

Managing Enterprise Cybersecurity

MIS 4596

Class 5

Agenda

- Shubham Patil – ITA for our course section
- Milestone Teams
- Short history of computers, Unix and Linux
- Introduction to the Google Cloud Platform
- Next step... Linux tutorial
- Remember: Lab 2 & Milestone 1 project!

Shubham Patil



Shubham Patil · 1st

Information Technology Assistant @ Temple University
Philadelphia, Pennsylvania, United States · [Contact info](#)

213 connections



8 mutual connections: Deval Shah, Lynn Carroll, and 6 others

[Message](#)

[More](#)



Temple University



Fox School of Business at
Temple University



Experience



Information Technology Assistant

Temple University · Part-time

Jan 2022 - Present · 1 mo

Philadelphia, Pennsylvania, United States



Solution Analyst

Deloitte · Full-time

Jul 2018 - Jun 2021 · 3 yrs

Mechanicsburg, Pennsylvania



Software Development Engineer In Test

Tech Mahindra · Internship

May 2017 - Jul 2017 · 3 mos

Mumbai Area, India

Licenses & certifications



AWS Certified Developer - Associate

Amazon Web Services (AWS)

Credential ID L4Z2RJZ21MBEQX3L

[See credential](#)

Skills

Linux System Administration · 2



Endorsed by 2 colleagues at Deloitte

[Endorse](#)

Amazon Web Services (AWS) · 2

[Endorse](#)

- shubham.patil@temple.edu

Milestone Teams

Full Name	Email Address	Team
Bartolome, AJ Delfin	tuj60206@temple.edu	1
Prikhodko, Mariia	tuk86712@temple.edu	1
Reinert, Brennan J	tuh48019@temple.edu	1
Vottero, Alexander L	tuj45391@temple.edu	1
Beck, Emeline	tuj23805@temple.edu	2
McClary, Deja	tum99469@temple.edu	2
Rowe, Francesca Catherine	tuj51659@temple.edu	2
Cavalieri, Silvia Angela	tui14173@temple.edu	3
Ndjee, Neilly C	tuj51301@temple.edu	3
Saucier, Taylor M	tug49846@temple.edu	3
Lamb, Anthony Thomas	tui80318@temple.edu	4
Marshall, Jackson	tuj49922@temple.edu	4
Obassy, John	tuh09406@temple.edu	4
Stonesifer, Samantha S	tuk72762@temple.edu	4

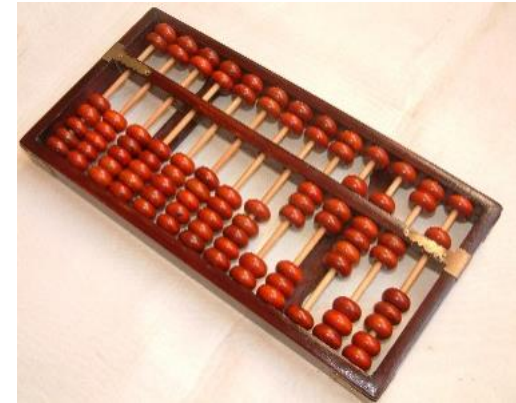
Tuesday,
1/25/2022 Introduction to Linux |
Google Cloud Platform
(GCP)

Thursday,
1/27/2022 **Lab 2: Web Privacy and
Anonymity Lab due**
Introduction to
Cryptography Anderson, Chapter 5

Saturday,
1/29/2022 **Milestone 1: Risk
Assessment Report Draft
due**

Information Systems Development – a brief history

- **Prior 1946** - Before “stored-program” digital computers
 - Devices were pure hardware and had no software - their computing powers were directly tied to their specific form and engineering
- Computing as a concept goes back to ancient times
 - Beginning with devices such as the **abacus**
 - Calculating tool used in China, Europe, and Russia centuries before adoption of written Hindu-Arabic numeral system we use today
 - Continuing on through early examples of computing such as the **Antikythera** mechanism
 - Ancient Greek analog computer used as a calendar to predict eclipses and astronomical positions decades in advance



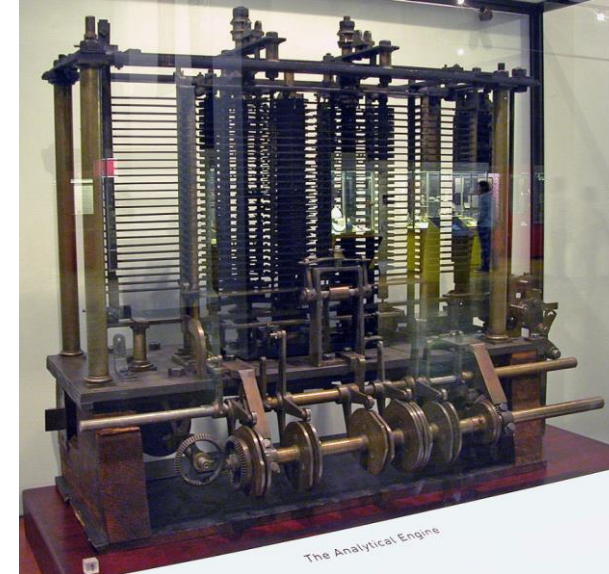
Wikipedia – History of Software

Information Systems Development – a brief history

- **Prior 1946** - Before “stored-program” digital computers

- **1837 – The Analytical Engine**

- First design for a general-purpose computer
- Designed by English mathematician Charles Babbage
- Incorporated:
 - Integrated memory
 - Arithmetic logic unit
 - Control flow in the form of conditional branching and loops
- Logical structure essentially the same as the computer design that dominates in today’s electronic era
- First known computer program was written by Ada Lovelace to implement Luigi Menabrea’s equations for generating a Bernoulli number sequence of rational numbers
 - The Analytical Engine predated the techniques of electrical engineering needed to run it

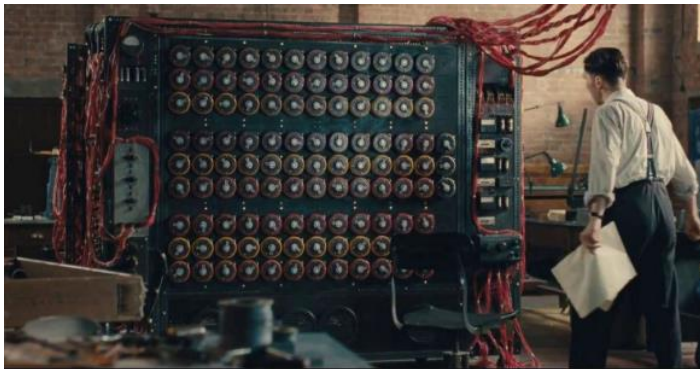


Wikipedia – History of Software

Information Systems Development – a brief history

Prior 1946 - Before “stored-program” digital computers

- **1935** – Alan Turing proposed the first modern theory of **software**
 - Software requires
 - A **general-purpose processor** - described as a Turing machine
 - **Computer memory**
 - In which reusable sets of routines and mathematical functions comprising programs can be stored, started, and stopped individually
- This concept is recent in human history, led to the creation of the twin academic fields of **computer science** and **software engineering**



