This GIT repository consists of following files:

* Readme.txt
* Sinatra\_server.yml
* Instructions.docx

The script has been deployed to AWS via Cloud Formation and app is available at <http://35.170.246.153/>

**AWS pre-requisites**

1. VPC deployed (VPC-ID available)
2. Internet Gateway created and attached to VPC
3. Route table updated for internet access
4. Subnet created (Subnet ID and region available) and have access to internet
5. Auto-assign public IP setting enabled for this subnet or Elastic IP will be attached manually later to the instance deployed via the script
6. AMI ID (Ubuntu image used for this demo), any Ubuntu image should work
7. Key Pair (Key Pair name available)
8. IP address from the subnet range

**Instructions to deploy the script**

1. Log in to AWS management Console
2. Search for VPC service
3. Create a VPC, choosing the desired CIDR
4. Once created, note down the <VPC ID>
5. Create an internet gateway and attach it to this newly created VPC
6. Create a subnet under this VPC, choose the desired availability zone and CIDR block. Note down the <subnet ID> and <availability zone>
7. Select the newly created subnet and select “Modify auto-assign public IPv4” setting from Actions button on the top
8. Select Route table under the VPC section and locate the route table associated with this newly created VPC. Click on Routes tab and press Edit routes button. Under destination field add 0.0.0.0/0 and select target as newly created Internet gateway and press save.
9. Select EC2 service in AWS management console and select Key Pair from bottom left menu.
10. Select Create key pair and give a suitable name for this key pair. Select deired file format for key pair and press Create Key pair button. Note down the <keypair name>
11. Open Sinatra\_sever.yml in preferred text editor and update the following values:

* CidrIp: This is your public IP for server management – SSH access
* VPC ID
* Availability Zone (where subnet exists)
* Subnet ID
* KeyName

1. Go to Cloud Formation service and creak stack (standard)
2. Select Template is ready option and “Upload a template file” under Specify template. Click Choose file and browse to the location where the YAML file (Sinatra\_server.yml) is saved from GIT repository
3. Choose a stack name, for e.g. Sinatra-app-demo-stack, press next and create Stack.
4. Wait for status to change to “Create\_Complete”
5. Look for newly created EC2 instance under EC2 service and note down the IP address
6. Browse for http<IP Address> (It should load HelloWorld.rb from the git package and you should see Hello World! on the web page)

**Assumptions and design choices**

1. AWS has been chosen as the preferred cloud service
2. Ubuntu has been chosen as preferred OS based on its stability and requirements
3. It has been assumed that all other resources such as VPC, subnet, route table, key pair are available already or will be configured prior to deploying this script
4. The security group has been locked down to allow SSH from only one public IP (from where this server will be managed)
5. Only port that is opened for this server on the internet is port 80. This is for the application requirement.
6. I have chosen YAML script for Cloud Formation because it is straight forward to use and understand
7. There are few trade-offs as well for using this script as well:

* No Auto scaling group/health check for the server
* No load balancer for load balancing of incoming traffic

1. Variables could have been used in the script to input VPC ID, subnet ID, key pair, etc.
2. Script could have also been used to deploy VPC, subnet and other required resources as well
3. There is room to improve the script such as accepts user inputs and input validation, etc.
4. This script cannot be used for Windows/IIS model. However, Linux provides other benefits such free license, reliability, security, etc.