

Master of Information Security

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Study Number – 11 – Packet Analyzing with scap

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Table of Contents

Study Number – 11 – Packet Analyzing with scap	1
Problem	3
Approach	3
Conclusion	14

Problem

Setup

- Download folder from LMS
- · docker build . -t scapy
- docker -it -p 8888:8888 scapy:latest
- You can access the Jupyter notebook from flowing link:
 - http://[Docker IP]:8888/
- Password: 123

Tasks

- 1. Analyze Search Search Traffic
 - Find search engine name and Search queries
- 2. Analyze Site Visitors
 - Find the IP's of site visitors
- 3. Analyze Email
 - Find Email Providers, Email Addresses, Participants, Passwords, Email Client, Attachments,

Approach

Tasks

- 1. Analyze Search Search Traffic
 - Find search engine name and Search queries

```
#!/usr/bin/env python

from scapy.all import *

search_file = "search.cap";
search_pkts = rdpcap(search_file);
sniff_search_pkts = sniff(offline=search_file);

#sniff_search_pkts.show();
sniff_search_pkts.nsummary();
i = 0;

for pkt in sniff_search_pkts:
    if pkt.getlayer(Raw) != None:
        print pkt.getlayer(Raw).fields.get("load");
indexes = [13,79,148,227]

for idx,item in enumerate(sniff_search_pkts):
    if idx in indexes:
        pkt_tem = _str(pkt.getlayer(Raw).fields.get("load"));
        qry = _pkt_tem.split("?p=")[1].split("&")[0];
        print qry;
```

GET /beacon/tpc.gif?1385107348163 HTTP/1.1

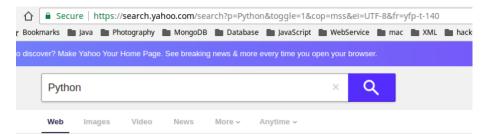
Host: search.yahoo.com Connection: keep-alive

Accept: image/webp,*/*;q=0.8
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_0) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/31.0.1650.57 Safari/537.36

Referer: http://www.yahoo.com/

Accept-Language: en-US,en;q=0.8 Cookie: B=fmelok594jgu2&b=4&d=9My3dglpYEKiuRrxoAZSeDlKr2E-&s=8r&i=SJ7ecf8eDYjFgm.CEdnr; AO=o=O; YLS=v=1&p=1&n=1; F=a=I.qqZFgMvSplSMQ7oNaJGIBu5DA

GET /search; ylt=A00G7mGUD495BxcA3MpXNyOA; ylc=X1MDMjc2NjY30QRfcgMyBGJjavNmbWVsb2s10TRqZ3UyJTI2YiUzRDQlMjZkJTNEOUI5M2RnMXBZRUtpdVJyeG9BWlNlRGxLcjJFLSUyNnMlMOQ4ciUyNmklMGRTSjdlY2Y4ZURZakZHOst: search, yahoo. com
Connection: keep-alive
Accept: text/html, application/xhtml+xml, application/xml;q=0.9, image/webp, */*;q=0.8
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_0) AppleWebKit/537.36 (MrHML, like Gecko) Chrome/31.0.1650.57 Safari/537.36
Referen: http://search.yahoo.com/search: ylt=Ap0.LW7jVmrlmZMKxChagbvZx4?p=Python6toggle=16cop=mss6ei=UTF-86fr=yfp-t-1d0
Accept-Encoding: gzip, deflate.sdch
Accept-Encoding: gzip, deflate.sdch
Accept-Language: en-US, en;q=0.8
Cookie: B=TmetokS9djquZbk-4dd-9My3dglpYEKiuRrxoAZSeDlKrZE-&s=Br&i=SJ7ecf8eDYjFgm.CEdnr; AO=0=0; YLS=v=1&p=1&n=1; F=a=I.qqZFgMvSp1SMQ7oNaJGBUSDAJGGZSSeRXXSKxg6_KZLWHQM+EkeFQrEOxAH9BOvMrv
00001200000006r=s2&lg=en-US&intl=us; PH=fn=y6c0g_4Smcvg7MVXkv--&l=en-US&i=us; T=z=ON/aSB0hmfSB1lHkNiOonkPNjE3NAYZTc2MzMMB80TjUlTz&a=QAE&sk=DAAF.nnTb.zm2Z&ks=EAAYagoFcceuicuyKS3HedVyv--



