

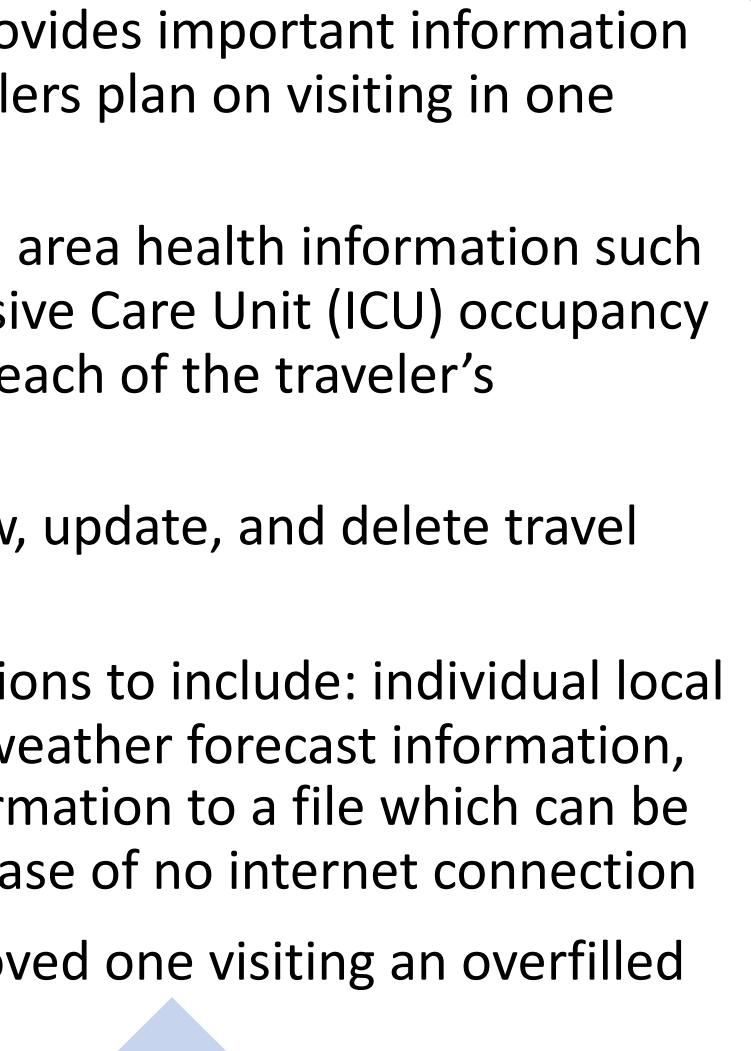
# MyPlaces Tracker

*an innovative, data-driven Java application*

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Enterprise Java Fall 2021



# Solution to Real World Problem

- A travel logistic site that provides important information about the places that travelers plan on visiting in one location
  - Retrieves and displays local area health information such as collective hospital Intensive Care Unit (ICU) occupancy and the covid risk level for each of the traveler's destinations in a trip
  - Enables users to write, view, update, and delete travel notes
  - Functionality in future versions to include: individual local hospital ICU occupancies, weather forecast information, and the ability to save information to a file which can be printed or viewed later in case of no internet connection
  - Motivation for this topic: loved one visiting an overfilled ICU within the last year
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# Technologies

Technology	Implementation
Language	Java
Integrated Development Environment (IDE)	IntelliJ IDEA
Dependency Management	Maven
ORM Framework	Hibernate
Unit Testing	JUnit 5 with 80%+ code coverage
Database	MySql 8.0.16
Security and Authentication	Amazon Web Services (AWS) Cognito
CSS	Materialize
Data Validation	Hibernate Validator
Hosting	AWS
Independent Research	AWS Code Pipeline
Web Services consumed using Java	SmartyStreets, Covid Act Now, Google Maps and NOAA (future version)

# New User Registration and Login

## MyPlaces Tracker

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LOG IN

Sign in with your username and password

Username

Password

[Forgot your password?](#)

Sign in

Need an account? [Sign up](#)

## MyPlaces Tracker

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Welcome jilltest

VIEW TRIPS

# RESTful APIs Consumed with Java

- smartystreets: <https://www.smartystreets.com/products/apis/us-zipcode-api>
- U.S. COVID Risk & Vaccine Tracker: <https://covidactnow.org/>

# About - Location Risk Level and ICU Capacity Used

Our COVID risk level looks at three things: daily new cases (per 100K), infection rate, and positive test rate. Each is graded on a five-color scale and the highest risk color becomes the location's overall risk level. The one exception is that if a location's daily new cases is green, then its overall risk level is green.

We developed our risk framework in partnership with the Harvard Global Health Institute and Harvard Edmond J. Safra Center for Ethics. As there is not a standardized framework for risk in the U.S., it may not match your state or county's risk level.

[Learn more about COVID risk levels.](#)

## ICU capacity used ×

ICU capacity used is the percentage of staffed intensive care unit (ICU) beds in a location's healthcare system that are currently in use by both COVID and non-COVID patients.

Experts indicate that during pre-pandemic years, average ICU occupancy in U.S. hospitals ranged from 57% to 82%.

