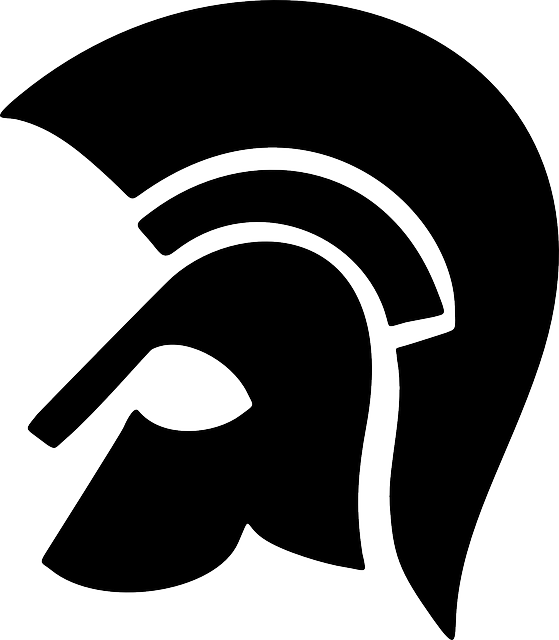
MATHENIAN

Use Case Model

Yee Studios



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Responsible Analyst: Junmin Yee

Date: October 20, 2019

Email: junmin.yee@oit.edu

Release #: 1

# Signatory Page

This document is accepted by:



This document is submitted by:



# Revision History

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Author | Company | Version | Date | Filename | Comments |
| Yee | Yee Studios | v0.1 | 10/20/2019 | Use Case Model.docx | Initial creation of document |
| Yee | Yee Studios | v0.2 | 10/21/2019 | Use Case Model.docx | Update table of contents page numbers |
| Yee | Yee Studios | v0.3 | 11/10/2019 | Use Case Model.docx | Update CRUD matrix with classes |
| Yee | Yee Studios | v0.4 | 12/08/2019 | Use Case Model.docx | Add scenario/sequence diagrams |

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# 1. Context Diagram



# 2. Use Case Catalog

|  |  |  |
| --- | --- | --- |
| Use Case ID | Use Case Name | Description |
| 01 | Create Account | Create a user account |
| 02 | Sign in to Account | Sign into a user account |
| 03 | Sign out of Account | Sign out of a user account |
| 04 | Start Lesson | Start a math lesson for a subject |
| 05 | Submit an Answer | Submit an answer during a math lesson |
| 06 | End Lesson | Finishing a lesson |
| 07 | Start Test | Start a test to test out of a subject |
| 08 | Check Statistics | Check the overall statistics for a user |
| 09 | Change Theme | Change the theme of the application |

# 3. Actor Catalog

|  |  |  |
| --- | --- | --- |
| Name | Type | Description |
| Learner | Person | A user of Mathenian |
| Account | System | A profile for a user |
| Lesson | System | A single generated set of math questions |

# 4. Features Verification Matrix

|  |  |  |
| --- | --- | --- |
| Feature #’s | Use Case ID | Use Case Name |
| 1, 5.1-5.2 | 01 | Create Account |
| 1, 5.3-5.4 | 02 | Sign in to Account |
| 1, 5,5 | 03 | Sign out of Account |
| 1, 2.1-2.3, 3.1-3.4 | 04 | Start Lesson |
| 1, 3.2-3.4 | 05 | Submit an Answer |
| 1, 3.5 | 06 | End Lesson |
| 1, 4.1-4.3 | 07 | Start Test |
| 1, 6.1-6.6 | 08 | Check Statistics |
| 1, 7.1 | 09 | Change Theme |