Also try: python programming, python tutorial, monty python, ball python

Python - Official Site

www.python.org

Functions Defined. The core of extensible programming is defining functions. Python allows mandatory and optional arguments, keyword arguments, and even arbitrary argument lists.

Downloads

Note: Barry's key id A74B06BF is used to sign the Python..

Windows

The official home of the Python Programming Language, While...

Beginner's Guide

New to programming? Python is free and

Python 2.7.14

The official home of the Python Programming Language

Python 3.6.5

Note. Python 3.6.7 is now the latest maintenance release of...

Python 3.7.0

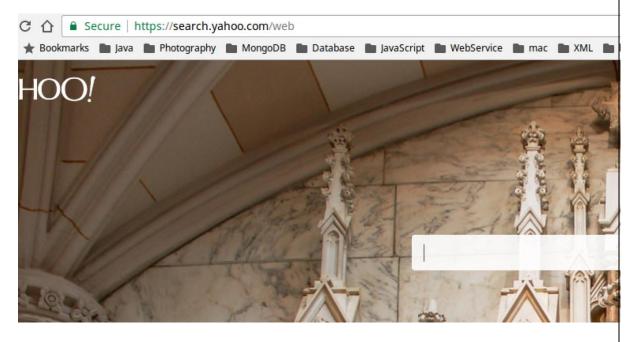
Python 3.7.1 is now the latest maintenance

GET /search:_ylt=A0oG7mCbD49Sk08A791XNyoA;_ylc=XLMDMjc2NjY30QRfcgMyBGJjavNmbWVsb2s1OTRqZ3UyJT1ZYiUzRDQlMjZkJTNEOU15M2RnMXBZRUtpdVJyeG9BwlNlRGxLcjJFLSUyNmMlM0Q4ciUyNmklMORTSjdlY2Y4ZURZakZnHbst: search.yahoo.com
Connection: keep-alive
Accept: text/html.application/xhtml+xml.application/xml;q=0.9,image/webp.*/*;q=0.8
User-Agent: MOzilla/5.0 (Macintosh; Intel Mac OS X 10, 9.0) AppleWebkit/537.36 (MHTML, like Gecko) Chrome/31.0.1650.57 Safari/537.36
Referer: htm://saerch.yahoo.com/search:ylt=A8G67miMy96Skc43MyWodx;ylc=XMVMMCZNYY30QRfcgMyBG51auNmbWy8b2s1OTRaZ3UyJTTZYIUzRDOLM;ZkJTNEOU15M2RnMKBZFUtpdvJye69BwlNlR6xLcjJFLSUyNnMlH80A
BBFNSLEM:XTTZQVMTVUZFPZJUDI4OSJWM1TRQUMORNULk-MTAlMjZVSTAxJTNEVUlOMSUyNlVOSSUzRPJDRjAONARUX3JzbHQDMTAEbl9zdwdnAzgEb3JpZ2lua3NLYXJjaC55Ymhvby5jb20EcG9zAEcHFzdHDDHBxc3RybAMEcXNOcmvDNg

