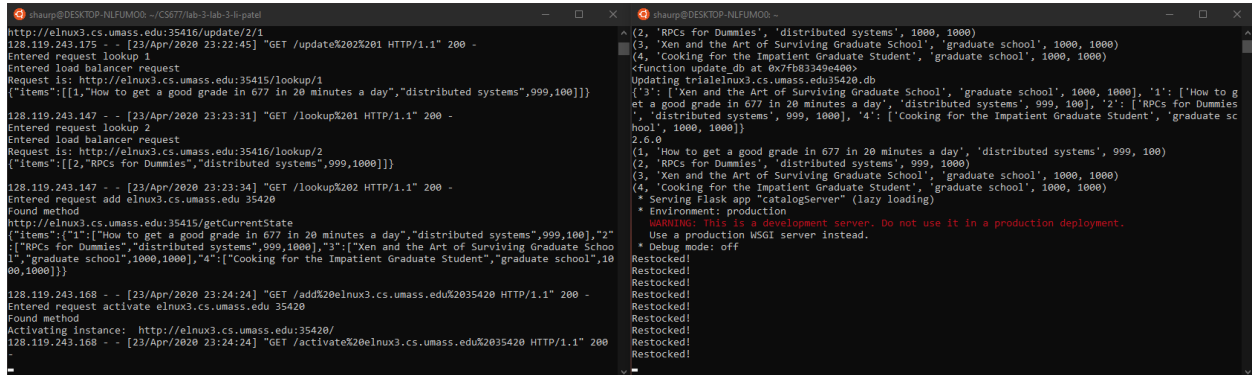


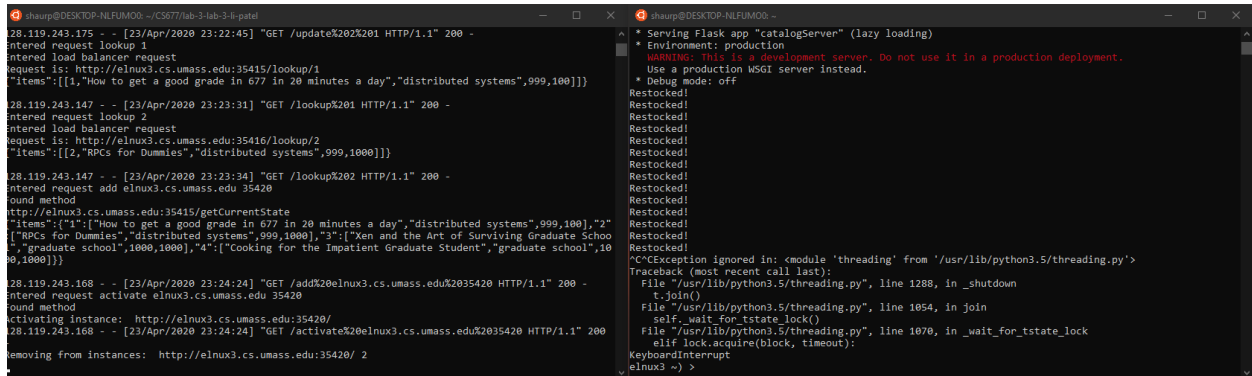
Fault Tolerance and recovery outputs

1. Server being registered on the catalog load balancer. The output for adding instance is visible on the left.



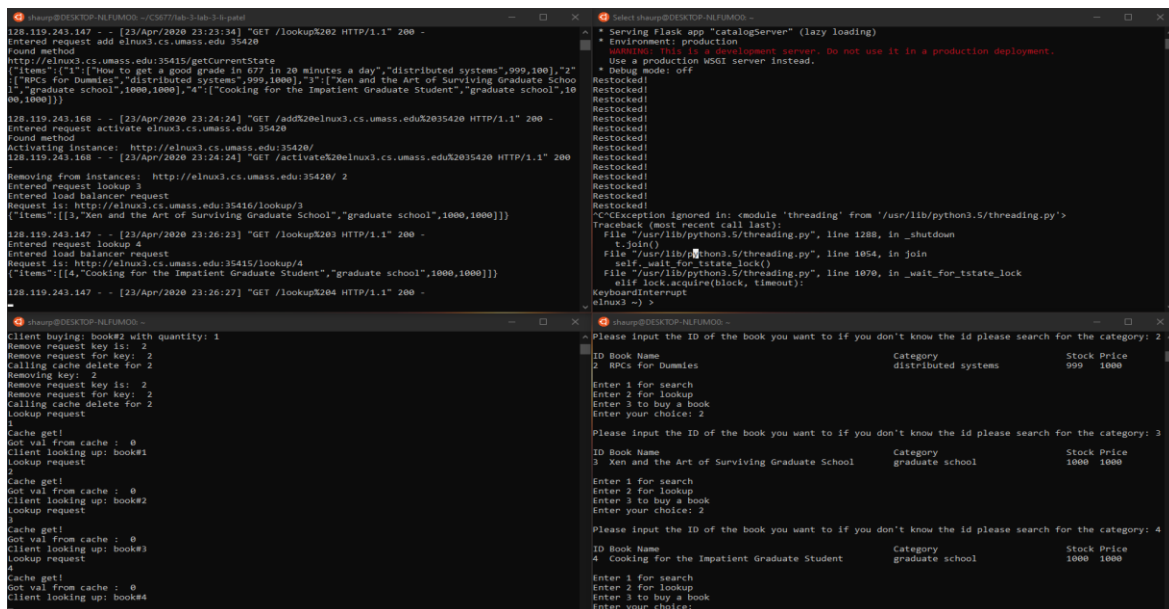
The image shows two terminal windows. The left window displays the output of a load balancer, showing requests for 'lookup' and 'add' operations. The right window shows the output of a server, displaying the 'catalogServer' app and its environment configuration. The server output includes a warning: 'WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.' and a message: 'Debug mode: off'.

2. Killing the instance on the right and the load balancer deregisters it. The heartbeat working can be seen in the logs on the left.



The image shows two terminal windows. The left window displays the output of a load balancer, showing requests for 'lookup' and 'add' operations. The right window shows the output of a server, displaying the 'catalogServer' app and its environment configuration. The server output includes a warning: 'WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.' and a message: 'Debug mode: off'.

3. Performing Read requests after the server has crashed. As visible in the image below the load balancer routes requests only to active instances and the client obtains correct results.



The image shows two terminal windows. The left window displays the output of a load balancer, showing requests for 'lookup' and 'add' operations. The right window shows the output of a server, displaying the 'catalogServer' app and its environment configuration. The server output includes a warning: 'WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.' and a message: 'Debug mode: off'.

