

# CLOUD ASSIGNMENT 2#

By,  
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16293133

## URL'S

Microsoft Azure: <http://52.186.9.18>

Google Cloud Platform: <http://35.202.157.204>

Amazon Web Services: <http://3.134.103.104>

## 1. Microsoft Azure

### Create VM

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with tabs for 'Assignment 2', 'Instances | EC2 Manag...', 'AWS', 'VPC network - Maps ~...', 'avimnk@instance-1: ~', 'GCP', and 'Home - Microsoft Azure'. Below this is a search bar and a user profile for 'agv6x@mail.umkc.edu'. The main content area is divided into several sections:

- Azure services:** A row of icons for various services: 'Create a resource', 'Virtual machines', 'Storage accounts', 'SQL databases', 'App Services', 'Azure Database for PostgreSQL', 'Azure Cosmos DB', 'Kubernetes services', 'Function App', and 'More services'.
- Recent resources:** A table listing recently viewed resources.
- Navigate:** A row of icons for 'Subscriptions', 'Resource groups', 'All resources', and 'Dashboard'.
- Tools:** A row of icons for 'Microsoft Learn', 'Azure Monitor', 'Security Center', and 'Cost Management'.

Name	Type	Last Viewed
cloud	Virtual machine	12 min ago
cloud-ip	Public IP address	2 h ago
CC-ip	Public IP address	9 h ago
cseastus10032000414ba1a4	Storage account	13 h ago
cloud-shell-storage-eastus	Resource group	16 h ago

portal.azure.com

Assignment 2 | Instances | EC2 Manag... | AWS | VPC network - Maps ~... | avimnk@instance-1: ~ | GCP | cloud - Networking - Mi... | AZURE


Microsoft Azure Search resources, services, and docs (G+)

Home > cloud - Networking

cloud - Networking  
Virtual machine

Search (Cmd+/)

Attach network interface Detach network interface

IP configuration   
ipconfig1 (Primary)

**Network Interface: cloud933** [Effective security rules](#) [Topology](#)  
Virtual network/subnet: cloud-shell-storage-eastus-vnet/default NIC Public IP: 52.186.9.18 NIC Private IP: 10.0.0.5 Accelerated networking: Disabled

[Inbound port rules](#) [Outbound port rules](#) [Application security groups](#) [Load balancing](#)

**Network security group cloud-nsg** (attached to network interface: cloud933)  
Impacts 0 subnets, 1 network interfaces [Add inbound port rule](#)

Priority	Name	Port	Protocol	Source	Destination	Action	
300	SSH	22	TCP	Any	Any	Allow	...
310	Port_8080	8080	Any	Any	Any	Allow	...
320	Port_80	80	Any	Any	Any	Allow	...
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow	...
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow	...
65500	DenyAllInBound	Any	Any	Any	Any	Deny	...

portal.azure.com

Assignment 2 | Instances | EC2 Manag... | AWS | VPC network - Maps ~... | avimnk@instance-1: ~ | GCP | cloud - Microsoft Azure | AZURE

Microsoft Azure Search resources, services, and docs (G+)

Home > cloud

cloud  
Virtual machine

Search (Cmd+/)

[Connect](#) [Start](#) [Restart](#) [Stop](#) [Capture](#) [Delete](#) [Refresh](#)

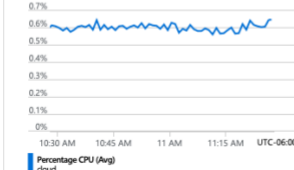
**Advisor (1 of 2): Enable virtual machine backup to protect your data from corruption and accidental deletion** →

Resource group (change)	: cloud-shell-storage-eastus	Azure Spot	: N/A
Status	: Running	Public IP address	: 52.186.9.18
Location	: East US	Private IP address	: 10.0.0.5
Subscription (change)	: Azure subscription 1	Public IP address (IPv6)	: -
Subscription ID	: 4a3a82b6-f90c-4efe-9fd8-fff513ce0cad	Private IP address (IPv6)	: -
Computer name	: cloud	Virtual network/subnet	: cloud-shell-storage-eastus-vnet/default
Operating system	: Linux (ubuntu 18.04)	DNS name	: Configure
Size	: Standard D2s v3 (2 vcpus, 8 GiB memory)	Scale Set	: N/A
Tags (change)	: <a href="#">Click here to add tags</a>		