# 5. Use Case Specifications

|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 01 Create Account  Subject Area : Mathenian Account  Description : Captures the steps to create an account | Responsible Analyst : Yee |

|  |  |
| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 | Users must be able to access the application through a smartphone |
| 5.1-5.2 | A user can create an account |
|  |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/20/19 | First Draft |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person | A person wanting to start an account |
| Account | System | Tracks information about a Learner |
|  |  |  |

|  |  |
| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | Learner does not have an account |

|  |
| --- |
| **Start Stimulus** |
| Learner clicks on Create Account button on sign in page |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian prompts Account Creation form |  |  |
| 2 | Learner fills in required details |  |  |
| 3 | Password is salted and hashed |  |  |
| 4 | Information is sent to database |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| N/A |  |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | Account is created for Learner |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
| Account | Tracks information about a user | Name, Email, Password, Date Created, Statistics |
|  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
|  |  |  |
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|  |
| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 1 Maximum: 1000 Average: 100 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | At | 1 | s |  |  | 3 | Load time for form |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | 4 | KB |  | 10 |  | User data |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**UC 01 Create Account Scenario**

**Mathenian prompts Account Creation Form**

System prompts required fields

**User fills in required details**

Client sends strings to Account class

**Password is salted and hashed**

**Information is sent to database**

Client asks Account class to upload data

Account class uploads data to database



|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 02 Sign in to Account  Subject Area : Mathenian Account  Description : Log in to an account | Responsible Analyst : Yee |

|  |  |
| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 |  |
| 5.3-5.4 |  |
|  |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/20/19 | First Draft |
|  |  |  |
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| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person |  |
| Account | System |  |
|  |  |  |

|  |  |
| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | An account exists for Learner |

|  |
| --- |
| **Start Stimulus** |
| User clicks on sign in button on sign in page |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian prompts for credentials |  |  |
| 2 | Learner enters credentials |  |  |
| 3 | Mathenian displays Subjects page |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| User entered wrong credentials | Reprompt user for credentials |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | Subjects paged is displayed |
| 2 | Learner is signed in |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
| Account | Tracks information for user | Name, Email, Password, Date Created |
|  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
|  |  |  |
|  |  |  |

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| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 1 Maximum: 100 Average: 5 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | At | 3 | Seconds |  |  | 2 | Load Subject page quickly |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | 2 | KB |  | 10 |  | Verify user credentials |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**UC 02 Sign in to Account Scenario**

**Mathenian prompts for credentials**

System prompts required fields

**User enters credentials**

Client enters credentials

Client sends credentials to Account class

Account class verifies values

**Mathenian displays Subjects page**

Client asks Subjects page to display

Subjects page displays



|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 03 Sign out of Account  Subject Area : Mathenian Account  Description : Log out of an account | Responsible Analyst : Yee |

|  |  |
| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 |  |
| 5.5 |  |
|  |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/20/19 | First Draft |
|  |  |  |
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|  |  |  |

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| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person |  |
| Account | System |  |
|  |  |  |

|  |  |
| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | An account exists for Learner |

|  |
| --- |
| **Start Stimulus** |
| User clicks on sign out button |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian displays sign in page |  |  |
|  |  |  |  |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| N/A |  |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | Sign in page is displayed |
| 2 | Learner is signed out |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
| Account | Tracks information for user | Name, Email, Password, Date Created |
|  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
|  |  |  |
|  |  |  |

|  |
| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 1 Maximum: 100 Average: 5 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | At | 1 | Seconds |  |  | 2 | Load sign in page quickly |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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**UC 03 Sign out of Account Scenario**

**Mathenian displays sign in page**

User asks Client to signout

Client asks Login page to display

Login page displays



|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 04 Start Lesson  Subject Area : Mathenian Lesson  Description : Captures the steps to start a lesson | Responsible Analyst : Yee |

|  |  |
| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 | Users must be able to access the application through a smartphone |
| 2.1-2.3 | Users must be able to select a lesson from a hierarchy of mathematical concepts |
| 3.1 | Introductory lesson that covers the basic concepts |
| 3.2-3.4 | Submit an answer to a question |

|  |  |  |
| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/15/2019 | First Draft |
| Yee | 10/20/2019 | Update names |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
| N/A |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person | A person wanting to start a lesson |
| Lesson | System | A generated set of questions |
|  |  |  |

|  |  |
| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | Learner is logged in |
| 2 | Subjects page is displayed |

|  |
| --- |
| **Start Stimulus** |
| Learner clicks on subject icon/button |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian displays introduction |  |  |
| 2 | Mathenian displays first question |  |  |
| 3 | Mathenian prompts for answer |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| N/A |  |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | First question is displayed |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
| Lesson | Holds introduction, questions | Subject, # of correct answers |
|  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
|  |  |  |
|  |  |  |

|  |
| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 5 Maximum: 100 Average: 10 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | Between | Start and step 1 | seconds | N/A | N/A | 1s | Don’t want Learner to spam tap the icon |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | 1 | Bytes |  |  | 2K | Load questions from database for Step 2 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**UC 04 Start Lesson Scenario**

