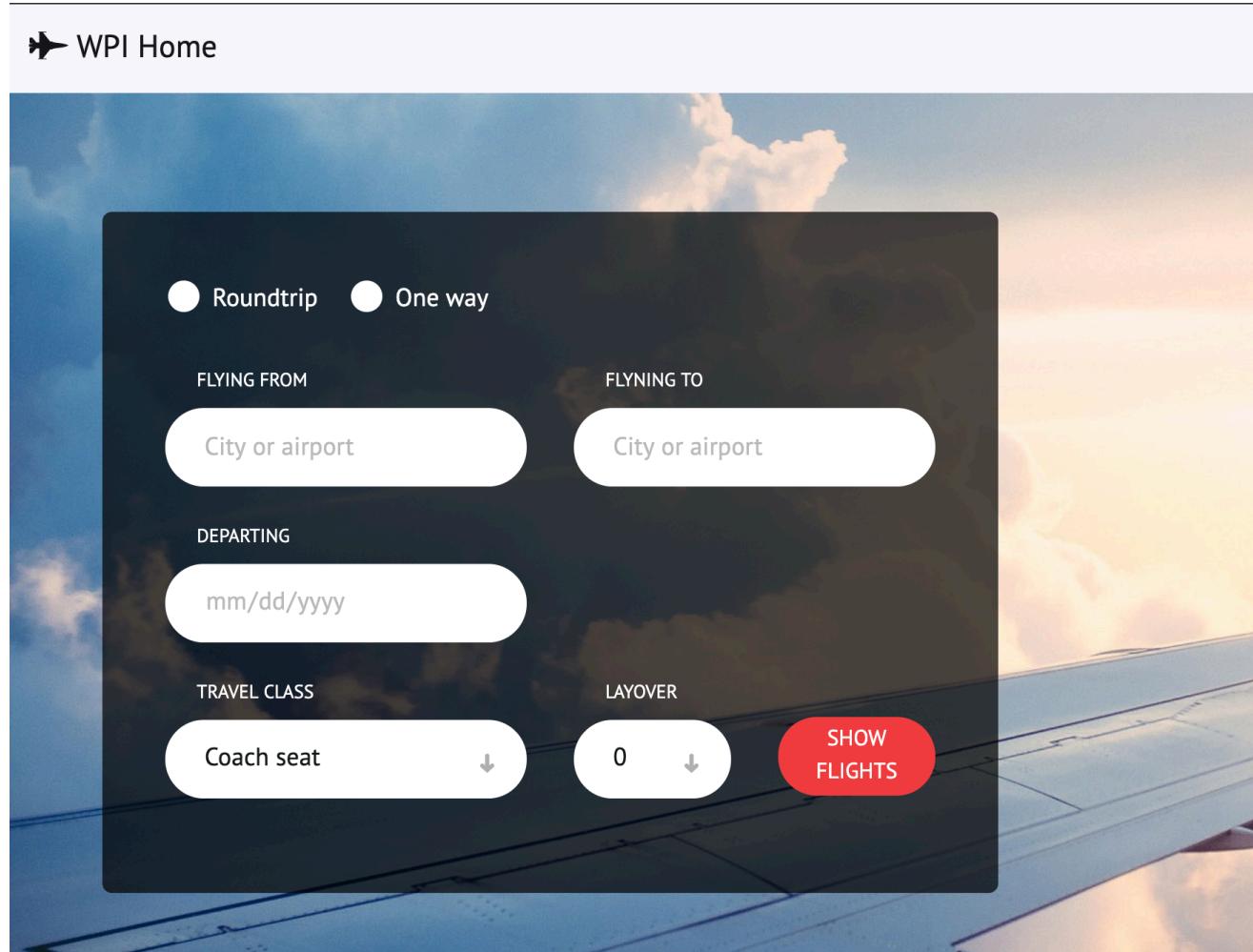


## Verify initiating System

Enter the url of the product website as input, the website (UI) showing in the browser is observed.



## Verify Airports Loading

Verify airports successfully loaded from xml page to the airports class.

