group and **run ping again**.  What was the result? Provide screenshots.
      1. I was able to ping successfully
      2. A computer screen with numbers and lines

         Description automatically generated
   3. Provide screenshot of the security group's inbound rules.
      1. A screenshot of a computer

         Description automatically generated
   4. Remove the ICMP rule
9. Stop the EC2 and then terminate the instance(s)
10. **NOTE: At the end of the assignment, don't forget to delete the S3 buckets, EC2 instances and IAM accounts.**

**Requirements for the written assignments:**

* The assignment write-up must contain a brief description of what you did along with screen shots of the installation and execution of your programs.
* Papers and write-up must be submitted as Word or PDF.
* All screenshots must be included in one document.
* **Providing separate PNG/JPG files will not be accepted**
* **Providing pictures of the screen taken with your mobile phone will not be accepted.**