Information Systems Development – a brief history

- **1948 – 1979** Early days of computer software

- 1948 - Claud Shannon “Father of Information Theory” wrote *A Mathematical theory of Communication* and provided an outline for how **binary logic** could be **implemented to program a computer**
 - Subsequently, the first computer programmers used binary code to instruct computers to perform various tasks
- 1948 – ***Birth of Software*** Tim Kilburn at the University of Manchester UK wrote the first program code stored in an electronic memory to calculate the highest factor of an integer
- 1950’s – 1960’s ***Development of high-level computer languages*** Fortran, LISP, COBOL and BASIC allowed programs to be specified in an abstract way, independent of the precise details of the hardware architecture of the computer



Grace Hopper developed the “self-documenting” COBOL (COmmon Business Oriented Language)



Margaret Hamilton led development of the onboard flight software for NASA’s Apollo spacecraft coined the term “software engineering”

Wikipedia – History of Software

Information Systems Development – a brief history

- **1948 – 1979** Early days of computer software and operating systems

- 1960's – Massachusetts Institute of Technology, AT&T Bell Labs, and General Electric jointly developed an experimental **time sharing operating system** called Multics

- Allowing multiple users to access a **mainframe computer** simultaneously

- 1970's – Bell Lab's researchers left the team and implemented a **self-hosting operating system that became UNIX** on a **minicomputer**

- Included concepts of computer processes, device files, hierarchical file system, command-line interpreter, editor, programming shell, and assembler

- Text editor and first text formatting and publishing program written in assembly language

- 1971 – *UNIX Programmer's Manual* written

- 1973 – Unix Version 3 rewritten in higher-level C language

- Most popular variants of Unix today are

- macOS Mac OS X

- Linux



Wikipedia – History of Software

Information Systems Development – a brief history

Linux, computer operating system created in the early 1990s by Finnish software engineer Linus Torvalds and the Free Software Foundation (FSF)

- While still a student at the University of Helsinki, Torvalds started developing **Linux** to create a system similar to MINIX, a UNIX operating system

Computer Operating Systems

An **operating system (OS)** manages computer hardware, software resources, and provides common services for computer programs

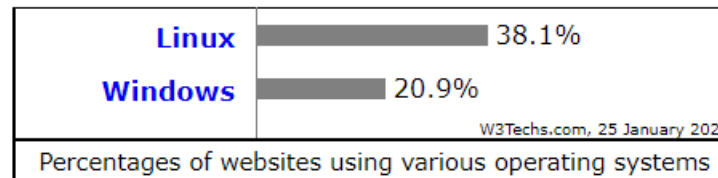
Operating systems are found on many devices that contain a computer – cellular phones, video game consoles, web servers and supercomputers

- Operating system acts as an **intermediary between programs and the computer hardware**
- **Desktop operating systems:**
 - Microsoft Windows with a market share of around 73.72%
 - macOS (OS X) by Apple Inc. is in second place (15.33%)
 - Varieties of Linux are collectively in third place (2.09%)
- **Mobile operating Systems** (including smartphones and tablets):
 - Google Android's share was 70.01%
 - Apple's iOS with 29.24%
 - Samsung 0.43%

<https://gs.statcounter.com/os-market-share/mobile/worldwide>

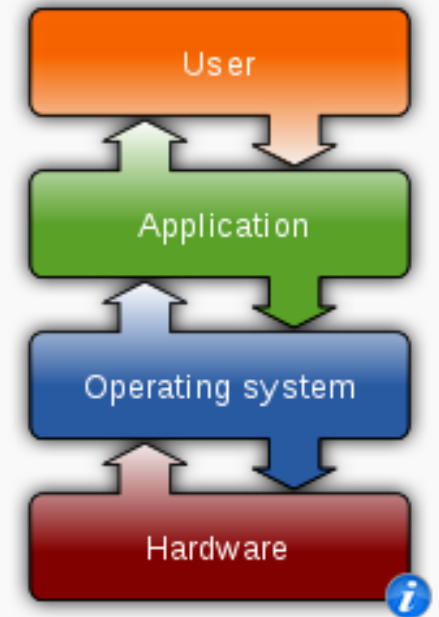
- **Internet Server operating systems**
 - Unix and Linux 38.1%
 - Microsoft Windows 20.9%
- **Super-Computer operating systems**
 - Linux is the operating system