### Data source

Our data for ICU capacity used in Miami-Fort Lauderdale-Pompano Beach comes from [HHS Protect](#).

### How it's calculated

ICU capacity used is the number of staffed ICU beds that are occupied (by both COVID and non-COVID patients), divided by the total number of staffed ICU beds.

# MVP

Full CRUD of data – Travel Note  
Partial CRUD – Trip and Destination

## My Trips

**Trip Name**

Fall Colour Tour

VIEW

Winter Break

VIEW

ADD TRIP

# CRUD (continued)

## Fall Colour Tour

### Destinations

Show entries

Search:

City	State	Zip Code	County Fips Code	Nearby Hospital ICU Capacity Used*	County Covid Risk Level Low, Med, High, Very High, or Severe
Aspen	CO	81611	08097	32%	high
Lansing	MI	48901	26065	90%	very high
Madison	WI	53701	55025	95%	high
Munising	MI	49862	26003	N/A	N/A
Negaunee	MI	49866	26103	93%	very high

Showing 1 to 5 of 5 entries

Previous

1

Next

\* Displays the Percent Occupied or N/A (data is not available)

REFRESH



# CRUD (continued)

## Travel Notes

Note Name	Note Description	
ABC Hotel	2021 Fall Colour Tour St.	EDIT
Travel Guide	Henry - 203-203-2938	EDIT

ADD DESTINATION

ADD TRAVEL NOTE

VIEW TRIPS

## Edit Note

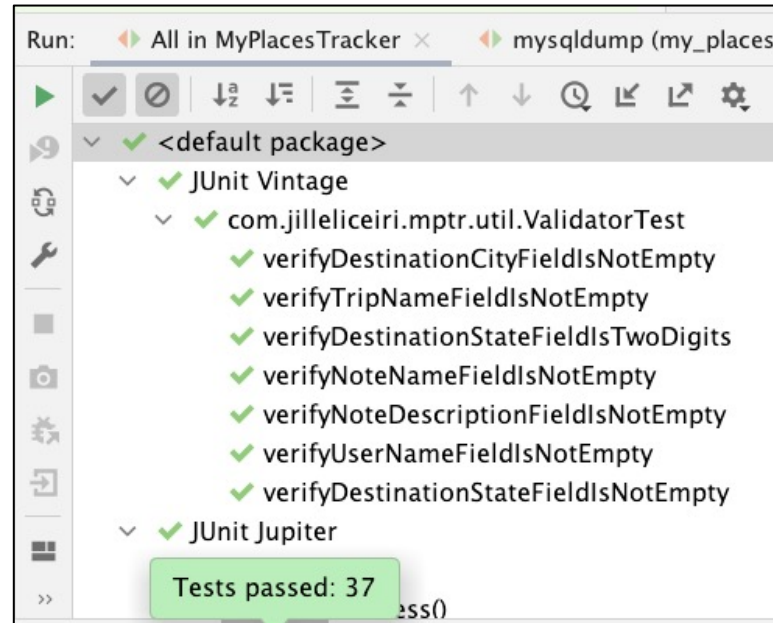
ABC Hotel

2021 Fall Colour Tour St.

UPDATE

DELETE

# Code Coverage and Tests



Coverage: All in MyPlacesTracker

100% classes, 85% lines covered in package 'com.jilleliceiri.mp.tr.persistence'

Element	Class, %	Method, %	Line, %
CovidDao	100% (1/1)	100% (3/3)	72% (16/22)
GenericDao	100% (1/1)	100% (8/8)	95% (39/41)
SessionFactoryProvider	100% (1/1)	100% (2/2)	100% (8/8)
SmartyStreetsDao	100% (1/1)	100% (3/3)	75% (18/24)

# Data Validation

- Backend Hibernate Validator
- Frontend Materialize class="validate" required

## Add Note

Note Name

Description

ADD NOTE

description: must not be empty

name: must not be empty

ADD DESTINATION

state: must be two digits

## Add Destination

City

State (Two-Digit Code)

ADD DESTINATION

Fill out this field

# Error Handling

- Handle exceptions and display error messages in the same jsp or to an error.jsp

ADD DESTINATION

Something went wrong please try again

*Uh oh! Something went wrong.*

Return to the [home page](#)

# Logging

- Log4j2 Framework



```
[DEBUG] 2021-12-03 16:51:16.758 [http-nio-8080-exec-8] GenericDao - saveOrUpdate(): Destination{id=53,
```

# New technologies learned outside of class

- Hibernate Validator
- Materialize front-end framework
- Amazon CodePipeline and Codebuild
  - successfully implemented and demonstrated to class with a simple maven web app. Implementation with this project is work in progress.

# Future Improvements

- Location API
- Weather forecast
- Individual hospital capacity
- Save to file on device
- Share with a friend
- Travelers choose which Destination fields are important to them

# References

- [https://docs.jboss.org/hibernate/stable/validator/reference/en-US/html\\_single/#preface](https://docs.jboss.org/hibernate/stable/validator/reference/en-US/html_single/#preface)
- <https://materializecss.com/>
- <https://docs.aws.amazon.com/codebuild/latest/userguide/sample-elastic-beanstalk.html>
- <http://paulawaite.com/education/java113/index.html>