[Hide Essentials](#)

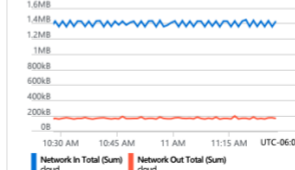
Show data for last: [1 hour](#) [6 hours](#) [12 hours](#) [1 day](#) [7 days](#) [30 days](#)

**CPU (average)**




Percentage CPU (Avg)  
cloud

**Network (total)**



Network In Total (Sum)  
Network Out Total (Sum)  
cloud

**Disk bytes (total)**



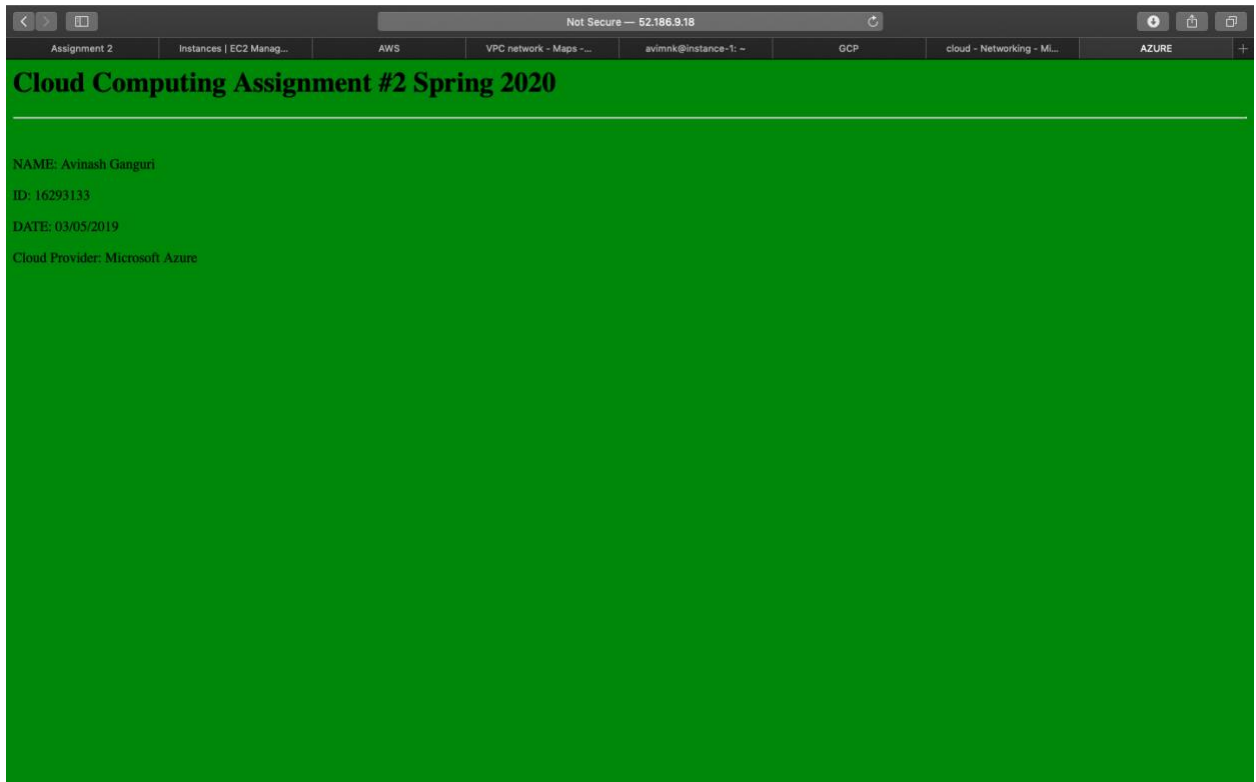
Disk Read Bytes (Sum)  
Disk Write Bytes (Sum)  
cloud

```
avi — avi@cloud: ~ — ssh -i ~/.ssh/id_rsa avi@52.186.9.18 — 85x25
30 cd /var/www/html
31 ls
32 pwd
33 sudo apt-get update
34 sudo apt-get install apache2 -y
35 sudo apachectl start
36 sudo apachectl start
37 sudo apt-get update -y
38 sudo apt-get install apache2 -y
39 sudo systemctl start apache2.service
40 cd /var/www/html
41 ls
42 cat index.html
43 sudo rm index.html
44 sudo nano index.html
45 sudo apachectl start
46 52.186.9.18
47 sudo apt-get install apache2 -y
48 sudo apachectl start
49 sudo systemctl start apache2.service
50 sudo nano index.html
51 sudo apachectl start
52 sudo apachectl restart
53 history
avi@cloud:~$
```

```
avi — avi@cloud: /var/www/html — ssh -i ~/.ssh/id_rsa avi@52.186.9.18 — 85x25
GNU nano 2.9.3 index.html

<html>
<head><title>AZURE</title>
</head>
<body style="background-color:green">
<p style="text-color:black">
<h1>Cloud Computing Assignment #2 Spring 2020</h1>
<hr><br><br>
NAME: Avinash Ganguri<br><br>
ID: 16293133<br><br>
DATE: 03/05/2019<br><br>
Cloud Provider: Microsoft Azure<br><br>
</p>
</body>
</html>

[ Read 15 lines ]
^G Get Help      ^O Write Out    ^W Where Is    ^K Cut Text    ^J Justify    ^C Cur Pos
^X Exit          ^R Read File    ^\ Replace     ^U Uncut Text  ^T To Spell   ^_ Go To Line
```