<https://w3techs.com/technologies/comparison/os-linux,os-windows>



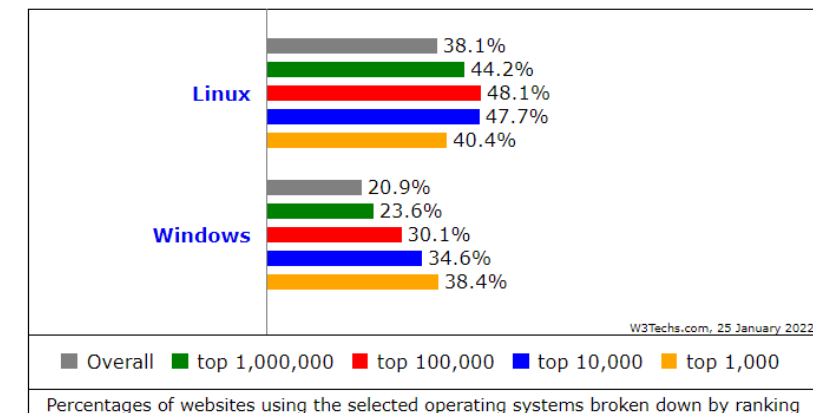
MIS 4596

Operating systems



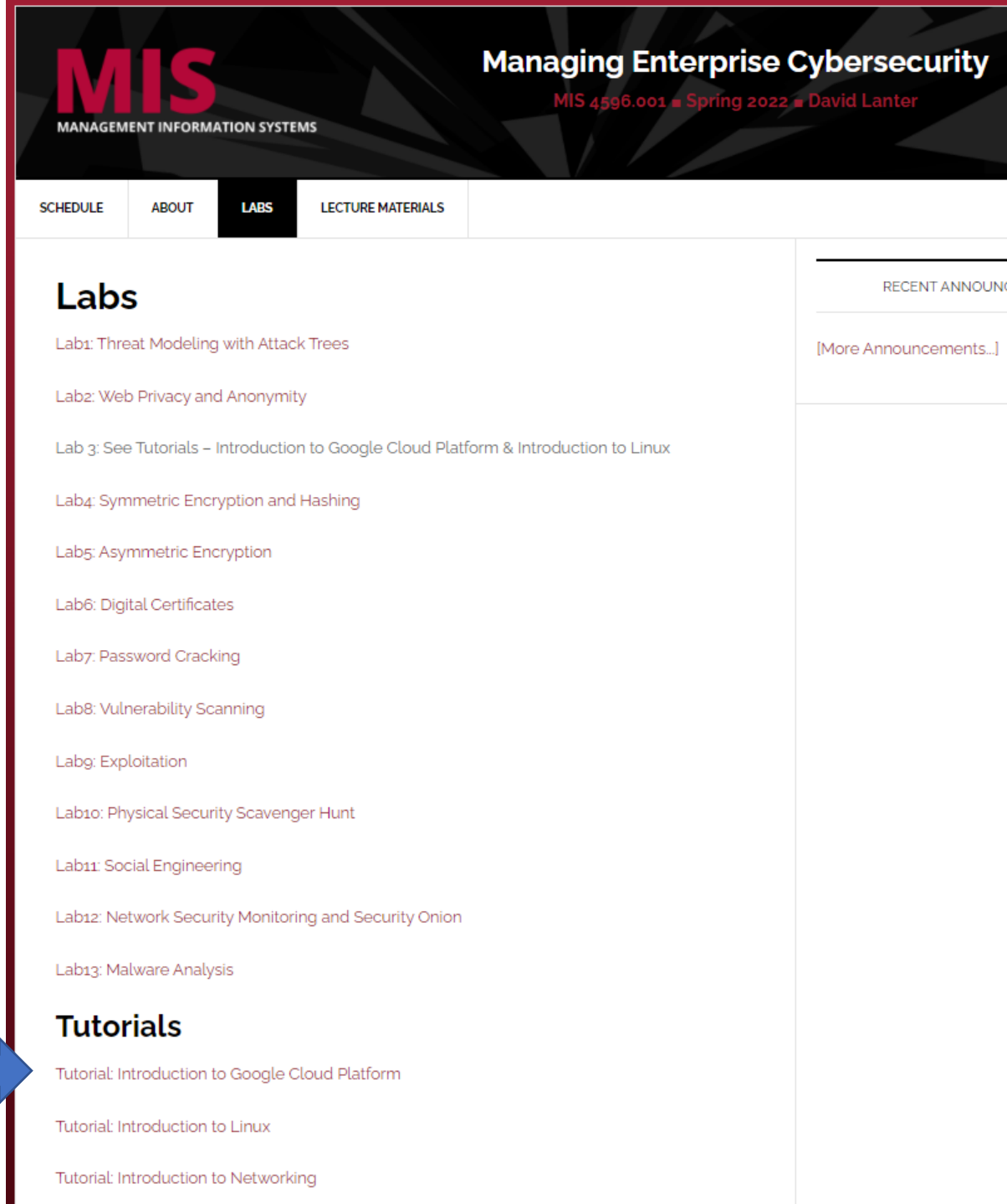
Common features

Process management · Interrupts ·
Memory management · File system ·
Device drivers · Networking · Security · I/O



Google Cloud Platform

<https://community.mis.temple.edu/mis4596sec001spring2022/labs/>



The screenshot shows the MIS website header with the logo "MIS MANAGEMENT INFORMATION SYSTEMS" and the course title "Managing Enterprise Cybersecurity MIS 4596.001 Spring 2022 David Lanter". The navigation menu includes "SCHEDULE", "ABOUT", "LABS", and "LECTURE MATERIALS". The "LABS" section lists 13 labs, and the "Tutorials" section lists 3 tutorials. A blue arrow points to the "Tutorial: Introduction to Google Cloud Platform" link.

MIS
MANAGEMENT INFORMATION SYSTEMS

Managing Enterprise Cybersecurity
MIS 4596.001 ■ Spring 2022 ■ David Lanter

SCHEDULE ABOUT **LABS** LECTURE MATERIALS

Labs

- Lab1: Threat Modeling with Attack Trees
- Lab2: Web Privacy and Anonymity
- Lab 3: See Tutorials – Introduction to Google Cloud Platform & Introduction to Linux
- Lab4: Symmetric Encryption and Hashing
- Lab5: Asymmetric Encryption
- Lab6: Digital Certificates
- Lab7: Password Cracking
- Lab8: Vulnerability Scanning
- Lab9: Exploitation
- Lab10: Physical Security Scavenger Hunt
- Lab11: Social Engineering
- Lab12: Network Security Monitoring and Security Onion
- Lab13: Malware Analysis

Tutorials

- Tutorial: Introduction to Google Cloud Platform
- Tutorial: Introduction to Linux
- Tutorial: Introduction to Networking

RECENT ANNOUNC...
[More Announcements...]

Introduction to Google Cloud Platform

By Drs. [Dave Eargle](#) and [Anthony Vance](#)

Part 0: Choose a Google account

In this tutorial, you will use a Google account to sign up for Google Cloud Platform (GCP). You will also join a Google Group with this account, which will give you access to certain GCP resources.

Choose a Google account you will use. You have several options:

- You can use a personal Google account that you already have
- You can create a new personal Google account by signing up for one [here](#)
- If you have a non-[@gmail.com](#) google account (perhaps through your university), it won't work for GCP unless the domain admin has enabled creation of GCP resources by your account. For example, [@temple.edu](#) GCP accounts will not be able to create projects on GCP. If this is the case, use a personal Google account.

Regardless, whenever you use GCP, be sure that you are accessing the platform while signed in to the correct Google account. Otherwise, you may be confused to not see expected projects or to get "access denied" messages.

Part 1: Sign up for Google Cloud Platform (GCP)

- Visit <https://cloud.google.com> and click "Get started for free."
- Make sure you are signed in to Google with the account you want to use with GCP.
- Step 1 of 2: Agree to the terms of service.
- Step 2 of 2: Choose "Account type" > "Individual". Complete the sign-up form. Provide a credit card.

Why a credit card? Google still requires a credit card to make sure you are not a robot. Google will not autocharge your account unless you manually upgrade to a paid plan.

- Click "Start my free trial".

Part 0: Choose a Google account

Part 1: Sign up for Google Cloud Platform (GCP)

Part 2: Join the infosec-management Google Group

Part 3: Create a new project and launch a new Kali Linux instance

Part 4: Connect to your Kali Linux VM using Chrome Remote Desktop

Part 5: Set up budget alerts

Part 6: Install a GCP Console app on a mobile device

Part 7: Complete the Introduction to Linux Tutorial

Deliverable

Part 2: Join the infosec-management

<https://security-assignments.com/tutorials/intro-to-gcp.html>

- Click "Start my free trial".

Part 2: Join the infosec-management Google Group

To get access to the Google Cloud Platform virtual machines created for the lab, follow the instructions there to purchase access to the "lab virtual machine access package" and gain access to certain Kali GCP images used for this class.

Heads up! It may take up to 24 business hours before your request to join is processed.

Part 3: Create a new project and a new Kali Linux instance

Once you have purchased access and your gcp email address has been added, do the following:

- First, create a new "project" which will house all of the material for this class.

Store

This page is the storefront for Security-Assignments.com.

Lab virtual machine access package -- \$40 for Academic year 21/22

To gain access to the lab virtual machines, do the following:

1. Sign up for an account on GCP using an @gmail.com address.*
2. Enter your GCP @gmail.com address on this page, and click "Continue."
3. Submit payment for the lab virtual machine access package.
4. Within 24 business hours, you should receive notification to your gcp email address that it has been added to the [infosec-management google group](#), giving you access to the lab virtual machines.