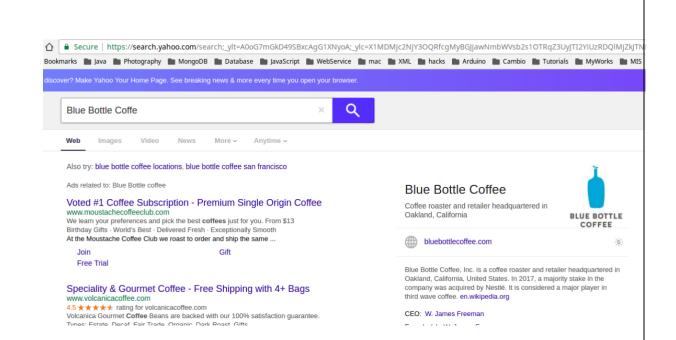
Accept-Encoding: gzip,deflate,sdch
Accept-Language: en-US,en.q=0.8
Accept-Language: en-US,en.q=0.8
Accept-Language: en-US,en.q=0.8
Cookie: B-fraelolS934jqu2SE-M64G-MMy3dglpYEKiuRrxoAZSeDlKr2E-6s=8r6i=SJ7ecf8eDYjFgm.CEdnr; AO=0=0; YLS=v=1&p=1&n=1; F=a=I,qqZFgMvSp1SMQ7oNaJGIBu5DAJG02SSeRxXSKxg6_KZLMHQMHEkeFQrE0xAH98OvMh



GET /search; ylt=400G7mGKD49SBxcAgGlXNyoA; ylc=XLMDMjc2NjY30QRfcgMyBGJjawhmbWvsb2s10TRqZ3UyJTI2YiUzPDQlMjZkJTNEOUI5MZRhMXBZPUtpdVJyeG9BMlNlRGxLcjJFLSJyNnMlM0Q4ciUyhmklMGRTSjdlY2Y4ZURZakZnbSSDRWEUHSt: search.yahoo.com
Connection: Keep-alive
Accept: text/html.application/xhtml+xml.application/xhtml;q=0.9, jmage/webp.*/*;q=0.8
Accept: text/html.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.application/xhtml+xml.applicat



GET /search; ylt=A0oG7mG0D495k08Am.NXNyoA?ei=UTF-8&fr=yfp-t-140&p=blue+bottle+coffee&SpellState=&fr2=sp-qrw-corr-top HTTP/1.1
Host: search, yahoo.com
Connection: keep-alive
Accept: text/html,application/xmtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
User-Agent: Mozilla/5.0 (Macintosh: Intel Mac OS X 10_9_0) AppleWebXit/537.36 (KHTML, like Gecko) Chrome/31.0.1650.57 Safari/537.36
Referer: http://search.yahoo.com/search; ylt=A8oG7m6kD49SBxcAgG1XNyoA; ylc=X1MDMjc2NjY30QRfcgMyBGJjawNmbW/sb2s10TRqZ3UyJTIZYiUzRDQlMjZkJTNEOUI5MZRnMXBZRUtpdVJyeG9BVlNlR
Accept-Lencoding: gzip,deflate,sdch
Accept-Language: en-US, en:q=0.8
Cookie: B=fmelok594jgu2&b=4&d=9My3dglpYEKiuRrxoAZSeDlKr2E-&s=8r&i=SJ7ecf8eDYjFgm.CEdnr; A0=o=0; YLS=v=1&p=1&n=1; F=a=I.qqZFgMvSplSMQ7oNaJGIBu5OAJG02SSeRxXSKxg6_KZLWHQMH



2. Analyze Site Visitors

• Find the IP's of site visitors

```
Find IPs from file search.cap {'client': '10.25.3.61'}
```

Process finished with exit code 0

```
Find IPs from file http.cap {'client': '145.254.160.237'}
```

Process finished with exit code 0

```
Find IPs from file smtp.pcap {'client': '10.10.1.4'}
```

Process finished with exit code 0

3. Analyze Email

• Find Email Providers,:

```
WARNING: NO FOUTE TOURD TOF 1PV6 destination :: (no detault route?)
0000 Ether / IP / UDP / DNS Qry "mail.patriots.in."
0001 Ether / IP / UDP / DNS Ans "patriots.in."
0002 Ether / IP / TCP 10 10 1 1 4:1470 > 74 53 140 153:smtn S
```