A screenshot of a Java IDE showing the test results and log output. The test suite "testDataLoad (jellycat.flights)" has passed 1 of 1 test in 446 ms. The log output shows several DEBUG and INFO messages from the org.springframework.test.context.junit4.SpringJUnit4ClassRunner and org.springframework.boot.test.context.SpringBootTestBootstra classes, indicating the loading and configuration of the application context. The log output is as follows:

## Verify Database lock

Verify that the database can be successfully locked

```
✓ testLockandUnlock (jellycat.flight) 327ms
  ✓ testLock 327ms
    2019-04-22 10:09:08.539 INFO 962 --- [main] jellycat.flight.testLockandUnlock
    2019-04-22 10:09:08.540 INFO 962 --- [main] jellycat.flight.testLockandUnlock
    2019-04-22 10:09:10.284 INFO 962 --- [main] o.s.s.concurrent.ThreadPoolTaskExecu
    2019-04-22 10:09:10.483 INFO 962 --- [main] o.s.b.a.w.s.WelcomePageHandlerMappin
    2019-04-22 10:09:10.596 INFO 962 --- [main] jellycat.flight.testLockandUnlock

      Sending 'POST' to lock database

      Response Code : 202

    2019-04-22 10:09:10.949 INFO 962 --- [Thread-3] o.s.s.concurrent.ThreadPoolTaskExecu
```

## Verify Database unlock

Verify that the database can be successfully unlocked

```
✓ Tests passed: 1 of 1 test – 286 ms
✓ testLockandUnlock (jellycat.flight) 286ms
  ✓ testUnLock 286ms
    2019-04-22 10:09:47.414 INFO 966 --- [main] jellycat.flight.testLockandUnlock
    2019-04-22 10:09:47.415 INFO 966 --- [main] jellycat.flight.testLockandUnlock
    2019-04-22 10:09:49.241 INFO 966 --- [main] o.s.s.concurrent.ThreadPoolTaskExecu
    2019-04-22 10:09:49.448 INFO 966 --- [main] o.s.b.a.w.s.WelcomePageHandlerMappin
    2019-04-22 10:09:49.559 INFO 966 --- [main] jellycat.flight.testLockandUnlock

      Sending 'POST' to unlock database

      Response Code : 202

    2019-04-22 10:09:49.867 INFO 966 --- [Thread-3] o.s.s.concurrent.ThreadPoolTaskExecu
```

## Verify Airplanes Loading

Verify Airplanes successfully loaded from xml page to the Airplanes class.

```
✓ Tests passed: 1 of 1 test – 409 ms
✓ testDataLoad (jellycat.flight) 409ms
  ✓ testAirplaneLoad 409ms
    09:59:02.375 [main] DEBUG org.springframework.test.context.junit4.SpringJUnit4ClassRunner - 
    09:59:02.380 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Ca
    09:59:02.389 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Bo
    09:59:02.412 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Te
    09:59:02.428 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra
    09:59:02.432 [main] DEBUG org.springframework.test.context.support.AbstractContextLoader - D
    09:59:02.433 [main] DEBUG org.springframework.test.context.support.AbstractContextLoader - D
    09:59:02.433 [main] INFO org.springframework.test.context.support.AbstractContextLoader - Co
    09:59:02.434 [main] INFO org.springframework.test.context.support.AnnotationConfigContextLoa
    09:59:02.490 [main] DEBUG org.springframework.test.context.support.ActiveProfilesUtils - Cou
    09:59:02.612 [main] DEBUG org.springframework.context.annotation.ClassPathScanningCandidate
    09:59:02.617 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra
```

