**House Price**

**Reprice**

**Test Procedure**

**Revision History**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Authors** | **Description of Change** | **Sections** | **Rev** | **Date** |
| Mohammad H., Kunal M., and Don F. | Initial Release | All | 0 | April 20, 2019 |
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# Team Description

|  |  |
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# Introduction

The following document details the steps taken to test each of the requirements proposed in written document. The tests are broken into three major partitions: 1) Interface , 2) Data Management, and 3) Predictors.

## Identification

|  |  |
| --- | --- |
| **Requirement Document Tested:** | Reprice Written Requirement |
| **Requirement Document Revision:** | 1 |
| **Revision Release Date:** | April 24 |

# Test Procedures

## Test Case 1

Description:

This section details the specific tests done on the User Interface to test for accuracy and usability. The tests will be done on the User input and the system output.

Precondition:

1) User input is semantically correct and fits a predictable value

2) User fills out all fields of the form on the ‘homepage’

3) User must pick from drop down autocomplete menus

|  |  |  |  |
| --- | --- | --- | --- |
| **Step Number** | **Action** | **System Response** | **Requirement Tested**  **(if applicable)** |
| 1 | User Inputs search data in form fields and clicks the submit button | System ‘gets’ form data form the front-end and sends it to the back end | RID-7001,7002,7003 |
| 2 | Backend receives data from the front-end, stores it and sends it to the predictor model for calculation. | System stores results of the calculation into a separate variable | RID-7001,7002,7003 |
| 3 | System sends result to the front-end | System displays result on the ‘results.html’ page | RID-7002,7003,7004 |
| 4 | User can click the back button from the results page | System redirects to the ‘homepage’ and resets the form data so new inputs can be added. | RID- 7004 |

## Test Case 2

Description:

This section details the steps taken to test the chain of models and their prediction quality. These tests include single level tests and aggregated tests and checking the entire stack of models and their interaction with one another.

Note that the train-test phase development indicated that all the proposed models are capable of recalling and predicting values with a maximum error of $3.0. Thus, *Etrain\_max*=*Etest\_max*= 3.0.

Precondition:

1) The model should be loaded from memory successfully to perform the test

2) The sample test used for model testing should be reasonably large and representative.

|  |  |  |  |
| --- | --- | --- | --- |
| **Step Number** | **Action** | **System Response** | **Requirement Tested**  **(if applicable)** |
| 1 | Draw a random sample of size 1000 from each of the levels including state, county, city, and neighborhood | None. Background action to generate a fair input. | None |
| 2 | Pass the respective data to state level predictor | The model returns a vector of predictions for each input | RID-3001, RID-3002 |
| 3 | Pass the respective data to county level predictor | The model returns a vector of predictions for each input | RID-4001, RID-4002 |
| 4 | Pass the respective data to city level predictor | The model returns a vector of predictions for each input | RID-5001, RID-002 |
| 5 | Pass the respective data to neighborhood level predictor | The model returns a vector of predictions for each input | RID-6001, RID-6002 |
| 6 | Pass the respective data to predictor class to check the aggregated set of models integrated | The model returns a vector of predictions for each input | RID-2002, RID-2003 |
| 7 | Call the data manager to retrieve the most recent values from Zillow’s website | The data manager returns a Pandas data frame with the past three months values for the requested level | RID-2001 |

## Test Case 3

Description: Tests dataset correct retrieved and limited to newest three months data. Dataset correctly return the value when specific request made.

Precondition:

1) Zillow’s data-base still available to access

|  |  |  |  |
| --- | --- | --- | --- |
| **Step Number** | **Action** | **System Response** | **Requirement Tested**  **(if applicable)** |
| 1 | Run data manager each week | Retrieve newest data from Zillow, if action fail return error message. | RID-1001, RID-1002 |
| 2 | Call the data manager, given an input | Return the past three months value for the requested level, or there is no matched data return error message | RID-1003 |
| 3 | Call the data manager, given m, | Return the vector of past m true observations | RID-1004 |

# Verification Cross Reference Matrix

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| --- | --- |
| **Requirement Identifier** | **Where Tested** |
| RID-7001 | User Interface Test |
| RID-7002 | User Interface Test |
| RID-7003 | User Interface Test |
| RID-7004 | User Interface Test |
| RID-2001 | Predictor Test |
| RID-2002 | Predictor Test |
| RID-2003 | Predictor Test |
| RID-2004 | Predictor Test |
| RID-3001 | Predictor Test |
| RID-3002 | Predictor Test |
| RID-4001 | Predictor Test |
| RID-4002 | Predictor Test |
| RID-5001 | Predictor Test |
| RID-5002 | Predictor Test |
| RID-6001 | Predictor Test |
| RID-6002 | Predictor Test |
| RID-1001 | Dataset Test |
| RID-1002 | Dataset Test |
| RID-1003 | Dataset Test |
| RID-1004 | Dataset Test |