**Mathenian displays introduction**

Client asks Lesson class to start lesson

Lesson class displays the introduction

**Mathenian displays first question**

Client asks Lesson class to display a question

Lesson class displays the first question

**Mathenian prompts for answer**



|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 05 Submit an Answer  Subject Area : Mathenian Lesson  Description : Submit an answer for a math question | Responsible Analyst : Yee |

|  |  |
| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 |  |
| 3.2-3.4 |  |
|  |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/20/19 | First Draft |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person |  |
| Lesson | System |  |
|  |  |  |

|  |  |
| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | A Learner has started a lesson |

|  |
| --- |
| **Start Stimulus** |
| User enters answer and clicks submit button |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian verifies answer |  |  |
| 2 | Mathenian displays results |  |  |
| 3 | Mathenian displays next question |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| N/A |  |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | Next question is displayed |
| 2 | Progress bar is updated |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
| Lesson | Generated set of questions | Questions, Correct Answers |
| Answer | User entered text | Answer |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
|  |  |  |
|  |  |  |

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| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 1 Maximum: 1000 Average: 40 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | Between | 1, 3 | Seconds |  |  | 4 | Load next question quickly |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
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| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
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**UC 05 Submit an Answer Scenario**

**Mathenian verifies answer**

Client asks Lesson class to verify the answer

Lesson class verifies the answer

**Mathenian displays results**

Client asks Lesson class to display the results

Lesson class displays the results

**Mathenian displays next question**

Client asks Lesson class to display a question

Lesson class displays the next question



|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 06 End Lesson  Subject Area : Mathenian Lesson  Description : End a Lesson | Responsible Analyst : Yee |

|  |  |
| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 |  |
| 3.5 |  |
|  |  |
|  |  |

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| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/20/19 | First Draft |
|  |  |  |
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| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
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| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person |  |
| Lesson | System |  |
|  |  |  |

|  |  |
| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | A Learner has started a lesson |

|  |
| --- |
| **Start Stimulus** |
| User answers the last question |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian displays total results page |  |  |
| 2 | Learner accepts results |  |  |
| 3 | Mathenian displays Subjects page |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| N/A |  |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | Lesson mastery is updated |
| 2 | Subjects page is displayed |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
| Lesson | Generated set of questions | Questions, Correct Answers |
| Answer | User entered text | Answer |

|  |  |  |  |  |  |
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| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
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| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
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| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 1 Maximum: 50 Average: 4 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | At | 3 | Seconds |  |  | 3 | Load subjects page quickly |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
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| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
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**UC 06 End Lesson Scenario**

**Mathenian displays total results page**

Client asks Lesson class to display total results

Lesson class displays total results

**User accepts result**

**Mathenian displays Subjects page**

Client asks Subjects page to display

Subjects page displays



|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 07 Start Test  Subject Area : Mathenian Test  Description : Start a test | Responsible Analyst : Yee |

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| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 |  |
| 4.1-4.3 |  |
|  |  |
|  |  |

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| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/20/19 | First Draft |
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| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
|  |  |  |
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| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person |  |
| Test | System |  |
|  |  |  |

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| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | A Learner is signed in |

|  |
| --- |
| **Start Stimulus** |
| User clicks on Start Test |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian generates test questions |  |  |
| 2 | Mathenian displays first question |  |  |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| N/A |  |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | Question is displayed |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
| Test | Generated set of questions | Questions, Correct Answers |
|  |  |  |

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| --- | --- | --- | --- | --- | --- |
| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
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| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