## 2. Google Cloud Platform

Google Cloud Platform console screenshot showing the left-hand navigation menu with a dropdown for "Maps" expanded. The dropdown includes options like VM instances, Instance groups, Instance templates, Sole-tenant nodes, Disks, Snapshots, Images, TPUs, Committed use discounts, Metadata, Health checks, Zones, Network endpoint groups, Operations, Security scans, OS patch management, and Settings. The main content area displays the "Compute Engine" dashboard, featuring a CPU usage graph, a "Google Cloud Platform status" widget, a "Billing" widget showing estimated charges, an "Error Reporting" widget, and a "News" widget. The left sidebar lists various services under categories like Home, Marketplace, Billing, APIs & Services, Support, IAM & Admin, Getting started, Security, COMPUTE, STORAGE, and Bigtable.

Google Cloud Platform console screenshot showing the "Compute Engine" dashboard with the "VM instances" tab selected. The left sidebar lists various services under categories like Home, Marketplace, Billing, APIs & Services, Support, IAM & Admin, Getting started, Security, COMPUTE, STORAGE, and Bigtable. The main content area displays the "VM instances" list, which includes a table with columns for Name, Zone, Recommendation, In use by, Internal IP, External IP, and Connect. The table shows one instance, "instance-1", in the "us-central1-a" zone, with internal IP "10.128.0.2 (nic0)" and external IP "35.202.157.204". The "Connect" column shows "SSH".