## Verify trips searching

Given a set of legal parameters, the trips are returned as supposed.

```

Run: timeTest.transferTime < Tests passed: 1 of 1 test - 211 ms
/ Library / Java / JavaVirtualMachines / jdk1.8.0_144.jdk / Contents / Home / bin / java ... <1 internal ca
  ✓ testTravelSearch (jellycat 12 s 950 ms)
    ✓ testSearch 12 s 950 ms
10:27:50.855 [main] DEBUG org.springframework.test.context.junit4.SpringJUnit4ClassRunner - Instantiating Ca...
10:27:50.860 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Ca...
10:27:50.870 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Bo...
10:27:50.884 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Te...
10:27:50.906 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra...
10:27:50.909 [main] DEBUG org.springframework.test.context.support.AbstractContextLoader - D...
10:27:50.910 [main] DEBUG org.springframework.test.context.support.AbstractContextLoader - D...
10:27:50.910 [main] INFO org.springframework.test.context.support.AbstractContextLoader - Co...
10:27:50.910 [main] INFO org.springframework.test.context.support.AnnotationConfigContextLo...
10:27:50.957 [main] DEBUG org.springframework.test.context.support.ActiveProfilesUtils - Cou...
10:27:51.069 [main] DEBUG org.springframework.context.annotation.ClassPathScanningCandidateC...
10:27:51.072 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra...
10:27:51.168 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstra...
10:27:51.168 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra...
10:27:51.179 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstra...
10:27:51.180 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstra...

```

## Verify Time Transforming

*Given an airport code and a GMT time, assert the transformed time is the same as the local time, if yes, it passes the test.*

```

Run: timeTest.transferTime < Tests passed: 1 of 1 test - 211 ms
/ Library / Java / JavaVirtualMachines / jdk1.8.0_144.jdk / Contents / Home / bin / java ... <1 internal ca
  ✓ timeTest (jellycat.flight)
    ✓ transferTime 211 ms
02:17:56.987 [main] DEBUG org.springframework.test.context.junit4.SpringJUnit4ClassRunner - Instantiating Ca...
02:17:56.993 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Ca...
02:17:57.003 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Bo...
02:17:57.029 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Te...
02:17:57.040 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra...
02:17:57.044 [main] DEBUG org.springframework.test.context.support.AbstractContextLoader - D...
02:17:57.044 [main] DEBUG org.springframework.test.context.support.AbstractContextLoader - D...
02:17:57.044 [main] INFO org.springframework.test.context.support.AbstractContextLoader - Co...
02:17:57.045 [main] INFO org.springframework.test.context.support.AnnotationConfigContextLo...
02:17:57.093 [main] DEBUG org.springframework.test.context.support.ActiveProfilesUtils - Cou...
02:17:57.202 [main] DEBUG org.springframework.context.annotation.ClassPathScanningCandidateC...
02:17:57.203 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra...
02:17:57.289 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstra...
02:17:57.290 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra...
02:17:57.302 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstra...
02:17:57.306 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstra...
02:17:57.306 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra...
02:17:57.308 [main] DEBUG org.springframework.test.annotation.ProfileValueUtils - Retrieved ...
02:17:57.308 [main] DEBUG org.springframework.test.annotation.ProfileValueUtils - Retrieved ...
02:17:57.318 [main] DEBUG org.springframework.test.annotation.ProfileValueUtils - Retrieved ...
02:17:57.319 [main] DEBUG org.springframework.test.annotation.ProfileValueUtils - Retrieved ...
02:17:57.319 [main] DEBUG org.springframework.test.annotation.ProfileValueUtils - Retrieved ...
02:17:57.319 [main] DEBUG org.springframework.test.annotation.ProfileValueUtils - Retrieved ...
02:17:57.323 [main] DEBUG org.springframework.test.context.support.AbstractDirtiesContextTes...
02:17:57.324 [main] DEBUG org.springframework.test.annotation.ProfileValueUtils - Retrieved ...
02:17:57.324 [main] DEBUG org.springframework.test.annotation.ProfileValueUtils - Retrieved ...
02:17:57.340 [main] DEBUG org.springframework.test.context.support.TestPropertySourceUtils - ...