If you later want to change your GCP email associated with your purchase, support@security-assignments.com Non-transferrable to different persons -- just transferrable within google accounts that belong to you.

* If you have a non-@gmail.com email address that you are certain will work on GCP, contact access-request@security-assignments.com.

If you need support, contact support@security-assignments.com

GCP Email address

The @gmail.com email address that you will use with GCP.

Continue



google cloud platform



All

News

Videos

Images

Books

More

Tools

About 1,330,000,000 results (0.91 seconds)

Ad · <https://cloud.google.com/>

[Google Cloud - Google Cloud Platform](#)

Future-proof infrastructure. Powerful data & analytics. No ops, just code. Use **Google's** core infrastructure, data analytics and machine learning. No up-front costs. Try it free.

Create Free Account

Learn and build on GCP for free
Get Started Today.

Pricing

No upfront costs required.
No commitment to get great prices.

Free Trial

Google Cloud Platform Free Tier
Learn and build on GCP for free.

Cloud Storage

Object storage with
global edge-caching.

Get the latest updates on Apache Log4j 2 vulnerabilities. →

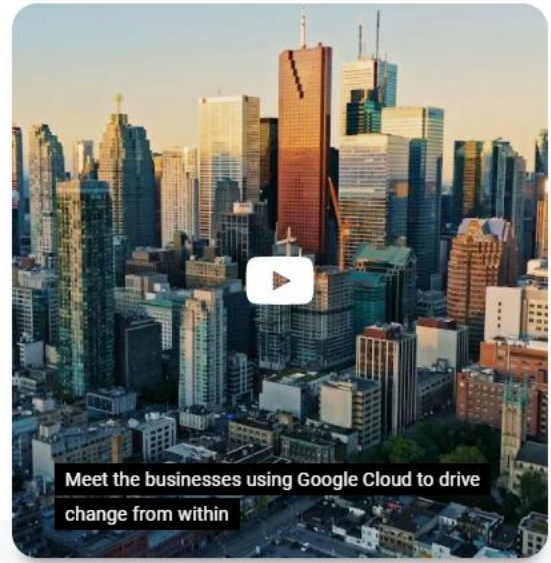
Dream, build, and transform with Google Cloud

Build apps faster, make smarter business decisions, and connect people anywhere.

Get started for free



Contact sales



...ent now available on demand



2-MINUTE QUIZ
How data-driven is your company culture?



REPORT
Discover why 64% of manufacturers rely on AI



Develop new apps and experiences faster

Avoid vendor lock-in and speed up development with Google Cloud's

Enable smarter decision making across your organization

Give anyone on your team access to business insights with Google Cloud's

Transform how you connect and collaborate

Reimagine how you connect [in-person](#) and [remotely](#) with integrated video

Build and invest in your cloud with confidence

Protect your data with [advanced security services](#), save money with [innovative](#)

Step 1 of 3 Account Information



ProfDavid FoxTemple
profdavidfoxtemple@gmail.com

[SWITCH ACCOUNT](#)

Country

United States

What best describes your organization or needs?

Please select
Class project / assignment

Terms of Service

I have read and agree to the [Google Cloud Platform Terms of Service](#), [Supplemental Free Trial Terms of Service](#), and the terms of service of [any applicable services and APIs](#).

Required to continue

CONTINUE



Access to all Cloud Platform Products

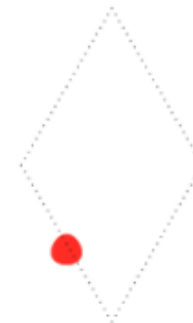
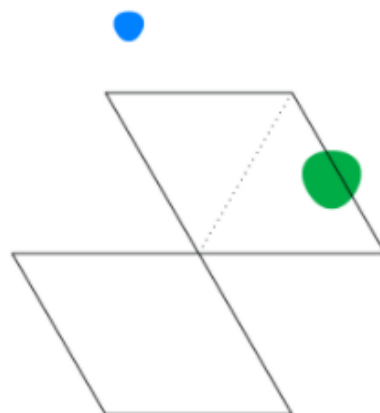
Get everything you need to build and run your apps, websites and services, including Firebase and the Google Maps API.

\$300 credit for free


Put Google Cloud to work with \$300 in credit to spend over the next 90 days.

No autocharge after free trial ends

We ask you for your credit card to make sure you are not a robot. You won't be charged unless you manually upgrade to a paid account.



Step 2 of 3 Identity Verification and Contact Information

Confirm where we can reach you about solutions to support your Cloud experience. Continue with the number associated with your Google account or choose a different one. 



CONTINUE

USE A DIFFERENT NUMBER

Access to all Cloud Platform Products

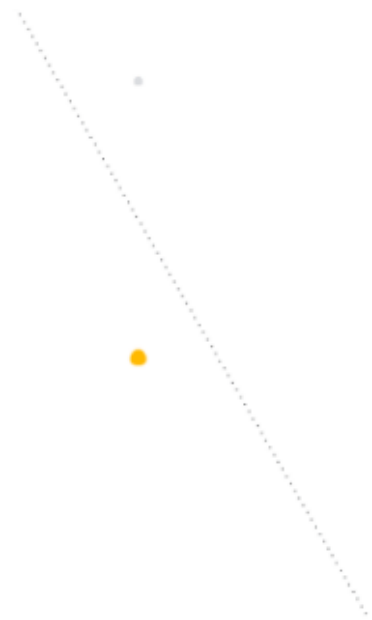
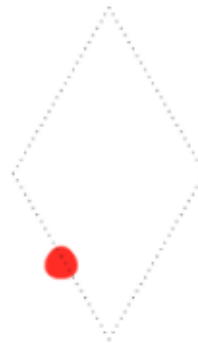
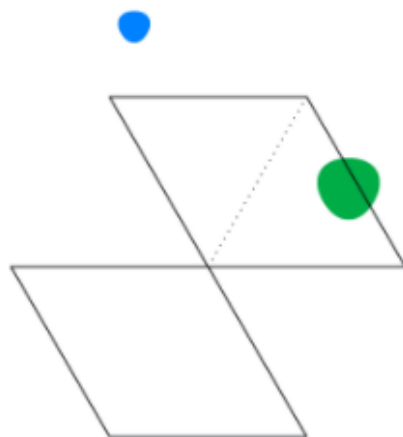
Get everything you need to build and run your apps, websites and services, including Firebase and the Google Maps API.

\$300 credit for free

Put Google Cloud to work with \$300 in credit to spend over the next 90 days.


No autocharge after free trial ends

We ask you for your credit card to make sure you are not a robot. You won't be charged unless you manually upgrade to a paid account.



Step 3 of 3 Payment Information Verification

Your payment information helps us reduce fraud and abuse. You won't be charged unless you turn on automatic billing.

 Account type 

Individual

Only Business accounts can have multiple users. You cannot change the account type after signing up. In some countries, this selection affects your tax options.

