Here are the steps how I finish Homework 9

1. Start with a pretty bare computer. Start an initial environment test. From the result, I need to install pip3, git , django and application.

```
[Wendys-MacBook-Pro:HW9 Wendy$ python3 env_test_droplets.py
test_000_login (__main__.Test_000_Environment)
Server is present and we can log in. ... ok
test_001_python3 (__main__.Test_000_Environment)
Python 3 is installed. ... ok
test_002_pip3 (__main__.Test_000_Environment)
Pip3 is installed. ... FAIL
test_003_git (__main__.Test_000_Environment)
git is installed. ... FAIL
test_004_django (__main__.Test_000_Environment)
Django is installed. ... ok
test_005_app_installed (__main__.Test_000_Environment)
Test that the application directory and software are present ... FAIL
```

2. Installed Pip3 and print the version number

```
Django installed
[Wendys-MacBook-Pro:HW9 Wendy$ python3 env_set_up.py
Installing pip3.
pip 1.5.6 from /usr/lib/python3/dist-packages (python 3.5)
pip3 is installed
```

3. Installed Git set up and print the version number

```
[Wendys-MacBook-Pro:HW9 Wendy$ python3 env_set_up.py
Installing git.
git version 2.5.0
git is installed
```

4. Installed Django set up and print the version number

```
[Wendys-MacBook-Pro:HW9 Wendy$ python3 env_set_up.py
Installing Django.
Django (1.9)
Django installed
```

5. Installed Application

```
FAILED (failures=3)
[Wendys-MacBook-Pro:HW9 Wendy$ python3 env_set_up.py
Installing application
Application installed
```

6. Directory in server:

```
[root@YingyuWu:~/wendy_workspace# ls
application   chapter_07.zip
```

7. Start the environment test again and make sure everything is installed

```
[Wendys-MacBook-Pro:HW9 Wendy$ python3 env_test_droplets.py
test_000_login (__main__.Test_000_Environment)
Server is present and we can log in. ... ok
test_001_python3 (__main__.Test_000_Environment)
Python 3 is installed. ... ok
test_002_pip3 (__main__.Test_000_Environment)
Pip3 is installed. ... ok
test_003_git (__main__.Test_000_Environment)
git is installed. ... ok
test_004_django (__main__.Test_000_Environment)
Django is installed. ... ok
test_005_app_installed (__main__.Test_000_Environment)
Test that the application directory and software are present ... ok


----------------------------------------------------------------------
Ran 6 tests in 4.877s

OK
```

8. Problem found while try to do functional test (run test.py)
   Error Message: No module named 'selenium'

```
test_006_selenium_installed (__main__.Test_000_Environment)
Test Selenium webdriver is installed ... -------
ERROR:Traceback (most recent call last):
ERROR:File "tests.py", line 2, in <module>
ERROR:from selenium import webdriver
ERROR:ImportError: No module named 'selenium'
ok
```

9. Installed Selenium Webdriver

```
Wendys-MacBook-Pro:HW9 Wendy$ python3 env_set_up.py
Installing Selenium.
Downloading/unpacking selenium
Running setup.py (path:/tmp/pip-build-_o77wxgh/selenium/setup.py) egg_info for p
ackage selenium

Installing collected packages: selenium
Running setup.py install for selenium

Successfully installed selenium
Cleaning up...
Selenium installed
```

10. Run functional test again, another error was found: Firefox is not installed.

```
root@YingyuWu:~/wendy_workspace/application# python3.5 manage.py test functional
_tests/
Creating test database for alias 'default'...
EE
======================================================================
ERROR: test_can_start_a_list_and_retrieve_it_later (functional_tests.tests.NewVi
sitorTest)
----------------------------------------------------------------------
Traceback (most recent call last):
  File "/root/wendy_workspace/application/functional_tests/tests.py", line 8, in
 setUp
    self.browser = webdriver.Firefox()
  File "/usr/local/lib/python3.5/dist-packages/selenium/webdriver/firefox/webdri
ver.py", line 70, in __init__
    self.binary = FirefoxBinary()
  File "/usr/local/lib/python3.5/dist-packages/selenium/webdriver/firefox/firefo
x_binary.py", line 47, in __init__
    self._start_cmd = self._get_firefox_start_cmd()
  File "/usr/local/lib/python3.5/dist-packages/selenium/webdriver/firefox/firefo
x_binary.py", line 159, in _get_firefox_start_cmd
    " Please specify the firefox binary location or install firefox")
RuntimeError: Could not find firefox in your system PATH. Please specify the fir
efox binary location or install firefox
```

11. Installed Firefox and print the version number

```
Wendys-MacBook-Pro:HW9 Wendy$ python3 env_set_up.py
Installing Firefox.
Mozilla Firefox 42.0
Firefox installed
```

12. Run functional test again and a new error came up:
Need to install pyvirtualdisplay.

```
ERROR:raise WebDriverException("The browser appears to have exited "
ERROR:selenium.common.exceptions.WebDriverException: Message: The browser appear
s to have exited before we could connect. If you specified a log_file in the Fir
efoxBinary constructor, check it for details.
```

13. Install pyvirtualdisplay

```
Wendys-MacBook-Pro:HW9 Wendy$ python3 env_set_up.py
Installing pyvirtualdisplay.
Downloading/unpacking pyvirtualdisplay
Downloading PyVirtualDisplay-0.1.5.tar.gz
Running setup.py (path:/tmp/pip-build-we7b9u3i/pyvirtualdisplay/setup.py) egg_info for package pyvirtualdisplay

Downloading/unpacking EasyProcess (from pyvirtualdisplay)
Downloading EasyProcess-0.2.1.tar.gz
Running setup.py (path:/tmp/pip-build-we7b9u3i/EasyProcess/setup.py) egg_info for package EasyProcess
```

```
Successfully installed pyvirtualdisplay EasyProcess
Cleaning up...
pyvirtualdisplay installed
```

14. Run function test, PASS

```
[Wendys-MacBook-Pro:HW9 Wendy$ python3 env_test_droplets.py
Creating test database for alias 'default'...
Destroying test database for alias 'default'...
-------
ERROR:..
ERROR:----------------------------------------------------------------
ERROR:Ran 2 tests in 20.571s
ERROR:
ERROR:OK
```

15.Combination of final test results:

```
Wendys-MacBook-Pro:HW9 Wendy$ python3 env_test_droplets.py
Creating test database for alias 'default'...
Destroying test database for alias 'default'...
-------
ERROR:..
ERROR:----------------------------------------------------------------------
ERROR:Ran 2 tests in 20.571s
ERROR:
ERROR:OK
test_000_login (__main__.Test_000_Environment)
Server is present and we can log in. ... ok
test_001_python3 (__main__.Test_000_Environment)
Python 3 is installed. ... ok
test_002_pip3 (__main__.Test_000_Environment)
Pip3 is installed. ... ok
test_003_git (__main__.Test_000_Environment)
git is installed. ... ok
test_004_django (__main__.Test_000_Environment)
Django is installed. ... ok
test_005_app_installed (__main__.Test_000_Environment)
Test that the application directory and software are present ... ok
test_006_selenium_installed (__main__.Test_000_Environment)
Test Selenium webdriver is installed ...
ok
test_007_django (__main__.Test_000_Environment)
Firefox is installed. ... ok
test_008_function_test (__main__.Test_000_Environment)
Function Test. ... ok


----------------------------------------------------------------------
Ran 9 tests in 7.439s

OK
```