```

## Verify sorting trips

*Given a list of trips with the same departure, arrival airport code and departure date, a flag of which it wants to sort (price, departure date, arrival date), it should return a sorted list as supposed.*

### Result after searching

## All To Go Trips

Depart Time◆

Arrival Time◆

Legs◆

Price◆

Travel Time◆

BOS 2019-05-05 05:45 MEM 2019-05-05 08:27  
MEM 2019-05-05 09:47 BWI 2019-05-05 12:51

2

88.979996

426

Select

CoachSeat

BOS 2019-05-05 06:23 MEM 2019-05-05 08:00  
MEM 2019-05-05 09:47 BWI 2019-05-05 12:51

2

106.59

388

Select

CoachSeat

BOS 2019-05-05 22:31 LGA 2019-05-05 23:01  
LGA 2019-05-06 00:26 BWI 2019-05-06 00:58

2

37.91

147

Select

CoachSeat

Trip Details

Legs

Total Price

Travel Time

Select

### Sort by price(Ascending)

## All To Go Trips

Depart Time◆

Arrival Time◆

Legs◆

Price◆

Travel Time◆

BOS 2019-05-05 22:31 LGA 2019-05-05 23:01  
LGA 2019-05-06 00:26 BWI 2019-05-06 00:58

2

37.91

147

Select

CoachSeat

BOS 2019-05-05 05:45 MEM 2019-05-05 08:27  
MEM 2019-05-05 09:47 BWI 2019-05-05 12:51

2

88.979996

426

Select

CoachSeat

BOS 2019-05-05 06:23 MEM 2019-05-05 08:00  
MEM 2019-05-05 09:47 BWI 2019-05-05 12:51

2

106.59

388

Select

CoachSeat

Trip Details

Legs

Total Price

Travel Time

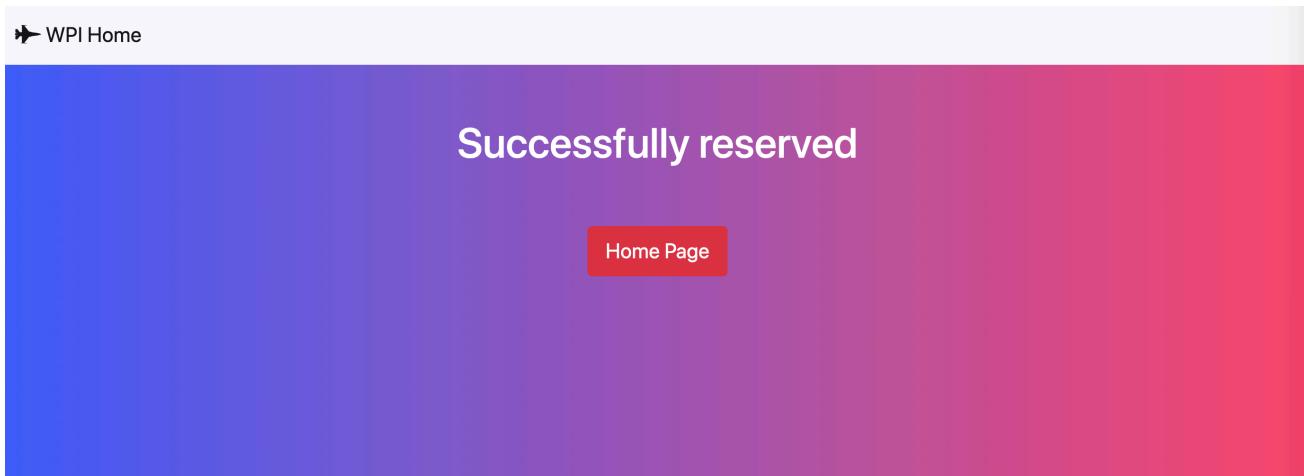
Select

### Sort by travel time(Ascending)

All To Go Trips				
Depart Time◆	Arrival Time◆	Legs◆	Price◆	Travel Time◆
BOS 2019-05-05 22:31 LGA 2019-05-05 23:01 LGA 2019-05-06 00:26 BWI 2019-05-06 00:58	2	37.91	147	Select
CoachSeat				
BOS 2019-05-05 06:23 MEM 2019-05-05 08:00 MEM 2019-05-05 09:47 BWI 2019-05-05 12:51	2	106.59	388	Select
CoachSeat				
BOS 2019-05-05 05:45 MEM 2019-05-05 08:27 MEM 2019-05-05 09:47 BWI 2019-05-05 12:51	2	88.9799996	426	Select
CoachSeat				
<b>Trip Details</b>	<b>Legs</b>	<b>Total Price</b>	<b>Travel Time</b>	<b>Select</b>

## Verify after reserving

When the trip is successfully reserved, return the page of successful reserve.