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
instance-1	us-central1-a			10.128.0.2 (nic0)	35.202.157.204	SSH

```
ssh.cloud.google.com
Assignment 2 | Instances | EC2 Manag... | AWS | Compute Engine - Map... | avinmk@instance-1: ~ | GCP | cloud - Networking - ML... | AZURE | +
<body style="background-color:cyan">
<p style="text-color:black">
<h1>Cloud Computing Assignment #2 Spring 2020</h1>
<hr><br><br>
NAME: Avinash Ganguri<br><br>
ID: 16293133<br><br>
DATE: 03/05/2019<br><br>
Cloud Provider: Google Cloud Platform<br><br>
</p>
</body>
</html>

avinmk@instance-1:/var/www/html$ sudo nano index.html
avinmk@instance-1:/var/www/html$ Connected, host fingerprint: ssh-rsa 0 98:CA:DA:75:97:BA:7E:77:96:AD:29:47:9C:97:16:DC:D7:98:51:70:A6:PB:11:P7:1C:9A:PB:8D:32:84:FA:25
Linux instance-1 4.9.0-12-amd64 #1 SMP Debian 4.9.210-1 (2020-01-20) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

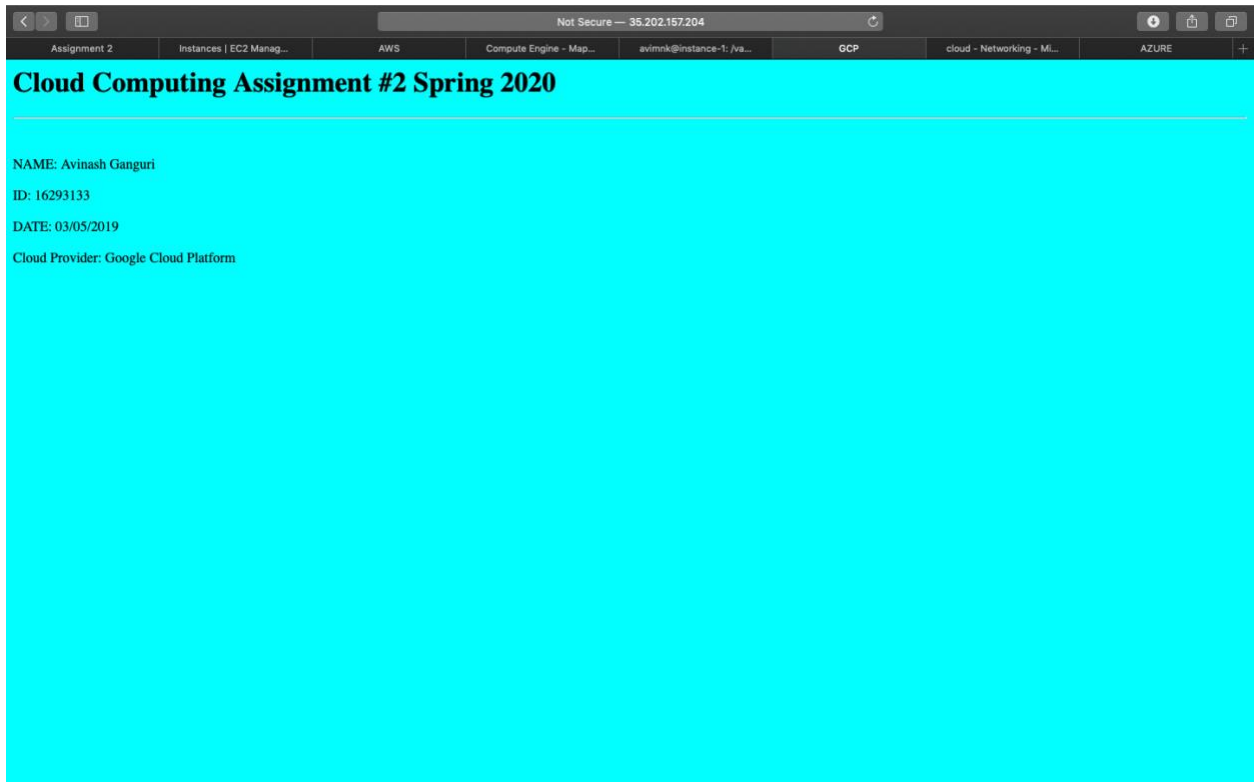
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Mar  5 08:17:11 2020 from 74.125.45.74
avinmk@instance-1:~$ cat index.html
ssh-rsa 0 98:CA:DA:75:97:BA:7E:77:96:AD:29:47:9C:97:16:DC:D7:98:51:70:A6:PB:11:P7:1C:9A:PB:8D:32:84:FA:25
Linux instance-1 4.9.0-12-amd64 #1 SMP Debian 4.9.210-1 (2020-01-20) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Mar  5 15:45:10 2020 from 173.194.95.161
avinmk@instance-1:~$ history
 1 cd /var/www/html
 2 ls
 3 sudo apt-get update
 4 sudo apt-get install apache2 -y
 5 sudo apt-get install apache2 - y
 6 ls
 7 cd /var/www/html
 8 sudo apt-get update -y
 9 sudo apt-get install apache2 -y
10 sudo tee /var/www/html/index.html
11 ls
12 cd /var/www/html
13 ls
14 cat index.html
15 sudo nano index.html
16 cat index.html
17 cd /var/www/html
18 cat index.html
19 sudo nano index.html
20 history
avinmk@instance-1:~$
```