• Email Addresses:

```
Packet index 15 : MAIL FROM: <gurpartap@patriots.in>
Packet index 16 : 250 OK
Packet index 17 : RCPT TO: <raj_deol2002in@yahoo.co.in>
```

• Participants,

```
From: "Gurpartap Singh" <gurpartap@patriots.in>
To: <raj_deol2002in@yahoo.co.in>
```

Passwords,

```
Packet index 9 : AUTH LOGIN

Packet index 10 : 334 VXNlcm5hbWU6

Packet index 11 : Z3VycGFydGFwQHBhdHJpb3RzLmlu

Packet index 12 : 334 UGFzc3dvcmQ6

Packet index 13 : CHVuamFiQDEyMw==

Packet index 14 : 235 Authentication succeeded

Packet index 15 : MAIL FROM: <gurpartap@patriots.in>

Packet index 16 : 250 OK

Packet index 17 : RCPT TO: <raj_deol2002in@yahoo.co.in>

Packet index 18 : 250 Accepted

Packet index 19 : DATA

Packet index 20 : 354 Enter message, ending with "." on a line by itself
```

Email Client,

• Attachments,

NEWS.txt

```
Version 4.9.9.1
* Many bug fixes
* Improved editor
Version 4.9.9.0
* Support for latest Mingw compiler system builds
* Bug fixes
Version 4.9.8.9
* New code tooltip display
* Improved Indent/Unindent and Remove Comment
* Improved automatic indent
^{\star} Added support for the "interface" keyword
* WebUpdate should now report installation problems from PackMan
* New splash screen and association icons
* Improved installer
* Many bug fixes
Version 4.9.8.7
* Added support for GCC > 3.2
* Debug variables are now resent during next debug session
* Watched Variables not in correct context are now kept and updated
when =
it is needed
* Added new compiler/linker options:=20
  - Strip executable
  - Generate instructions for a specific machine (i386, i486, i586, =
i686, pentium, pentium-mmx, pentiumpro, pentium2, pentium3, pentium4
Packet index 34 : ,=20
    k6, k6-2, k6-3, athlon, athlon-tbird, athlon-4, athlon-xp, =
athlon-mp, winchip-c6, winchip2, k8, c3 and c3-2)
  - Enable use of processor specific built-in functions (mmmx, sse, =
sse2, pni, 3dnow)
* "Default" button in Compiler Options is back
* Error messages parsing improved
* Bug fixes
Version 4.9.8.5
* Added the possibility to modify the value of a variable during =
debugging (right click on a watch variable and select "Modify value")
* During Dev-C++ First Time COnfiguration window, users can now choose
between using or not class browser and code completion features.
* Many bug fixes
Version 4.9.8.4
* Added the possibility to specify an include directory for the code =
completion cache to be created at Dev-C++ first startup
* Improved code completion cache
* WebUpdate will now backup downloaded DevPaks in Dev-C++\Packages =
directory, and Dev-C++ executable in devcpp.exe.BACKUP
* Big speed up in function parameters listing while editing
* Bug fixes
```