## Verify error processing for no available trips

Given a set of parameters of trip we have identified there is no trip for it in the DB server, if it shows no available flights message, then it passes the test.

 WPI Home

Departing Trips	All To Go Trips			
<a href="#">Returning Trips</a>	<b>Sorry, No available flights, please return to the home page and search again!</b>			
<a href="#">Submit</a>	<a href="#">Depart Time</a> <a href="#">Arrival Time</a> <a href="#">Legs</a> <a href="#">Price</a> <a href="#">Travel Time</a>			
Trip Details	Legs	Total Price	Travel Time	Select

# Verifying response time

*Given a set of legal parameters, record the time it uses to get the list of trips. If the response time less than 20sec, it passes the test.*

```
✓ Tests passed: 1 of 1 test - 4 s 388 ms
testResponseTime (jellyca 4 s 388 ms)
  ✓ testSearchResponseTime 4 s 388 ms

/Library/Java/JavaVirtualMachines/jdk1.8.0_144.jdk/Contents/Home/bin/java ... <1 internal ca
15:42:29.103 [main] DEBUG org.springframework.test.context.junit4.SpringJUnit4ClassRunner -
15:42:29.110 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Ca
15:42:29.119 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Bo
15:42:29.141 [main] DEBUG org.springframework.test.context.BootstrapUtils - Instantiating Te
15:42:29.158 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra
15:42:29.161 [main] DEBUG org.springframework.test.context.support.AbstractContextLoader - D
15:42:29.162 [main] DEBUG org.springframework.test.context.support.AbstractContextLoader - D
15:42:29.162 [main] INFO org.springframework.test.context.support.AbstractContextLoader - Co
15:42:29.163 [main] INFO org.springframework.test.context.support.AnnotationConfigContextLoa
15:42:29.212 [main] DEBUG org.springframework.test.context.support.ActiveProfilesUtils - Cou
15:42:29.316 [main] DEBUG org.springframework.context.annotation.ClassPathScanningCandidateC
15:42:29.318 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstra
15:42:29.417 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstr
15:42:29.417 [main] INFO org.springframework.boot.test.context.SpringBootTestBootstr
15:42:29.427 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstr
15:42:29.427 [main] DEBUG org.springframework.boot.test.context.SpringBootTestBootstr
```

# Verifying Java Programming

*Peek the source code, if the code can be compiled and running by jvm, it passes the test.*

By observation, the program is written in Java.

# Verifying platform independently

In different PCs, use a same legal trip parameter set to reserve a trip and record the time. If the times difference among them are less than 10sec, it passes the test.

**Response time in PC1 is 4**

```
Tests passed: 1 of 1 test - 4 s 392 ms
testResponseTime (jellyca 4s 392 ms) :: Spring Boot :: (v2.1.3.RELEASE)
2019-04-22 18:17:47.308 INFO 1895 --- [main] jellycat.flight.testResponseTime
2019-04-22 18:17:47.310 DEBUG 1895 --- [main] jellycat.flight.testResponseTime
2019-04-22 18:17:47.310 INFO 1895 --- [main] jellycat.flight.testResponseTime
2019-04-22 18:17:49.692 INFO 1895 --- [main] jellycat.flight.testResponseTime
4
```

Response time in PC1 is 6

```
Tests passed: 1 of 1 test - 6 s 799 ms
testResponseTime (jellyca 6s 799 ms) :: Spring Boot :: (v2.1.3.RELEASE)
2019-04-22 18:19:55.404 INFO 1907 --- [main] jellycat.flight.testResponseTime
2019-04-22 18:19:55.408 DEBUG 1907 --- [main] jellycat.flight.testResponseTime
2019-04-22 18:19:55.408 INFO 1907 --- [main] jellycat.flight.testResponseTime
2019-04-22 18:19:57.805 INFO 1907 --- [main] jellycat.flight.testResponseTime
6
```

## Verifying fixing and extending ability

If the code is able to extend (inheritance, interface...), it passes the test.

By peer review, the code is able to further extend.