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| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
|  |  |  |
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| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 1 Maximum: 50 Average: 4 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | At | 2 | Seconds |  |  | 3 | Load question quickly |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | 1 | KB |  | 20 |  | Generate questions |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**UC 07 Start Test Scenario**

**Mathenian generates test questions**

Client asks Test class to generate questions

Test class retrieves questions from database

**Mathenian displays first question**

Client asks Test class to display question

Test class displays first question



|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 08 Check Statistics  Subject Area : Mathenian Statistics  Description : Check statistics | Responsible Analyst : Yee |

|  |  |
| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 |  |
| 6.1-6.6 |  |
|  |  |
|  |  |

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| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/20/19 | First Draft |
|  |  |  |
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| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
|  |  |  |
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| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | A Learner is signed in |

|  |
| --- |
| **Start Stimulus** |
| User clicks statistics |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian displays overall statistics |  |  |
|  |  |  |  |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| N/A |  |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | Statistics are displayed |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
|  |  |  |
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| --- | --- | --- | --- | --- | --- |
| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
|  |  |  |  |  |  |

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| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
|  |  |  |
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| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 1 Maximum: 50 Average: 4 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | At | 1 | Seconds |  |  | 3 | Load statistics quickly |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | 1 | KB |  | 10 |  | Load statistics |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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**UC 08 Check Statistics Scenario**

**Mathenian displays overall statistics**

Client asks Profile page to display user statistics

Profile page displays user statistics



|  |  |
| --- | --- |
| **General Information** | |
| Use Case Name\Number : 09 Change Theme  Subject Area : Mathenian Theme  Description : Change to light/dark mode | Responsible Analyst : Yee |

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| --- | --- |
| **Requirements/Feature Trace** | |
| **REQ#** | **Requirements Name and / or Short Description** |
| 1 |  |
| 7.1 |  |
|  |  |
|  |  |

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| --- | --- | --- |
| **Revision History** | | |
| **Author** | **Date** | **Comments** |
| Yee | 10/20/19 | First Draft |
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| --- | --- | --- |
| **Insertion Points in other Use Cases (Adds Only)** | | |
| **Use Case Name** | **Use Case Number** | **Step Inserted After** |
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| --- | --- | --- |
| **Actors** | | |
| **Actor Name** | **Person/System** | **Brief Description** |
| Learner | Person |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| **Pre-Conditions** | |
| # | Description |
| 1 | A Learner is signed in |

|  |
| --- |
| **Start Stimulus** |
| User clicks on mode slider |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Main Course Steps** | | | |
| **Number** | **Description** | **Adds/Alt Name/Number** | **Bus Rule#** |
| 1 | Mathenian changes theme |  |  |
|  |  |  |  |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Exception Conditions** | | |
| **Exception Situations** | **Action(s) on Exception** | **Adds\Alt UC #** |
| N/A |  |  |

|  |  |
| --- | --- |
| **Post-Conditions** | |
| **#** | **Description** |
| 1 | Theme is updated |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Candidate Objects** | | |
| **Class/Object Name** | **Descriptions** | **Possible**  **attributes** |
|  |  |  |
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| --- | --- | --- | --- | --- | --- |
| **Assumptions** | | | | | |
| **#** | **Assumption** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
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| --- | --- | --- | --- | --- | --- |
| **Issues** | | | | | |
| **#** | **Issue** | **Date**  **Raised** | **Raised**  **By** | **Date**  **Verified** | **Verified By** |
|  | N/A |  |  |  |  |
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| --- | --- | --- |
| **Other Comments** | | |
| **Author** | **Comment** | **Date** |
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| --- |
| **Frequency of Execution** |
| **Frequency:**  Minimum: 1 Maximum: 50 Average: 4 (OR)Fixed:  **Per:** Hour:Day:  Week:  Month:  Other: |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Timing Information** | | | | | | | |
| **#** | **At/**  **Between** | **Step(s)** | **Timing**  **Unit** | **Minimum** | **Average** | **Maximum** | **Comments** |
| 1 | At | 1 | Seconds |  |  | 1 | Update UI immediately |
|  |  |  |  |  |  |  |  |
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| --- | --- | --- | --- | --- | --- | --- |
| **Volume Information** | | | | | | |
| **#** | **Step #** | **Unit of**  **Measure** | **Minimum** | **Average** | **Maximum** | **Comments** |
|  |  |  |  |  |  |  |
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**UC 09 Change Theme Scenario**