[Learn more](#)

Payment method

 Add credit or debit card 

Card number

    MM / YY CVC

Cardholder name

ProfDavid FoxTemple



Billing address

[START MY FREE TRIAL](#)

Access to all Cloud Platform Products

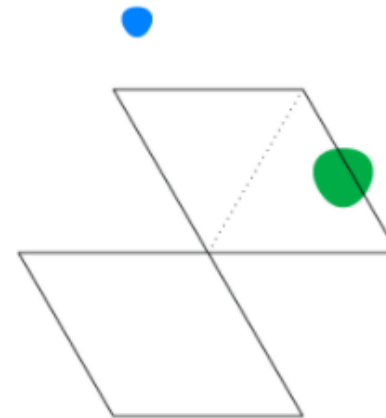
Get everything you need to build and run your apps, websites and services, including Firebase and the Google Maps API.

\$300 credit for free

Put Google Cloud to work with \$300 in credit to spend over the next 90 days.

No autocharge after free trial ends

We ask you for your credit card to make sure you are not a robot. You won't be charged unless you manually upgrade to a paid account.



Welcome ProfDavid!

Your free trial includes \$300 in credit to spend over the next 90 days. To help us serve you better, please answer 4 questions.

✓ What best describes your organization or needs?

✓ What brought you to Google Cloud?

3 What are you interested in doing with Google Cloud?

- Websites
- Mobile apps
- Storage / backup
- Data analytics
- Artificial intelligence / machine learning
- Game development
- Containerization
- Data management
- Virtual machines (VMs)
- Google Maps
- Other APIs (e.g., Text-to-Speech, Speech-to-Text, Vision)
- Google Photos or Google Workspace
- ✓ Other
- I'm not sure yet

Please specify (optional)

Learning cybersecurity

NEXT

4 What best describes your role?



CLOSE

DONE

Welcome ProfDavid!

Your free trial includes \$300 in credit to spend over the next 90 days. To help us serve you better, please answer 4 questions.

✓ What best describes your organization or needs?

✓ What brought you to Google Cloud?

✓ What are you interested in doing with Google Cloud?

4 What best describes your role?

Please select *

Academic / Educator

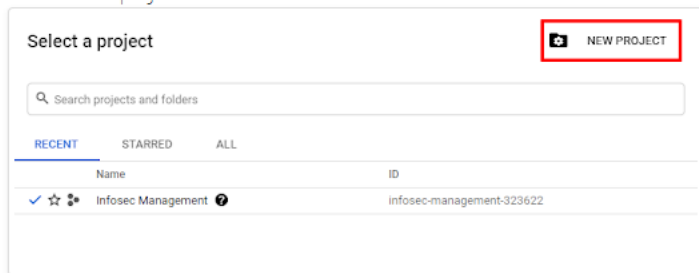
CLOSE

DONE

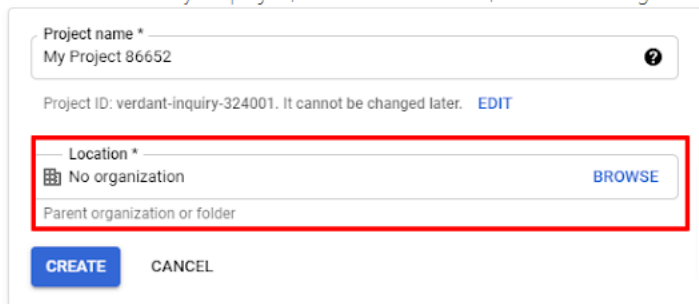
Part 3: Create a new project and launch a new Kali Linux instance

Once you have purchased access and your gcp email address has been added to the infosec-management google group, do the following:

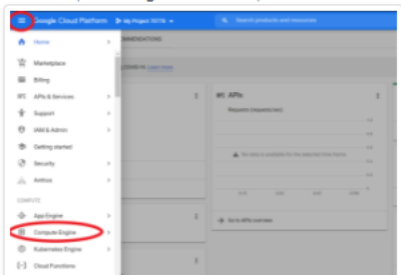
- First, create a new “project” which will house all of the material for this class.
 1. Click “create project”



2. Choose a name for your project, and for the “Location,” choose “No Organization”.



- Then, expand the hamburger menu and navigate to the “Compute Engine” area. Click to enable. Wait a few minutes for Compute Engine to set up.



Part 0: Choose a Google account

Part 1: Sign up for Google Cloud Platform (GCP)

Part 2: Join the infosec-management Google Group

Part 3: Create a new project and launch a new Kali Linux instance

Part 4: Connect to your Kali Linux VM using Chrome Remote Desktop

Part 5: Set up budget alerts

Part 6: Install a GCP Console app on a mobile device

Part 7: Complete the Introduction to Linux Tutorial

Deliverable

Cloud Computing Services | Google Cloud | Compute Engine - Google Cloud

console.cloud.google.com/compute/instances?project=natural-engine-325315

Google Cloud Platform | My First Project | Search products and resources

Compute Engine

- Machine images
- TPUs
- Committed use discounts
- Migrate for Compute Engi...

Storage

- Disks
- Snapshots
- Images

Instance groups

- Instance groups
- Health checks

VM Manager

- OS patch management
- OS configuration manage...

Settings

- Metadata
- Zones
- Network endpoint groups
- Operations
- Security scans
- Settings

Select a project

NEW PROJECT

Search projects and folders

RECENT STARRED ALL

Name	ID
✓ ☆ My First Project ?	natural-engine-325315

CANCEL OPEN



← Create an instance

To create a VM instance, select one of the options:

+ New VM instance >

Create a single VM instance from scratch

+ New VM instance from template

Create a single VM instance from an existing template

+ New VM instance from machine image

Create a single VM instance from an existing machine image

Marketplace

Deploy a ready-to-go solution onto a VM instance

Name Name is permanent

Labels (Optional)

Region Region is permanent Zone Zone is permanent

Machine configuration


Machine family

Machine types for common workloads, optimized for cost and flexibility

Series

Powered by Intel Skylake CPU platform or one of its predecessors

Machine type

 vCPU	Memory	GPUs
4	15 GB	-

CPU platform CPU platform configuration is permanent

GPUs

Display device
 Turn on a display device if you want to use screen capturing and recording tools.
 Turn on display device

```
Linux kali 5.10.0-kali7-amd64 #1 SMP Debian 5.10.28-1kali1 (2021-04-12) x86_64
```

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

```
Kali GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent  
permitted by applicable law.
```

```
(Message from Kali developers)
```

```
We have kept /usr/bin/python pointing to Python 2 for backwards  
compatibility. Learn how to change this and avoid this message:  
⇒ https://www.kali.org/docs/general-use/python3-transition/
```

```
(Run: "touch ~/.hushlogin" to hide this message)
```

```
dgeographi@kali:~$
```

```
$
```

Instance groups

Health checks

VM Manager ^

OS patch management

OS configuration manage...

Settings ^

STOP || SUSPEND ⏻ RESET ⋮ OPERATIONS ▾ HELP ASSISTANT HIDE INFO PA

Select an instance

PERMISSIONS LABELS MONITORING

Please select at least one resource.

