

- This program **parsed** logs to **generate** alerts when it found **suspicious** events
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- programs that terminate with **uncaught exceptions**, systems that **fail to update** to the latest version ??????????????????????????????
- A program **terminates unexpectedly**, a device reboots for **no apparent reason**, the operating system hangs and we lose all our **unsaved work**
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- Once **you're done writing** the Python script,
- hopefully you're starting to **feel** even more **confident in** your skills and abilities
- so I **decided** to spend more time **tweaking** the code to **make** the migration **go faster**
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- In this case, you'll **definitely** want to split your execution across processors
- we should **double-check** if the copy is really needed
- We **see** that there's **a bunch of** ffmpeg processes running, which are basically using **all the available CPU** ???????? ffmpeg ?????????????????????????????? CPU
- It seems that **something is going on** with the web server and we need to **investigate further** ?????????????????????????????????
- there are too many applications **configured to start on boot**
- address ; deal with ; take care of ??;??; ??
 - The general **strategy** for **addressing** slowness is to **identify the bottleneck** in our device, our script, or our system to run slowly
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 - The operating system also **takes care of** some caching for us
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 - **Dealing with Intermittent Issues** : Have you ever tried to solve a problem that happened only **occasionally**? ???????? : ?????????????????????????????
- We need to really **study** each **problem** to **get to** the root cause of the **slowness**
- we'll have to upgrade the **underlying** hardware ??????????????
- If we've closed **everything** that **wasn't** needed and the computer is still slow, we need to **look into** other possible reasons
- But **eventually**, you'll **run out of** memory and everything will **slow down**
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- But if you keep opening tabs, **at some point** your computer will become **sluggish**
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- ignoring upper vs lower case and **punctuation** ??????????????
- We've also talked about problems that **go away on their own** and then **pop up** again
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- So we've **looked at** a few ways of **getting to the root cause** of a problem
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- If a problem **goes away** by turning it off and on again, there's **almost certainly** a bug in the software ?????????????????????????????????????
- It can **take some time** to **get the setup** ?????????????????????
- we have to try our code in **a newly installed machine** ???????
- **Whenever possible**, we should check our **hypothesis** in a test environment, instead of the production environment that our users are working with
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- **looking at** the documentation of the applications **involved**
- **Searching online for** the error messages that we get ?????????????????????
- how do we **go about** finding the **actual root cause** of the problem? ?????????????????????

- when trying to **create a reproduction case**, we want to find the **actions** that reproduce the issue
- you'll find an error message that will help you understand **what's going on**
- **There could be** a bunch of reasons **why this could happen**. It **could be** problems with the network routing, old config files interfering with a new version of the program, a permissions problem
- we **want to** consider the simplest **explanations** first and avoid jumping into **complex** or **time-consuming** solutions unless we really have to
- we **first check** if it's **correctly plugged in** and that there's **electricity** coming from **the plug** before **taking it apart** or replacing it with a new device
- There are some common questions that we can ask a user that simply report something doesn't work
 - What happen when you open the app?
 - What were you trying to do?
 - What steps did you follow?
 - What was the expected result?
 - What was the actual result?
- you check if you can **reproduce** the issue **on your own computer**.
- what about the documentation we should **note** that this version of the software **won't start** if that directory doesn't exist
- to see if we find anything **suspicious**.
- remediation; remediate
 - Depending on the problem, this might include an immediate **remediation** to **get** the system **back to health**, and then a **medium** or **long-term** remediation to **avoid** the problem in the future
 - Now, we can go ahead and **remediate** the issue
- You'll want to know things like **when it happened**, **what the user was doing when it happened**, and **how regularly it's happening**
- the problem could be **a hardware issue**, **a software issue**, or even **a configuration issue**. So the first thing to do is **to get more information**
- Before we **jump in**, I'd **love to take a quick moment** to share why I'm so **excited** to be here with you **taking part in** this program
- We'll talk about problems that can **affect** any operating system
- **Throughout** this course, we'll **look at** a bunch of different **strategies** and **approaches** for **tackling problems** like those
- Sometimes, you might need to **figure out** why a program isn't **doing what it's supposed to**. Maybe it's crashing **unexpectedly** or **getting stuck** when it should be processing information
- various; many different flavors of
 - Need a system administrator to handle **various** issues that come up on my system.
 - In your IT career, you'll come across **many different flavors of** technical problems