**Mathenian changes theme**

Client asks Profile page to change theme

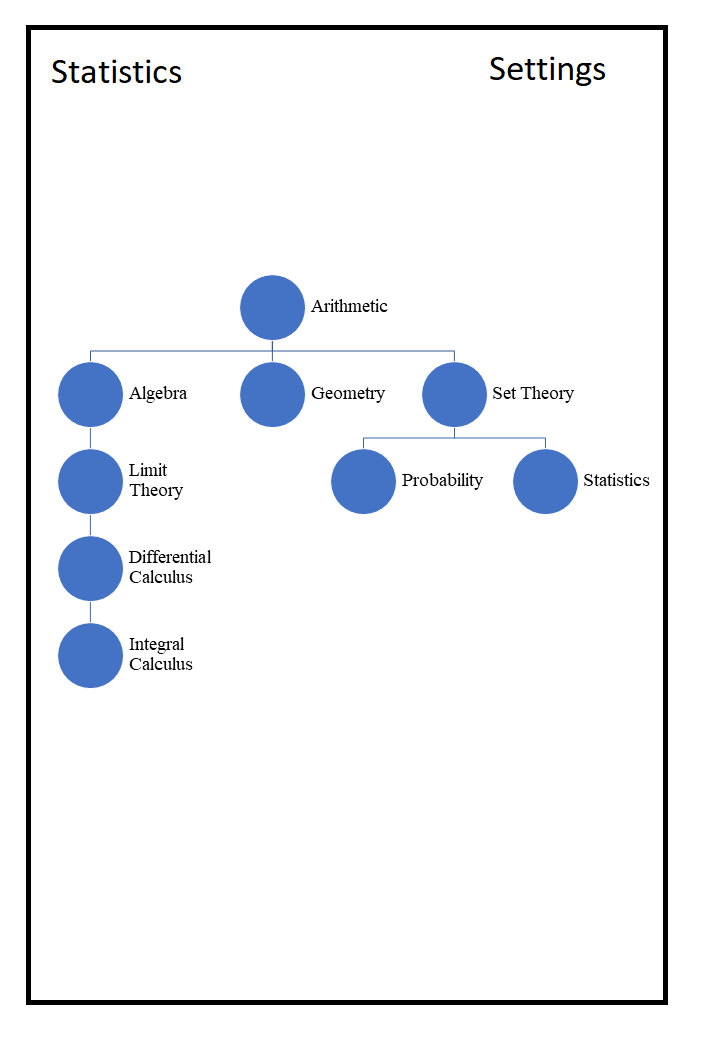
Profile page changes theme



# 6. CRUD Matrix

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Use Case ID | Use Case Name | Mathenian | Login Page | Subjects Page | Profile Page | Account | User Statistics | Lesson | Test | Question |
| 01 | Create Account | C | CRU |  |  |  |  |  |  |  |
| 02 | Sign in to Account |  | RU |  |  | U | U |  |  |  |
| 03 | Sign out of Account |  | C |  |  | UD | UD |  |  |  |
| 04 | Start Lesson |  |  | C |  |  |  | CRU |  | C |
| 05 | Submit an Answer |  |  |  |  |  |  | U | U | U |
| 06 | End Lesson |  |  |  |  | U | U | UD | UD | UD |
| 07 | Start Test |  |  | C |  |  |  |  | CRU | C |
| 08 | Check Statistics |  |  |  | C | R | R |  |  |  |
| 09 | Change Theme |  | U | U | U |  |  |  |  |  |

# 7. Low Fidelity UI



# 8. Glossary

# Appendix A – Business Rules

**Generate Test Questions**

1. Randomly select questions from database for specific subject
2. Randomly generate values for question
3. Aggregate to create a set of questions