# Testing for PAB

The Bullpen

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## Testing Overview

* Types of Testing
  + Unit Testing
    - Utilize unit testing to ensure individual parts, functions, and methods of the project work in the intended way.
  + Integration Testing
    - Utilize integration testing to ensure communication between different components (model, server, application).
* Tools Used
  + Postman
    - Used for server test cases to easily send HTTP requests to test server endpoints and logic

## Test Cases

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Case ID | Part(s) Tested | Description | Input Data | Expected Result | Actual Result | Status |
| TC-01 | Server | Add a pitch entry | {      "pitcherHandedness": "right",      "batterHandedness": "right",      "pitchType": "fastball",      "velocity": 95,      "horizontalBreak": -0.5,      "verticalBreak": 1.5,      "zone": 5,      "balls": 1,      "strikes": 1  } | Data saved to PitchEntries table; valid response. | Data saved successfully; returned correct response. | Pass |
| TC-02 | Server | Invalid pitch entry (missing velocity) | {      "pitcherHandedness": "right",      "batterHandedness": "right",      "pitchType": "fastball",      "horizontalBreak": -0.5,      "verticalBreak": 1.5,      "zone": 5,      "balls": 1,      "strikes": 1  } | Error message indicating missing velocity. | Error returned: 415; upsupported media type, no response showing missing parameter. | Fail |
| TC-03 | Server | Pull history from Predictions table | N/A | Data pulled from Predictions table; valid response. | Data received successfully; correct response. | Pass |
| TC-04 | Application | Strike zone input selection | Select middle zone(5) for the zone input | Selection is acknowledged; valid response. | Selection received successfully; valid response. | Pass |
| TC-05 | Application | Missing strike zone input | Do not select any zone for input | Error message indicating missing selection | Error returned | Pass |
| TC-06 | Application | Input validation done with RegEx | Pitcher Handedness: Right  Batter Handedness: Right  Pitch Type: ‘slider’  Velocity: 89  Horizontal Break: 1.7  Vertical Break: 0.1  Balls: 1  Strikes: 1  Zone: middle | Input recognized; valid response | Input received; correct response | Pass |
| TC-07 | Application  Server | User input is sent to server and is acknowledged | Pitcher Handedness: Right  Batter Handedness: Right  Pitch Type: ‘sinker’  Velocity: 93  Horizontal Break: -1  Vertical Break: 0.5  Balls: 1  Strikes: 1  Zone: middle | Input is sent and server acknowledges input; valid response | Input was sent correctly; server received input data; both correct responses | Pass |
| TC-08 | Model | Model creates predictions given pitch data | Pitcher Handedness: Right  Batter Handedness: Right  Pitch Type: ‘curveball’  Velocity: 82  Horizontal Break: 0.5  Vertical Break: -3  Balls: 1  Strikes: 1  Zone: middle | Model uses input and sends back valid prediction results; valid response | Model receives input and creates correct prediction results; correct response | Pass |
| TC-09 | Model  Server | Model receives pitch input from server | Pitcher Handedness: Right  Batter Handedness: Right  Pitch Type: ‘cutter’  Velocity: 92  Horizontal Break: 0.5  Vertical Break: 0.8  Balls: 1  Strikes: 1  Zone: middle | Model receives data from server; valid response | Model receives pitch input and sends back results to server; correct response | Pass |
| TC-10 | Application  Model  Server | Create full pitch input and result using all components | Pitcher Handedness: Right  Batter Handedness: Right  Pitch Type: ‘changeup’  Velocity: 88  Horizontal Break: -1  Vertical Break: 0.8  Balls: 1  Strikes: 1  Zone: middle | Pitch input sent to server, model created prediction result, result is sent back to application and displayed. | Pitch input was sent and received by server, model creates prediction results using input, results are sent back and displayed on application | Pass |
| TC-11 | Application  Server | Pull history from database and display it with history panel. | N/A | Prediction entries are shown on the side panel. | Prediction entries are seen with the history panel. | Pass |
| TC-12 | Application | Displaying pitch prediction data using history panel. | Click on Entry 3 | Prediction information is shown with a separate window. | Prediction information is displayed when entry is pressed. | Pass |
| TC-13 | Application | Spelling validation for Pitch Type input. | Pitcher Handedness: Right  Batter Handedness: Right  Pitch Type: ‘cahngeup’  Velocity: 88  Horizontal Break: -1  Vertical Break: 0.8  Balls: 1  Strikes: 1  Zone: middle | Application will send an error that the pitch type is spelt wrong, pitch input is not sent to the server. | Input is received and was sent to server, no errors shown. | Fail |

# Test Results

|  |  |  |  |
| --- | --- | --- | --- |
| Part Tested | Total Tests | Passed Tests | Failed Tests |
| Application | 8 | 7 | 1 |
| Server | 7 | 6 | 1 |
| Model | 3 | 3 | 0 |

# Known Issues

* Issue: Server does not check JSON requests for missing parameters.
  + Reason: No request validation.
  + Resolution: Implement some sort of validation that will ensure every parameter is received.
* Issue: Application allows any string for to be inputted into the Pitch Type field.
  + Reason: No spelling input validation.
  + Resolution: Implement a drop-down box to choose pitch type or spell check for input.

# Documentation

* Documentation is stored under headings. Please open up heading to view documentation.

### TC-01

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### TC-02

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### TC-03

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### TC-04

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### TC-05

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### TC-06

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### TC-07

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### TC-08

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### TC-10

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### TC-11

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