As described in https://github.com/chef-training/workshops, I able to complete the exercises in workshop project.

Here is the summary of my approach for each individual project

Initial thought was to setup Chef Infra Server and node in 2 VM's but later realised that I able to complete these exercises using Chef Workstation and Kitchen Test tools.   Therefore I install Chef workstation in my Windows Laptop

I gone through online courses "Learn Chef" and other online references related to Chef to complete these exercises.

Generated cookbook template form command "chef generate cookbook <<name>>" and placed all files the same directory structure or these exercises

1) Mongo DB
      1.1) Goto directory 1_MongoDB
      1.2) Run following commands to deploy MongoDB in ubuntu
         a) kitchen list
         b) kitchen create
         c) kitchen converge
      1.3) Logon to Ubuntu box using below command
      kitchen login ubuntu
      1.4) run command "mongo"

```
    Compiling Cookbooks...
    Converging 3 resources
    Recipe: 1_MongoDB::install
      * apt_package[mongodb-server] action install
        - install version 1:3.6.9+really3.6.8+90~g8e540c0b6d-0ubuntu5 of package mongodb-server
      * apt_package[mongodb-dev] action install
        - install version 2:1.1.3-3 of package mongodb-dev
      * service[mongodb] action enable (up to date)
      * service[mongodb] action start (up to date)

    Running handlers:
    Running handlers complete
    Chef Infra Client finished, 2/4 resources updated in 44 seconds
    Downloading files from <default-ubuntu-2004>
    Finished converging <default-ubuntu-2004> (7m15.75s).
-----> Test Kitchen is finished. (7m20.31s)
PS C:\Applications\wip\workshops\1_MongoDB> kitchen login ubuntu
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.4.0-58-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Thu 28 Jan 2021 03:17:08 PM UTC

  System load:  0.12               Processes:           103
  Usage of /:   3.5% of 61.31GB    Users logged in:     0
  Memory usage: 22%                IPv4 address for eth0: 10.0.2.15
  Swap usage:   0%

This system is built by the Bento project by Chef Software
More information can be found at https://github.com/chef/bento
Last login: Thu Jan 28 15:14:44 2021 from 10.0.2.2
vagrant@default-ubuntu-2004:~$ mongo
MongoDB shell version v3.6.8
connecting to: mongodb://127.0.0.1:27017
Implicit session: session { "id" : UUID("74c88789-7693-4cf9-a7f7-6d0996286fff") }
MongoDB server version: 3.6.8
Welcome to the MongoDB shell.
For interactive help, type "help".
For more comprehensive documentation, see
        http://docs.mongodb.org/
Questions? Try the support group
        http://groups.google.com/group/mongodb-user
Server has startup warnings:
2021-01-28T15:15:21.905+0000 I STORAGE  [initandlisten]
2021-01-28T15:15:21.905+0000 I STORAGE  [initandlisten] ** WARNING: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine
2021-01-28T15:15:21.905+0000 I STORAGE  [initandlisten] **          See http://dochub.mongodb.org/core/prodnotes-filesystem
2021-01-28T15:15:23.424+0000 I CONTROL  [initandlisten]
2021-01-28T15:15:23.424+0000 I CONTROL  [initandlisten] ** WARNING: Access control is not enabled for the database.
2021-01-28T15:15:23.424+0000 I CONTROL  [initandlisten] **          Read and write access to data and configuration is unrestricted.
2021-01-28T15:15:23.424+0000 I CONTROL  [initandlisten]
>
```

2) Tomcat
    2.1) Goto directory 2_Tomcat
    2.2) Run following commands to deploy Tomcat Server in CentOS
      a) kitchen list
      b) kitchen create
      c) kitchen converge