## GNU nano 2.7.4

```
<html>
<head><title>GCP</title>
</head>
<body style="background-color:cyan">
<p style="text-color:black">
<h1>Cloud Computing Assignment #2 Spring 2020</h1>
<hr><br><br>
NAME: Avinash Ganguri<br><br>
ID: 16293133<br><br>
DATE: 03/05/2019<br><br>
Cloud Provider: Google Cloud Platform<br><br>
</p>
</body>
</html>
```



### 3. Amazon Web Services



us-east-2.console.aws.amazon.com

Assignment 2 | Instances | EC2 Manag... | AWS | Compute Engine - Map... | avimk@instance-1: /va... | GCP | cloud - Networking - Mi... | AZURE

Services | Resource Groups

New EC2 Experience  
Tell us what you think

EC2 Dashboard **New**

Events **New**

Tags

Reports

Limits

INSTANCES

Instance Types

Launch Templates **New**

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

Lifecycle Manager

NETWORK & SECURITY

Launch Instance | Connect | Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
Testing Space	i-043e87dd7c4b022b	t2.micro	us-east-2c	running	2/2 checks ...	None	ec2-3-20-234-239.us-e...	3.20.234.239
Assignment 2	i-085c46165f038e07b	t2.micro	us-east-2c	running	2/2 checks ...	None	ec2-3-134-103-104.us-...	3.134.103.104

Instance: i-085c46165f038e07b (Assignment 2) Public DNS: ec2-3-134-103-104.us-east-2.compute.amazonaws.com

Description | Status Checks | Monitoring | Tags

Instance ID	i-085c46165f038e07b	Public DNS (IPv4)	ec2-3-134-103-104.us-east-2.compute.amazonaws.com
Instance state	running	IPv4 Public IP	3.134.103.104
Instance type	t2.micro	IPv6 IPs	-
Finding	Opt-in to AWS Compute Optimizer for recommendations. <a href="#">Learn more</a>	Elastic IPs	-
Private DNS	ip-172-31-43-131.us-east-2.compute.internal	Availability zone	us-east-2c
Private IPs	172.31.43.131	Security groups	launch-wizard-2. <a href="#">view inbound rules</a> . <a href="#">view outbound rules</a>
Secondary private IPs	-	Scheduled events	No scheduled events
VPC ID	vpc-a37bb7c8	AMI ID	amzn2-ami-hvm-2.0.20200207.1-x86_64-gp2 (ami-0e38b48473ea57778)
Subnet ID	subnet-b642d7fa	Platform	-
Network interfaces	eth0	IAM role	-