Version 4.9.8.3

```
* On Dev-C++ first time configuration dialog, a code completion cache
of =
all the standard=20
 include files can now be generated.
* Improved WebUpdate module
* Many bug fixes
Version 4.9.8.2
* New debug feature for DLLs: attach to a running process
* New project option: Use custom Makefile.=20
* New WebUpdater module.
* Allow user to specify an alternate configuration file in Environment
Options=20
  (sti
Packet index 35: 11 can be overriden by using "-c" command line
parameter).
* Lots of bug fixes.
Version 4.9.8.1
* When creating a DLL, the created static lib respects now the =
project-defined output directory
Version 4.9.8.0
* Changed position of compiler/linker parameters in Project Options.
* Improved help file
* Bug fixes
Version 4.9.7.9
* Resource errors are now reported in the Resource sheet
* Many bug fixes
Version 4.9.7.8
* Made whole bottom report control floating instead of only debug =
output.
* Many bug fixes
Version 4.9.7.7
* Printing settings are now saved
* New environment options : "watch variable under mouse" and "Report =
watch errors"
* Bug fixes
Version 4.9.7.6
* Debug variable browser
* Added possibility to include in a Template the Project's directories
(include, libs and ressources)
* Changed tint of Class browser pictures colors to match the New Look =
style
* Bug fixes
Version 4.9.7.5
* Bug fixes
Version 4.9.7.4
* When compiling with debugging symbols, an extra definition is passed
to the
  compiler: -D DEBUG
* Each project creates a <project name> private.h file containing =
```

```
version
  information definitions
* When compiling the current file only, no dependency checks are =
performed
* ~300% Speed-up in class parser
* Added "External programs" in Tools/Environment Options (for units =
"Open with")
* Added "Open with" in project units context menu
* Added
Packet index 37 : "Classes" toolbar
* Fixed pre-compilation dependency checks to work correctly
* Added new file menu entry: Save Project As
* Bug-fix for double quotes in devcpp.cfg file read by vUpdate
* Other bug fixes
Version 4.9.7.3
* When adding debugging symbols on request, remove "-s" option from =
linker
* Compiling progress window
* Environment options : "Show progress window" and "Auto-close progress
window"
* Bug fixes
Version 4.9.7.2
* Bug fixes
Version 4.9.7.1
* "Build priority" per-unit
* "Include file in linking process" per-unit
* New feature: compile current file only
* Separated C++ compiler options from C compiler options in Makefile =
(see bug report #654744)
* Separated C++ include dirs from C include dirs in Makefile (see bug =
report #654744)
* Necessary UI changes in Project Options
* Added display of project filename, project output and a summary of
project files in Project Options General tab.
* Fixed the "compiler-dirs-with-spaces" bug that crept-in in 4.9.7.0
* Multi-select files in project-view (when "double-click to open" is =
configured in Environment Settings)
* Resource files are treated as ordinary files now
* Updates in "Project Options/Files" code
* MSVC import now creates the folders structure of the original VC =
project
* Bug fixes
Version 4.9.7.0
* Allow customizing of per-unit compile command in projects
* Added two new macros: <DATE> and <DATETIME>
Packet index 38 : dded support for macros in the "default source code"
(Tools/Editor =
Options/Code)
* Separated layout info from project file. It is now kept in a
different =
file
  (the same filename as the project's but with extension ".layout"). If
you
```

```
have your project under CVS control, you ''ll know why this had to =
happen...
* Compiler settings per-project
* Compiler set per-project
* Implemented new compiler settings framework
* "Compile as C++" per-unit
* "Include file in compilation process" per-unit
* Project version info (creates the relevant VERSIONINFO struct in the
private
  resource)
* Support XP Themes (creates the CommonControls 6.0 manifest file and =
includes
  it in the private resource)
* Added CVS "login" and "logout" commands
* Project manager and debugging window (in Debug tab) can now be =
trasnformed into floating windows.
* Added "Add Library" button in Project Options
* Bug fixes
Version 4.9.6.9
* Implemented search in help files for the word at cursor (context =
sensitive help)
* Implemented "compiler sets" infrastructure to switch between
different =
compilers easily (e.g. gcc-2.95 and gcc-3.2)
* Added "Files" tab in CVS form to allow selection of more than one
file =
for
  the requested CVS action
Version 4.9.6.8
* support for DLL application hosting, for debugging and executing DLLs
under Dev-C++.
* New class browser option: "Show inherited members"
* Added sup
Packet index 40 : port for the '::' member access operator in code-
completion
* Added *working* function arguments hint
* Added bracket highlighting. When the caret is on a bracket, that =
bracket and
  its counterpart are highlighted
* Nested folders in project view
Version 4.9.6.7
* XP Theme support
* Added CVS commands "Add" and "Remove"
* Added configuration option for "Templates Directory" in "Environment
Options"
* Code-completion updates
* Bug fixes
Version 4.9.6.6
* Editor colors are initialized properly on Dev-C++ first-run
* Added doxygen-style comments in NewClass, NewMemberFunction and =
NewMemberVariable wizards
* Added file's date/time stamp in File/Properties window
* Current windows listing in Window menu
* Bug fixes
```

```
Version 4.9.6.5
* CVS support
* Window list (in Window menu)
* bug fixes
version 4.9.6.4
* added ENTER key for opening file in project browser, DEL to delete =
from the project.
* bug fixes
version 4.9.6.3
* Bug fixes
version 4.9.6.2
* Bug fixes
version 4.9.6.1
* New "Abort compilation" button
* Bug fixes
* Now checks for vRoach existance when sending a crash report
Version 4.9.5.5
* New option in Editor Options: Show editor hints. User can disable the
hints
  displayed in the editor when the mouse moves over a word. Since this
was the
  cause of many errors (although it should be fixed by now), we are =
giving the
  user the option to disable this featu
Packet index 41 : re.
* New option in Editor Options (code-completion): Use code-completion =
cache.
  Well, it adds caching to code-completion. Depending on the cache
  the program may take a bit longer to start-up, but provides very fast
  code-completion and the user has all the commands (belonging to the =
files
  he added in the cache) at his fingertips. If, for example, the user =
adds
  "windows.h", he gets all the WinAPI! If he adds "wx/wx.h", he gets
all =
of
  wxWindows! You get the picture...
* Removed "Only show classes from current file" option in class browser
settings.
  It used to be a checkbox, allowing only two states (on or off), but =
there is
  a third relevant option now: "Project classes" so it didn't fit the =
purpose...
 The user can define this in the class browser's context menu under =
"View mode".
* Fixed the dreaded "Clock skew detected" compiler warning!
* Fixed many class browser bugs, including some that had to do with =
class folders.
Version 4.9.5.4
```

