Assignment 5 –IAM, Session Manager, and S3

Today's task:

1. Add policies below to the **LabRole**:
    a. **AmazonSSMManagedInstanceCore** - Notice this policy is already added. That means you can ssh into it directly from AWS System Manager. SSH-ing to an instance this way is much secure! Because we don't need any inbound rule that allows all on the internet on SSH port. Private instance will show up in Session Manager when it has internet connection. When we setup internet connection for the resources in private subnet,
        i. we create a NAT gateway in public subnet
        ii. create a RouteTable for private subnets
        iii. associate all private subnets with the new Route Table
        iv. add an route that points to the NAT gateway.
    b. **AmazonS3FullAccess** - S3 full permission
    c. **AmazonRDSFullAccess** - RDS full access (AmazonRDSFullAccess)
2. Attach the **LabRole** IAM role to the EC2 instance. It will shown as **LabInstanceProfile.** An EC2 role is also know as an Instance Profile.
3. SSH into the instance using Systems Manager.
    a. Go to AWS Systems Manager -> Session Manager under Node Management -> click on Start Session on the welcome page -> You should be able to see your instance. Because you added the IAM role that has **AmazonSSMManagedInstanceCore** policy.
4. Spin up a web server. Don't forget to overwrite the index html!
5. Create a S3 bucket using CLI from an EC2 instance. List
    a. aws s3api create-bucket --bucket yourname.com --region us-east-1
    b. aws s3 ls => to check whether the EC2 instance had that permission. You should see your bucket in the list. Submit that.
6. Copy the index.html to the S3 bucket.
    a. Locate to /var/www/html/
    b. aws s3 cp index.html s3://yourname.com/index.html
7. Update the index.html.
8. Copy the new index.html in to your instance.

[root@ip-10-0-2-221 html]# aws s3 cp index.html s3://yourname.com/index.html

upload: ./index.html to s3://yourname.com/index.html

[root@ip-10-0-2-221 html]# aws s3 cp s3://yourname.com/index.html index.html

download: s3://yourname.com/index.html to ./index.html

9. Read an article about Route53. Write a report in your own words.
    a. How domain registration works - https://docs.aws.amazon.com/Route53/latest/DeveloperGuide/welcome-dns-service.html
    b. How internet traffic is routed to your website or web application - https://docs.aws.amazon.com/Route53/latest/DeveloperGuide/welcome-dns-service.html

10. Read an article about IAM
    a. Understanding how IAM works - https://docs.aws.amazon.com/IAM/latest/UserGuide/intro-structure.html
    b. Overview of access management: Permissions and policies - https://docs.aws.amazon.com/IAM/latest/UserGuide/introduction_access-management.html
    c. IAM roles - https://docs.aws.amazon.com/IAM/latest/UserGuide/id_roles.html

Submit items below in one pdf file:

1. Screenshot of the results after running the two S3 cli commands (5a and 5b) in Session Manager of Systems Manager.
2. Screenshot of the index.html file in S3 bucket.
3. Route53 report in your own words.
4. IAM report in your own words.