- If the service **encounters** a problem, it **logs** an error message **to** the syslog, indicating **what was wrong** and the username that **triggered** the action that **caused** the problem
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- you'll **write** some **automation scripts** that will **process the system log** and **generate** a bunch of reports **based on** the information **extracted from** log files
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- Developers of the service are **asking for your help** with getting some information **out of those logs**, **to better understand** how the software **is being used** and how to improve it
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- So it's valuable that we **spent some time looking into** what resources exist to help us solve our problem
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- Remember, we want to **avoid reinventing the wheel**. **No matter how tricky and intricate the challenge appears**, chances are that others have solved something similar before
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- **figuring out** how we can **tackle** the problem by the tools provided by the Python standard library or by external modules
?????? Python ??????????????????????????????
- **spelling out** what needs to be done and **identifying what the given inputs and desired outputs are for** that program that we need to write.
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- Linux is the primary OS that I use in my **day-to-day** job as a system administrator.
- In our specific case, returning the original value **makes sense** when we can't rearrange it
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- By running Unit Tests, developers can **identify** and fix any bugs that **appear**
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- when the results don't match the **expectations**, the code will **raise** an error
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- Tests can **help make** good code **great**.
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- make sure that it **behaves the way that they expected to**.
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- You want to make sure that when you run a program, it **behaves the way that it should**
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- it's **harder to really be confident** that the code will **do what it's supposed to**
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- we'll do a **quick rundown** of the many concepts around testing
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- Log files contain a lot of **useful** information, **particularly** when you're trying to debug a **tricky** problem that's **happening on** a computer
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- **To be able to** process the output of commands, we'll **set a parameter** called capture output
- This can **be handy for** system commands
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- Software testing is a process of evaluating computer code to determine **whether or not** it does **what you expect it to do**
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- if we just want to run a command and only care about **whether or not** it was successful.
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- which means that our script **has no control over** it
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- helping us create a custom vision-language model **tailored to** our specific tasks.
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- These are parameters that are **passed to** a program when it started.
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- Without virtual environments, managing these dependencies could become a **nightmare** ?????????????????????????????????
- This term **stands for** Integrated Development Environment, and usually **refers to** a code editor ?????????????????????????????????
- when we run the Python 3 command, we get an **interactive interpreter**. ????? Python 3 ?????????????????????????????????
- Interpreted vs. Compiled Languages ?????????????????
- In my job as a sysadmin, I **mainly work** with the Linux operating system ????????????????????????????? Linux ?????
- You **may have also heard of** Unix ?????? Unix
- We **refer to** these different **flavors** of Linux as distributions. ????????????? Linux ?????
- They **are tempted** to spend a lot of time trying to solve the problem **on their own** ?????????????????????????????
- To check that our code is doing **everything it's supposed to do** ?????????????????????????????
- In this **scenario**, it **makes sense** to use **a set** to store the current users ?????????????????????????????????
- I was **happy with** it, the user was happy with it. ?????????????????
- We're gonna **dive into object-oriented** programming ?????????????????????????????
- It's your call ; It's up to you ?????
- we add, remove, or change the elements **inside** that box ?????????????????????????????
- it **doesn't matter** how long each string is on its own. **What matters** is how many elements the list has ????????????????????????????? list ???????
- indicate ; represent ??
 - we use **square brackets** to **indicate** where the list starts and ends ??????(?)????????????????????????????
 - a list of integers **representing** the size of network packets ??(??)????????????????(??)
 - The variable device_id **represents** a device ID containing **alphanumeric** characters????????????
- You can **think of** lists **as** long boxes ?????????????????
- **make** the whole string **more readable** ?????????????????
- **Heads up**, this can **get complex** fast ?????????????????
- They focus on applying AI in **practical** ways ????????????????? AI
- there are a bunch of **exercises** ahead to help you with that ?????????????????????????????
- We can use strings to **represent** a lot of different things. ?????????????????????????????
- It never **let me down** ??????????