Feedback | English (US) | © 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. | Privacy Policy | Terms of Use

```
Documents — ec2-user@ip-172-31-43-131:~ — ssh -i light.pem ec2-user@ec2-3-134-103-104.us...
[ec2-user@ip-172-31-43-131 html]$ sudo nano index.html
[ec2-user@ip-172-31-43-131 html]$ packet_write_wait: Connection to 3.134.103.104 port
22: Broken pipe
Mac-Air:Documents avi$ ssh -i "light.pem" ec2-user@ec2-3-134-103-104.us-east-2.comput
e.amazonaws.com
Last login: Thu Mar  5 06:44:02 2020 from 136.34.124.143

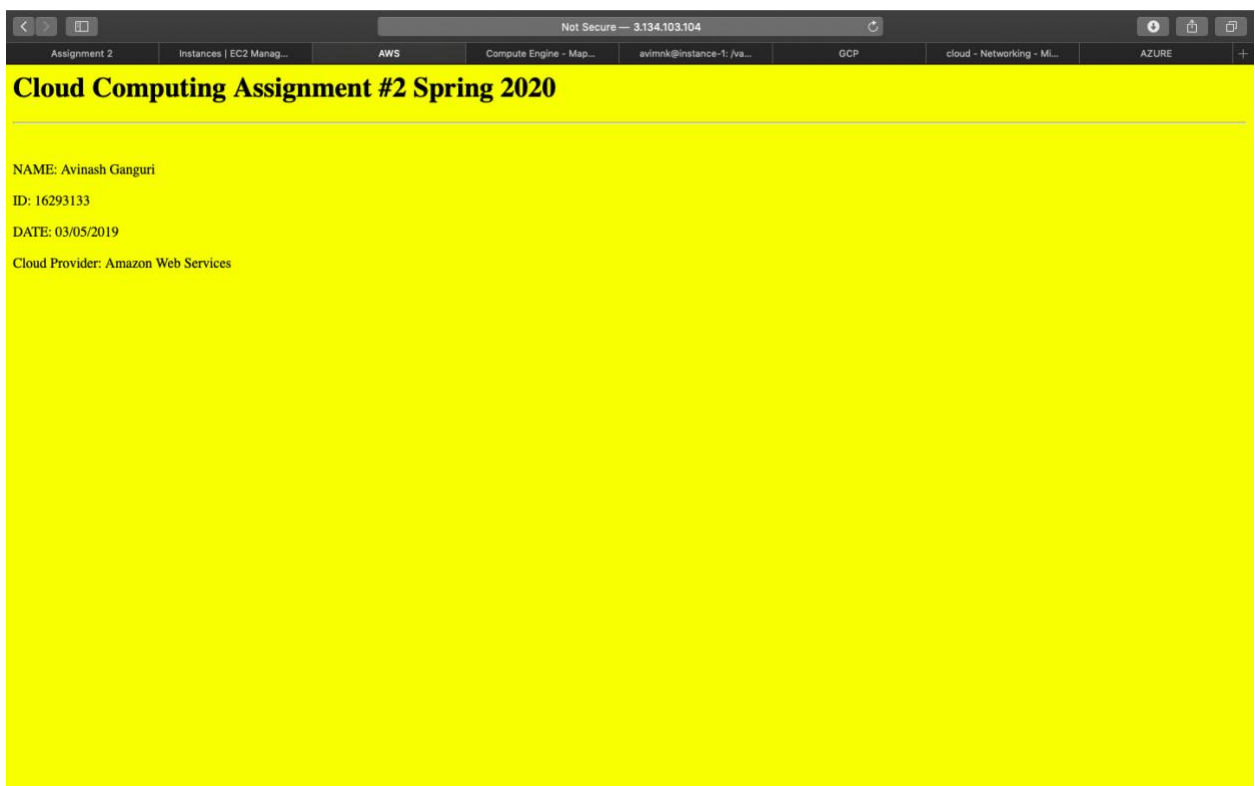
  _ _ | _ _ | _ )
 _ | ( _ _ /   Amazon Linux 2 AMI
 _ _ | \ _ _ | _ |

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-43-131 ~]$ history
 1 sudo yum update
 2 sudo yum install httpd
 3 sudo apachectl start
 4 sudo service httpd start
 5 ls
 6 cd /var/www/html
 7 ls
 8 nano index.html
 9 cat index.html
10 sudo nano index.html
11 history
[ec2-user@ip-172-31-43-131 ~]$
```

```
Documents — ec2-user@ip-172-31-43-131:/var/www/html — ssh -i light.pem ec2-user@ec2-3-13...
GNU nano 2.9.8 index.html

<html>
<head><title>AWS</title>
</head>
<body style="background-color:yellow">
<p style="text-color:black">
<h1>Cloud Computing Assignment #2 Spring 2020</h1>
<hr><br><br>
NAME: Avinash Ganguri<br><br>
ID: 16293133<br><br>
DATE: 03/05/2019<br><br>
Cloud Provider: Amazon Web Services<br><br>
</p>
</body>
</html>

[ Read 15 lines ]
^G Get Help  ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit       ^R Read File  ^\ Replace    ^U Uncut Text ^T To Spell   ^_ Go To Line
```



## 4. Epilog

- Understood how to deploy a webpage on Google Cloud Platform, Microsoft Azure, Amazon AWS
- It's easier to host webpages in static which is directly provided by the cloud services compared to creating VM's and hosting it.
- Doing in Mac OSX doesn't have to deal with Putty which is helpful and easy to accomplish the tasks just by using Terminal by SSH'ing.
- Used Google cloud, Microsoft Azure and Amazon AWS to complete this assignment. In my opinion deploying web page in Google Cloud is easy when compared than AWS, AZURE, Geni, Cloud lab because Google Cloud is providing Open Linux based G Cloud window in the web interface itself.