External IP	Connect
-------------	---------

34.122.240.21	SSH
---------------	-----

⋮

DISMISS

up firewall rules
traffic to and from a
ance

🔄 Patch management
Schedule patch updates and
view patch compliance on
VM instances

Part 4: Connect to your Kali Linux VM using Chrome Remote Desktop

Setting up Chrome Remote Desktop (CRD) will enable you to graphically connect to your Kali instance, from your browser, using a Google account to sign in. You should be able to log in as long as your Kali instance is running on GCP.

- Open another browser window, and visit `https://remotedesktop.google.com/headless`.
- Click the "Begin" button.
- Click the "Next" button. (Chrome Remote Desktop is already installed on Kali).
- Click the "Authorize" button.
- Select your personal Google account and click the "Allow" button.
- Click the icon to the right of the Debian Linux command to copy the command:

Debian Linux

```
DISPLAY= /opt/google/chrome-remote-desktop/start-host --  
code="4/vQHaws_yS3Da7MmgbbuuCS4seoGM5dwa-sHX1gL9_GSwXa6uQFlvqXzni51jwno9vx_-  
xdf10mpfyTqQoFgIbYU" --redirect-
```



- Switch to your browser window with the ssh connection to Kali, paste in the command you copied into the Kali Linux command line. Press `enter`.
 - [This document describes how to copy-paste into the GCP browser ssh window.](#)

Part 0: Choose a Google account

Part 1: Sign up for Google Cloud Platform (GCP)

Part 2: Join the infosec-management Google Group

Part 3: Create a new project and launch a new Kali Linux instance

Part 4: Connect to your Kali Linux VM using Chrome Remote Desktop

Part 5: Set up budget alerts

Part 6: Install a GCP Console app on a mobile device

Part 7: Complete the Introduction to Linux Tutorial

Deliverable

Google Cloud Platform My First Project Search products and resources

Compute Engine VM instances CREATE INSTANCE IMPORT VM REFRESH MANAGE ACCESS SHOW INFO PANEL

Virtual machines VM instances Instance templates Sole-tenant nodes Machine images TPUs Migrate for Compute Engi... Committed use discounts Storage Disks

Filter VM instances Columns

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
<input type="checkbox"/> kali-linux-vm	us-central1-a			10.128.0.2 (nic0)	34.121.200.9	SSH

Related Actions

- View Billing Report: View and manage your Compute Engine billing
- Monitor VMs: View outlier VMs across metrics like CPU and Network
- Explore VM Logs: View, search, analyze, and download VM instance logs
- Setup Firewall Rules: Control traffic to and from a VM instance
- Patch Management: Schedule patch updates and view patch compliance on VM instances

SSH dropdown menu:

- Open in browser window
- Open in browser window on custom port
- Open in browser window using provided private SSH key
- View gcloud command
- Use another SSH client

```

kali@kali:~$ ssh -i /root/.ssh/id_rsa 34.121.200.9
Linux kali 5.7.0-kali1-amd64 #1 SMP Debian 5.7.6-1kali2 (2020-07-01) x86_64

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

Kali GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
phillipnontenure@kali:~$
  
```

```
Linux kali 5.7.0-kali1-amd64 #1 SMP Debian 5.7.6-1kali2 (2020-07-01) x86_64
```

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

```
Kali GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent  
permitted by applicable law.  
phillipnontenure@kali:~$
```

Chrome Remote Desktop

remotedesktop.google.com/headless?pli=1

Google Chrome Remote Desktop

Remote Access Remote Support

Set up another computer

If you have remote access to a computer, for example via Secure Shell (SSH), you can use this page to set it up for graphical remote access using Chrome Remote Desktop.

[BEGIN](#)

Help Send Feedback Privacy Terms

Cloud Computing Services | Google Cloud Platform | Introduction to Google Cloud

console.cloud.google.com/compute/instances?project=eng-cogency-303...

Google Cloud Platform

Compute Engine

VM instances

Virtual machines

- VM instances
- Marketplace

Name	Zone	Recommendati
<input type="checkbox"/> kali-	us-central1-	

Start your project

Now that you've created a VM instance, learn how to put it to work for you.

[Connect to your instance](#)

[Transfer files](#)

Find existing VM solutions

[Explore Marketplace](#)

Chrome Remote Desktop

remotedesktop.google.com/headless?pli=1

Google Chrome Remote Desktop

Remote Access Remote Support

Set up another computer

Download and install Chrome Remote Desktop on the remote computer:

- Windows: <https://dl.google.com/edgedl/chrome-remote-desktop/chromeremotedesktophost.msi>
- Debian Linux: https://dl.google.com/linux/direct/chrome-remote-desktop_current_amd64.deb

NEXT

Chrome Remote Desktop is already installed on Kali



Set up another computer

Authorize Chrome Remote Desktop to set up a new computer. A separate window will open and you may be prompted to choose an account, enter your password, or give permission for Chrome Remote Desktop to access your account.

[AUTHORIZE](#)



Set up another computer

You're nearly finished! Run the following command on the remote computer to complete the setup process. Please note that this command can only be used to set up one computer; click Start over if you have more computers to set up.

Windows (Cmd)

```
"%PROGRAMFILES(X86)%\Google\Chrome Remote Desktop\CurrentVersion\remoting_start_host.exe" --code="4/0AY0e-g776BhtI3AMe8soEQQFEmBxqVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" --
```

Windows (PowerShell)

```
& "${Env:PROGRAMFILES(X86)}\Google\Chrome Remote Desktop\CurrentVersion\remoting_start_host.exe" --code="4/0AY0e-g776BhtI3AMe8soEQQFEmBxqVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" --
```

Debian Linux

```
DISPLAY= /opt/google/chrome-remote-desktop/start-host --code="4/0AY0e-g776BhtI3AMe8soEQQFEmBxqVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" -- redirect-url="https://remotedesktop.google.com/_/oauthredirect" --
```



Copy to clipboard.

START OVER

• Copy

```
Linux kali 5.7.0-kali1-amd64 #1 SMP Debian 5.7.6-1kali2 (2020-07-01) x86_64
```

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

```
Kali GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent  
permitted by applicable law.
```

```
phillipnontenure@kali:~$ DISPLAY= /opt/google/chrome-remote-desktop/start-host --code="4/0AY0e-g776BhtI3AMe8soEQQFEm  
BxqgVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" --redirect-url="https://remotedesktop.google.com/_/oauthredirect" --na  
me=$(hostname)
```

```
phillipnontenure@kali:~$ DISPLAY= /opt/google/chrome-remote-desktop/start-host --code="4/0AY0e-g776BhtI3AMe8soEQQFEm  
BxqgVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" --redirect-url="https://remotedesktop.google.com/_/oauthredirect" --na  
me=$(hostname) Kali
```

```
phillipnontenure@kali:~$ DISPLAY= /opt/google/chrome-remote-desktop/start-host --code="4/0AY0e-g776BhtI3AMe8soEQQFEm  
BxqgVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" --redirect-url="https://remotedesktop.google.com/_/oauthredirect" --na  
me=$(hostname) Kali  
Enter a PIN of at least six digits:  
Enter the same PIN again:
```

- Paste = Ctrl v

- Type "Kali" then return

- Type a 6 digit pin (twice),
remember to write it down and
save it for later



Set up another computer

You're nearly finished! Run the following command on the remote computer to complete the setup process. Please note that this command can only be used to set up one computer; click Start over if you have more computers to set up.