12

```
* Under NT, 2000 and XP, user application data directory will be used
to =
store config files (i.e : C:\Documents and Settings\Username\Local =
Settings\Application Data)
Version 4.9.5.3
* Added ExceptionsAnalyzer. If the devcpp.map file is in the devcpp.exe
directory
 then we even get a stack trace in the bug report!
* Added new WebUpdate module (inactive temporarily).
* Added new code for code-completion caching of fi
Packet index 43 : les (disabled - work =
in progress).
Version 4.9.5.2
* Added new option in class-browser: Use colors
  (available when right-clicking the class-browser
  and selecting "View mode").
* Dev-C++ now traps access violation of your programs (and of itself
;)
Version 4.9.5.1
* Implemented the "File/Export/Project to HTML" function.
* Added "Tip of the day" system.
* When running a source file in explorer, don't spawn new instance.
 Instead open the file in an already launched Dev-C++.
* Class-parser speed-up (50% to 85% improvement timed!!!)
* Many code-completion updates. Now takes into account context,
 class inheritance and visibility (shows items only from files
  #included directly or indirectly)!
* Caching of result set of code-completion for speed-up.
* New option "Execution/Parameters" (and "Debug/Parameters").
Version 4.9.5.0 (5.0 beta 5):
* CPU Window (still in development)
* ToDo list
* Backtrace in debugging
* Run to cursor
* Folders in Project and Class Browser
* Send custom commands to GDB
* Makefile can now be customized.
* Modified the behaviour of the -c param :=20
 -c <config file directory>
* Saving of custom syntax parameter group
* Possibility of changing compilers and tools filename.
* Many bug fixes
Version 4.9.4.1 (5.0 beta 4.1):
* back to gcc 2.95.3
* Profiling support
* new update/packages checker (vUpdate)
* Lots of bugfixes
```

	*******	End ********	*****	

End – Incident-05 ************************************	
	15