Lab Goals:

This lab will be a hands-on lab to give you first-hand experience with using a registrar to register a DNS name, and, to set up cloud-based email service.

We will be working on the following SLOs during this lab:

- (Knowledge SLO) Students will be able to check the status of DNS records and understand the output of the nslookup command.
- (Action SLO) Students will be able to configure private email for an individual or a group of individuals.

Grading: You will be required to turn in answers for the questions in this lab.

Resources:

You will need to obtain the following items from the instructor during the lab:

- Nothing

Lab Prerequisites:

No prerequisites.

Lab Notations:
Please note the following notations will be used in the lab.

< > - anything in a < > bracket is intended for you to fill in with the appropriate item. For example, <username> would be filled in with your username. If my username was abc1, then <username> = abc1 .

Lab Exercise: (work individually)

1. Creating a Domain Name

In a browser, go to **nc.me**. Select a domain you'd like to reserve -- perhaps your name.

Click Search.

Click ADD for the free .me domain name. Then, click Complete Order.

Next, make sure you click the “GitHub Pages” free option, and ensure that your new domain is receiving the free option.

In the "Student email" section, fill in your **Calvin email address**. Click Finish Up.

Log in to your student email, and watch for the email to arrive. Verify your email address via that email.

In the Email Confirmation web page, click REGISTER.

Generate a password that you can remember!!

Click through, and click to set up a GitHub account. (Note, if you do NOT have a GitHub account, you will need to register one before doing this. Use another tab to register your GitHub account BEFORE clicking the “Setup a GitHub account.” *** NOTE: I don’t really care if you get the GitHub stuff working. I care mostly that you:

1. Get the domain name for free
2. Get parts 2,3, and 4 running.

In another web browser tab, go to your domain name that you just registered!

2. Checking your DNS record

Open a Command Prompt window on your Windows 10 machine.

In this window type `nslookup <yourdomainname>`

Question 1: What is the IP address of your new domain name?

Now, run this: `nslookup -type=soa <yourdomainname>`

Question 2: Record what you can learn from the output.

3. Logging into your Dashboard

Go to namecheap.com and Sign In.

Click the Manage button next to your account.

Look around the interface that you are given. Answer the following questions:

Question 3: What A records are defined for your domain? What host/IP pairs are set up? What is this doing for us?

Question 4: What CNAME records are defined for your domain? How does a CNAME record work?

4. Creating email services

In this section, we will sign up the free-tier services for Zoho mail, and integrate our domain. Head over to https://www.zoho.com/mail/. Sign up for a "Personal account".

ONCE You have logged into Zoho Mail, click the upper right hand corner and click "Enable mailhosting". Follow the process to add your domain.

A few steps need to happen after you sign up:
1. Verify the domain via a TXT domain record at namecheap.
2. Add your admin user.
3. Skip adding additional users.
4. Skip adding groups.
5. Configure MX records for your domain at namecheap, using the generic instructions. Verify them by clicking the MX Lookup button before continuing.
6. Configure your SPF record.
7. Skip Email Migration.
8. Skip Mobile apps.

Once you have gotten this working, test it out!

Question 5: Do the following process.

1. From Zoho mail, create an email to your Calvin email address. Include in the message "CS338 test email".

2. From your Calvin email, forward the message you sent yourself. Add a "CS338 forward back email" to the message.

3. Wait for your message to come back to Zoho mail. Take a screenshot and submit it for this question.

Now, run this: `nslookup -type=mx <yourdomainname>`

Question 6: Record what you can from this output.

5. Creating a custom website with IIS

In this section, we'll be using our IIS server on our 338-<username>-g server. Take a few minutes to start up your gui-server if it isn't running, and log in.

1. Using your namecheap domain management, used the "Advanced DNS" features to add a new A record.
    a. cs338.<yourdomainname>.me = <ip address of your GUI server> ***(This is not a literal cut-and-paste here, figure out how to correctly add it to your domain.)***
2. Use your IIS management interface, to create a new "Website" named "CS338".
    a. Site name: cs338
    b. Physical Path: C:\cs338website\ (make the new folder)
    c. Binding - Host name: cs338.<yourdomain>.me
3. Create C:\cs338website\index.htm with the following contents:

    ```
    <html>
    <head><title>cs338.<yourdomainname>.me</title></head>
    <body><h1>cs338.<yourdomainname>.me</h1></body>
    </html>
    ```

4. Visit http://cs338.<yourdomainname>.me/ website in your browser.

Question 7: What is your full URL for your website (for grading purposes)?

6. Working with Windows AD DNS

In this section, we'll be adding a new A record into Active Directory's DNS system.

1. Open the DNS tool.
    a. Connect to either "allen" or "gates"
    b. In the forward zone for csad.cs.calvin.edu, create an A record with the following info:
        i. Name: 338-<username>-www
        ii. IP address: <server2016gui IP address>
2. Create an additional IIS site on your server to answer to the 338-<username>-www.csad.cs.calvin.edu hostname; similar to section 4.
    a. Site name: cs338-19sp-<username>
    b. Path: C:\cs338-19sp-<username>
    c. Host name: 338-<username>-www.csad.cs.calvin.edu

d. Create another new index.htm that displays THIS hostname (so that we can see we got to the correct site)

Question 8: What is your newly created DNS entry and full URL for this new website? (for grading purposes)

Lab Conclusion

Turn in your question answers and requested turn-in files to conclude this lab.