Windows (Cmd)

```
"%PROGRAMFILES(X86)%\Google\Chrome Remote Desktop\CurrentVersion\remoting_start_host.exe" --code="4/0AY0e-g776BhtI3AMe8soEQQFEmBxqgVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" --
```



Windows (PowerShell)

```
& "${Env:PROGRAMFILES(X86)}\Google\Chrome Remote Desktop\CurrentVersion\remoting_start_host.exe" --code="4/0AY0e-g776BhtI3AMe8soEQQFEmBxqgVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" --
```



Debian Linux

```
DISPLAY= /opt/google/chrome-remote-desktop/start-host --code="4/0AY0e-g776BhtI3AMe8soEQQFEmBxqgVIBWhr3iQ3N1KwNj4yMwioQ35EjqM8vvxoeajmsA" --redirect-url="https://remotedesktop.google.com/_oauthredirect" --
```



Chrome Remote Desktop

remotedesktop.google.com/access

Google Chrome Remote Desktop

Remote Access Remote Support

Remote devices

kaliKali
Online

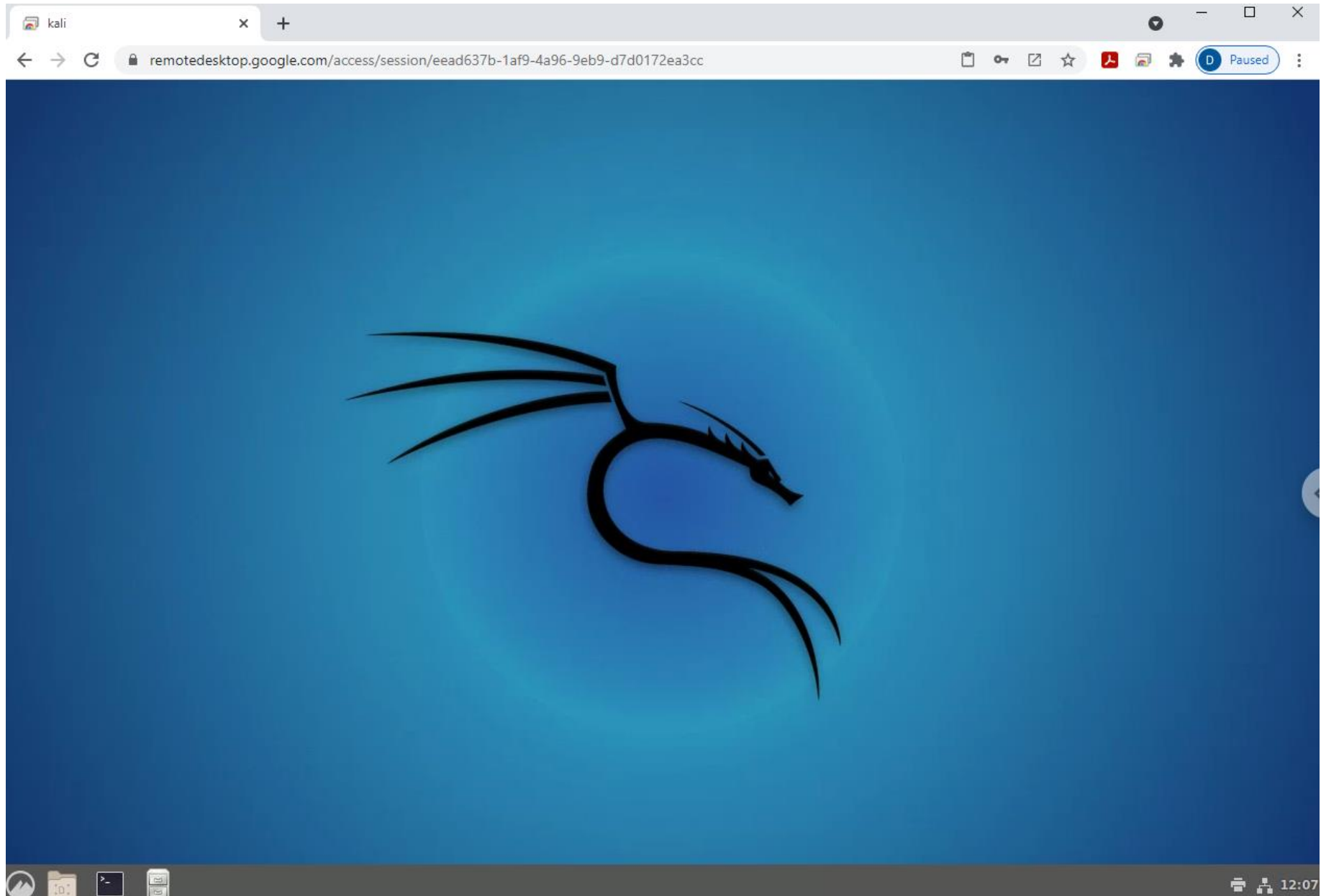
This device

Set up remote access

kaliKali

Enter PIN

Remember my PIN on this device.



Setup Budget Alerts

- Be sure to following instructions to setup budget alerts

Compute Engine

VM instances CREATE INSTANCE IMPORT VM REFRESH MANAGE ACCESS SHOW INFO PANEL

- Virtual machines
- VM instances
- Instance templates
- Sole-tenant nodes
- Machine images
- TPUs
- Migrate for Compute Engi...
- Committed use discounts
- Storage
- Disks
- Snapshots
- Images
- Instance groups
- Instance groups
- Health checks
- VM Manager
- OS patch management

Filter VM instances Columns

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
kali-linux-vm	us-central1-a			10.128.0.2 (nic0)	None	SSH