- [illegible]

- ```
#sh@p@DESKTOP-NLFUM000 ~ % C:\git\lab-3-lab-3-l-patel >
Entered request update 1 20
http://elinux3.cs.umass.edu:35415/update/1/20
http://elinux3.cs.umass.edu:35415/update/1/20
120.119.243.175 - - [23/Apr/2020 23:27:02] "GET /update%201%2020 HTTP/1.1" 200 -
Entered request lookup 4
Entered load balancer request
Request is: http://elinux3.cs.umass.edu:35415/lookup/4
{"Items": [{"4": "Cooking for the Impatient Graduate Student", "graduate school", 1000, 1000}]}
120.119.243.175 - - [23/Apr/2020 23:27:12] "GET /lookup%204 HTTP/1.1" 200 -
Entered request update 4 10
http://elinux3.cs.umass.edu:35415/update/4/10
http://elinux3.cs.umass.edu:35416/update/4/10
120.119.243.175 - - [23/Apr/2020 23:27:12] "GET /update%204%2010 HTTP/1.1" 200 -
Entered request add elinux3.cs.umass.edu 35420
Found method
http://elinux3.cs.umass.edu:35416/getCurrentState
{"Items": [{"1": ["How to get a good grade in 677 in 20 minutes a day", "distributed systems", 999, 100], "2": ["RPCs for Dummies", "distributed systems", 999, 1000], "3": ["Xen and the Art of Surviving Graduate School", "graduate school", 1000, 1000], "4": ["Cooking for the Impatient Graduate Student", "graduate school", 999, 1000]}]}
120.119.243.168 - - [23/Apr/2020 23:27:42] "GET /add%20elinux3.cs.umass.edu%2035420 HTTP/1.1" 200 -
Entered request activate elinux3.cs.umass.edu 35420
Found method
Activating instance: http://elinux3.cs.umass.edu:35420/
120.119.243.168 - - [23/Apr/2020 23:27:42] "GET /activate%20elinux3.cs.umass.edu%2035420 HTTP/1.1" 200 -

#sh@p@DESKTOP-NLFUM000 ~ %
Got val from cache : 0
Client looking up: book#2
lookup request
3
Cache get!
Got val from cache : 0
Client looking up: book#3
lookup request
3
Cache get!
Got val from cache : 0
Client looking up: book#4
Client buying: book#1 with quantity: 20
Remove request key is: 1
Remove request for key: 1
Calling cache delete for 1
Removing key: 1
Remove request key is: 1
Remove request for key: 1
Calling cache delete for 1
Client buying: book#4 with quantity: 10
Remove request key is: 4
Remove request for key: 4
Calling cache delete for 4
Removing key: 4
Remove request key is: 4
Remove request for key: 4
Calling cache delete for 4

#sh@p@DESKTOP-NLFUM000 ~ %
File "/usr/lib/python3.5/threading.py", line 1078, in _wait_for_tstate_lock
 elif lock.acquire(block, timeout):
KeyboardInterrupt
elinux3 ~> python3 lab-3-lab-3-l1-patel/src/catalogServer.py elinux3.cs.umass.edu 35420
Applying hostname and port
Updating hostname and port: elinux3.cs.umass.edu 35420
trial@elinux3.cs.umass.edu$35420.db
2.6.0
(1, 'How to get a good grade in 677 in 20 minutes a day', 'distributed systems', 1000, 100)
(2, 'RPCs for Dummies', 'distributed systems', 1000, 1000)
(3, 'Xen and the Art of Surviving Graduate School', 'graduate school', 1000, 1000)
(4, 'Cooking for the Impatient Graduate Student', 'graduate school', 1000, 1000)
<function update_db at 0x7cffff1eb400>
Updating trial@elinux3.cs.umass.edu35420.db
(1, 'How to get a good grade in 677 in 20 minutes a day', 'distributed systems', 999, 100], '4': ['Cooking for the Impatient Graduate Student', 'graduate school', 990, 1000], '2': ['RPCs for Dummies', 'distributed systems', 999, 1000], '3': ['Xen and the Art of Surviving Graduate School', 'graduate school', 1000, 1000]}]}
2.6.0
(1, 'How to get a good grade in 677 in 20 minutes a day', 'distributed systems', 999, 100)
(2, 'RPCs for Dummies', 'distributed systems', 999, 1000)
(3, 'Xen and the Art of Surviving Graduate School', 'graduate school', 1000, 1000)
(4, 'Cooking for the Impatient Graduate Student', 'graduate school', 990, 1000)
* Serving Flask app "catalogServer" (lazy loading)
* Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
* Debug mode: off

#sh@p@DESKTOP-NLFUM000 ~ %
Enter 1 for search
Enter 2 for lookup
Enter 3 to buy a book
Enter your choice: 3
Please input the ID of the book that you want to buy followed by the quantity if you want to buy more than 1 book (eg. - 1 10): 1 20
Bought book: How to get a good grade in 677 in 20 minutes a day with quantity 20!

Enter 1 for search
Enter 2 for lookup
Enter 3 to buy a book
Enter your choice: 4
Wrong choice entered!
Enter 1 for search
Enter 2 for lookup
Enter 3 to buy a book
Enter your choice: 3
Please input the ID of the book that you want to buy followed by the quantity if you want to buy more than 1 book (eg. - 1 10): 4 10
Bought book: Cooking for the Impatient Graduate Student with quantity 10!

Enter 1 for search
Enter 2 for lookup
Enter 3 to buy a book
Enter your choice:
```