2.3) Logon to CentOS box using below command
kitchen login centos
2.4) run command
curl http://localhost:8080

```
/home/vagrant
[vagrant@default-centos-79 ~]$ ls
[vagrant@default-centos-79 ~]$ curl http://localhost:8080

<!DOCTYPE html>


<html lang="en">
    <head>
        <title>Apache Tomcat/7.0.76</title>
        <link href="favicon.ico" rel="icon" type="image/x-icon" />
        <link href="favicon.ico" rel="shortcut icon" type="image/x-icon" />
        <link href="tomcat.css" rel="stylesheet" type="text/css" />
    </head>

    <body>
        <div id="wrapper">
            <div id="navigation" class="curved container">
                <span id="nav-home"><a href="http://tomcat.apache.org/">Home</a></span>
                <span id="nav-hosts"><a href="/docs/">Documentation</a></span>
                <span id="nav-config"><a href="/docs/config/">Configuration</a></span>
                <span id="nav-examples"><a href="/examples/">Examples</a></span>
                <span id="nav-wiki"><a href="http://wiki.apache.org/tomcat/FrontPage">Wiki</a></span>
                <span id="nav-lists"><a href="http://tomcat.apache.org/lists.html">Mailing Lists</a></span>
                <span id="nav-help"><a href="http://tomcat.apache.org/findhelp.html">Find Help</a></span>
                <br class="separator" />
            </div>
            <div id="asf-box">
                <h1>Apache Tomcat/7.0.76</h1>
            </div>
            <div id="upper" class="curved container">
                <div id="congrats" class="curved container">
                    <h2>If you're seeing this, you've successfully installed Tomcat. Congratulations!</h2>
                </div>
```

3) Bonus
I tried to deploy "Awesome_Appliance_Repair". But gone through number of blockers. I completed this exercise partially due to time constraint and providing summary below
   3.1) I tried to setup all the pre-requisite components and able to setup "apache2", "Python" but unsuccessful to setup MySQL using Chef
There was issue while executing below block in Kitchen test. I used Ubuntu 20-04 version

```
mysql_service 'default' do
    port '3306'
    version '8.0'
    initial_root_password 'change me'
    action [:create, :start]
  end
```

While applying recipe changes through Kitchen Test, following issue was surfaced. I tried to resolve it by various means but no luck.

```
Compiled Resource:
------------------
# Declared in /tmp/kitchen/cache/cookbooks/Awesome_Appliance_Repair/recipes/prerequisits.rb:17:in 'from_file'

mysql_service("default") do
  action [:create, :start]
  updated true
  updated_by_last_action true
  default_guard_interpreter :default
  declared_type :mysql_service
  cookbook_name "Awesome_Appliance_Repair"
  recipe_name "prerequisits"
  port "3306"
  version "8.0"
  initial_root_password "change me"
end

System Info:
------------
chef_version=16.9.32
platform=ubuntu
platform_version=20.04
ruby=ruby 2.7.2p137 (2020-10-01 revision 5445e04352) [x86_64-linux]
program_name=/opt/chef/bin/chef-client
executable=/opt/chef/bin/chef-client


Running handlers:
[2021-01-28T15:43:30+00:00] ERROR: Running exception handlers
Running handlers complete
[2021-01-28T15:43:30+00:00] ERROR: Exception handlers complete
Chef Infra Client failed. 5 resources updated in 01 minutes 05 seconds
[2021-01-28T15:43:31+00:00] FATAL: Stacktrace dumped to /tmp/kitchen/cache/chef-stacktrace.out
[2021-01-28T15:43:31+00:00] FATAL: Please provide the contents of the stacktrace.out file if you file a bug report
[2021-01-28T15:43:31+00:00] FATAL: NoMethodError: mysql_service[default] (Awesome_Appliance_Repair::prerequisits line 17) had an error: NoMethodError: mysql_service_manager_systemd[default] (/tmp/kitchen/cache/cookbooks/mysql/libr
es/mysql_service.rb line 51) had an error: NoMethodError: undefined method `[]' for nil:NilClass
```

3.2) Despite of this issue, I able to see MySql Server issue, I able to see its running in server. So continued to configure application,, but other blocker hit with version difference of the application can couldn't able to continue as python-mysql and python-pip components are no longer available in universal repo. I need to change all settings to Python3 but, application wont deploy.

4) Due to some reason, I forked different sub-branch and ended up with 4_Windows OS exercise as well.. Later, I realised this is not part of original URL.   I thought, this exercise is also part and did some work on this. This also partial

I tried to provision tas/Windows_2019 server which is downloaded from Vagrant Cloud its hanging while start of the server using kitchen create. I also tried with tas/Windows_2016 image and faced same issue. Successfully able to provision tas/Windows 2012R2 image and worked few policies like allow Remote Access.