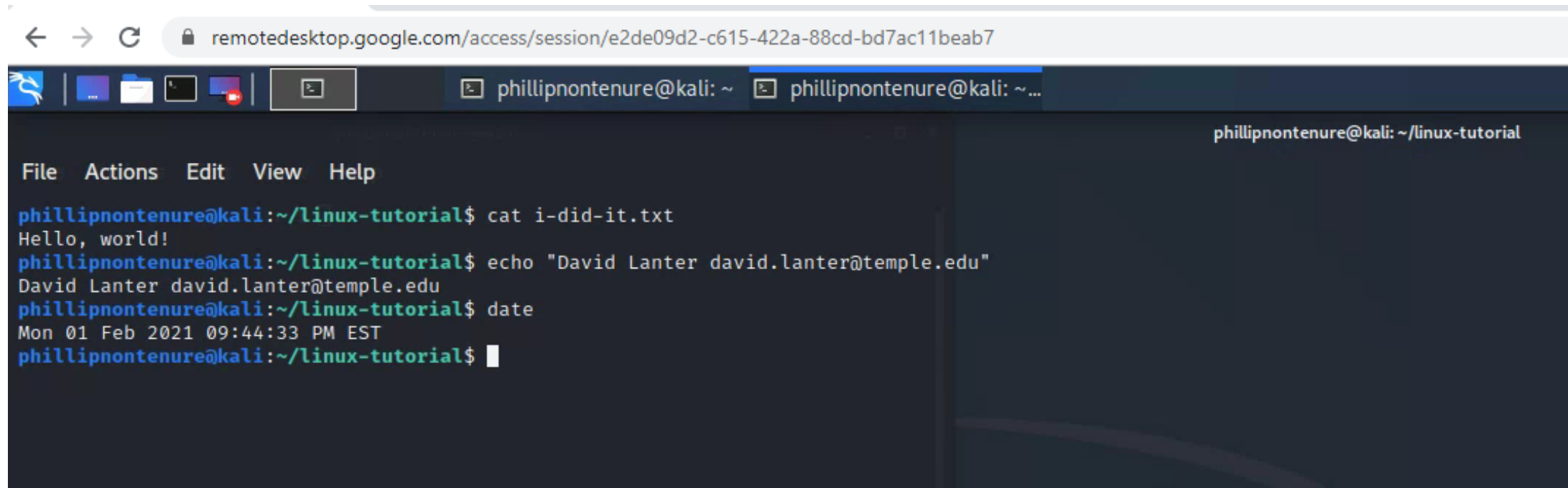
Related Actions

- View Billing Report: View and manage your Compute Engine billing
- Monitor VMs: View outlier VMs across metrics like CPU and Network
- Explore VM Logs: View, search, analyze, and download VM instance logs
- Setup Firewall Rules: Control traffic to and from VM instance

- Start / Resume
- Stop
- Suspend
- Reset
- Delete
- View network details
- New machine image
- View logs
- View monitoring

Stopping VM instance "kali-linux-vm" succeeded.

Complete introduction to Linux tutorial



The screenshot shows a remote desktop session in a web browser. The address bar displays the URL: `remotedesktop.google.com/access/session/e2de09d2-c615-422a-88cd-bd7ac11beab7`. The desktop environment includes a taskbar with icons for a terminal, file manager, and other applications. Two terminal windows are open, both showing the user `phillipnontenure@kali` in the `~/linux-tutorial` directory. The active terminal window has a menu bar with `File`, `Actions`, `Edit`, `View`, and `Help`. The terminal output shows the following sequence of commands and results:

```
phillipnontenure@kali:~/linux-tutorial$ cat i-did-it.txt
Hello, world!
phillipnontenure@kali:~/linux-tutorial$ echo "David Lanter david.lanter@temple.edu"
David Lanter david.lanter@temple.edu
phillipnontenure@kali:~/linux-tutorial$ date
Mon 01 Feb 2021 09:44:33 PM EST
phillipnontenure@kali:~/linux-tutorial$
```


Linux Management - IMPORTANT

- Shutdown your Kali computer machine when you are not using it
- Change your Kali root password
 - Everyone knows the default root password is: toor
 - CHANGE IT TO SOMETHING ELSE
 - Use a strong password: 8-10 characters long
 - Use upper case + lower case + numbers + symbols
 - Run the passwd command: “sudo passwd” without any arguments:
 - You will be prompted to enter your current password. If the password is correct, the command will ask you to enter and confirm the new password. Passwords are not shown on the screen when you enter them. The next time you log in to your system, use the new password.

<https://www.hostinger.com/tutorials/how-to-change-password-in-linux/>

Some useful Linux commands

File Commands

ls - directory listing
ls -al - formatted listing with hidden files
cd *dir* - change directory to *dir*
cd - change to home
pwd - show current directory
mkdir *dir* - create a directory *dir*
rm *file* - delete *file*
rm -r *dir* - delete directory *dir*
rm -f *file* - force remove *file*
rm -rf *dir** - force remove directory *dir* *
cp *file1 file2* - copy *file1* to *file2*
cp -r *dir1 dir2* - copy *dir1* to *dir2*; create *dir2* if it doesn't exist
mv *file1 file2* - rename or move *file1* to *file2*
if *file2* is an existing directory, moves *file1* into directory *file2*
ln -s *file link* - create symbolic link *link* to *file*
touch *file* - create or update *file*
cat > *file* - places standard input into *file*
more *file* - output the contents of *file*
head *file* - output the first 10 lines of *file*
tail *file* - output the last 10 lines of *file*
tail -f *file* - output the contents of *file* as it grows, starting with the last 10 lines

System Info

date - show the current date and time
cal - show this month's calendar
uptime - show current uptime
w - display who is online
whoami - who you are logged in as
finger *user* - display information about *user*
uname -a - show kernel information
cat /proc/cpuinfo - cpu information
cat /proc/meminfo - memory information
man *command* - show the manual for *command*
df - show disk usage
du - show directory space usage
free - show memory and swap usage
whereis *app* - show possible locations of *app*
which *app* - show which *app* will be run by default

Shortcuts

Ctrl+C - halts the current command
Ctrl+Z - stops the current command, resume with **fg** in the foreground or **bg** in the background
Ctrl+D - log out of current session, similar to **exit**
Ctrl+W - erases one word in the current line
Ctrl+U - erases the whole line
Ctrl+R - type to bring up a recent command
!! - repeats the last command
exit - log out of current session

Remember: Lab 2 & Milestone 1...

Full Name	Email Address	Team
Bartolome, AJ Delfin	tuj60206@temple.edu	1
Prikhodko, Mariia	tuk86712@temple.edu	1
Reinert, Brennan J	tuh48019@temple.edu	1
Vottero, Alexander L	tuj45391@temple.edu	1
Beck, Emeline	tuj23805@temple.edu	2
McClary, Deja	tum99469@temple.edu	2
Rowe, Francesca Catherine	tuj51659@temple.edu	2
Cavalieri, Silvia Angela	tui14173@temple.edu	3
Ndjee, Neilly C	tuj51301@temple.edu	3
Saucier, Taylor M	tug49846@temple.edu	3
Lamb, Anthony Thomas	tui80318@temple.edu	4
Marshall, Jackson	tuj49922@temple.edu	4
Obassy, John	tuh09406@temple.edu	4
Stonesifer, Samantha S	tuk72762@temple.edu	4

Tuesday,
1/25/2022

Introduction to Linux |
Google Cloud Platform
(GCP)

**Lab 2: Web Privacy and
Anonymity Lab due**

Thursday,
1/27/2022

Introduction to
Cryptography

Anderson, Chapter 5

Saturday,
1/29/2022

**Milestone 1: Risk
Assessment Report Draft
due**

Agenda

- ✓ Shubham Patil – ITA for our course section
- ✓ Milestone Teams
- ✓ Short history of computers, Unix and Linux
- ✓ Introduction to the Google Cloud Platform
- ✓ Next step... Linux tutorial
- ✓ Remember: Milestone 1 project!