Traceability Matrix

“LIMITER”

THE SMART PARKING SYSTEM

**Naming convention used:**

RU - Requirement for the user.

RA - Requirement for the Admin.

UCU - User Case for User.

UCA - User Case for Admin.

TC - Test case.

**User login:**

RU1 - Old User login with credentials.

RU2 - Old user Forgot password/Password reset.

RU3 - New user Register to the system.

RU4 - Find the available Parking Slots.

RU5 - Book parking if available among the given parking slots.

RU6 - Hold the booked parking slots for the given vehicle type.

RU7 - At the expiry of a given time period of reservation , the user must update the extra time

required (within the bound) or vacate the given parking slot.

RU9- Mark the remaining time as 0 when the user leaves the parking slot before the vehicle time is up.

**Admin point of view :**

RA1 - Admin login with credentials.

RA2 - View current parking status.

RA3 - Add slots

RA4 - Change the maximum time a vehicle can stay in a given slot.

RA5 - View FAQ for the review of your own answers.

RA6 - Add FAQ if needed.

**Use Case Reference for User:-**

UCU1 - Login.

UCU2 - Forgot Password.

UCU3 - Registration of new users.

UCU4 - Parking

UCU5 - Vehicle

UCU6 - Registration

UCU8 - Change Timer.

UCU9 - Raise Query.

**Use Case Reference for Admin:-**

UCA1 - Login.

UCA2 - Parking

UCA3 - Add Slots.

UCA4 - Change Timer.

UCA5 - FAQ(temp).

**Traceability Matrix:- for Admin**

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| --- | --- | --- | --- | --- | --- |
| Requirement - ID | Requireme Description | User Case ID | Design Element  ID-L | Design Element  ID-H | Code  element-L |
| RU1 | Enter Credentials | UCU1 | Figma | Java , SQL | login() |
| RU2 | New Password, answer to security password | UCU2 | Figma | Java , SQL | otp() |
| RU3 | Enter All the required details | UCU3 | Figma | Java , SQL | signup() |
| RU4 | Find the available Parking Slots. | UCU4 | Figma | Java , SQL | initialiseStart() |
| RU5 | Enter vehicle ID | UCU6 | Figma | Java , SQL | RegisterFragment() |
| RU6 | *Vehicle type* | UCU5 | Figma | Java , SQL | checkType() |
| RU7 | Additional time | UCU8 | Figma | Java , SQL | updateTime() |
| RU9 | Marks the time as 0 if the vehicle leaves | UCU8 | Figma | Java , SQL | updateTime() |

**Traceability Matrix:- for Admin**

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| --- | --- | --- | --- | --- | --- |
| Requirement - ID | Requireme Description | User Case ID | Design Element  ID-L | Design Element  ID-H | Code  element-L |
| RA1 | Enter Credentials | UCA1 | Figma | Java , SQL | loginAdmin() |
| RA2 | View current parking status. | UCA2 | Figma | Java , SQL | initialiseStart() |
| RA3 | Row Number and Column Number | UCA3 | Figma | Java , SQL | addSlot() |
| RA4 | Time(min and sec) | UCA4 | Figma | Java , SQL | setMaxTime() |
| RA5 | View FAQ for the review of your own answers. | UCA5 | Figma | Java , SQL | viewFAQ() |
| RA6 | Questions and Answers | UCA5 | Figma | Java , SQL | addFAQ() |

**Test Cases:-**

**RU1 - Old User login with credentials.**

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| Test Case for RU1 | Description | Pass/Fail. | Remarks |
| TC0 | Required slots are empty. | Pass | System will ask the user to fill the required attributes. |
| TC1 | Wrong Credentials | Pass | System will ask the user to start RU2. |
| TC2 | Credentials Match | Pass | System will ask the user to start RU4 |
| TC3 | Email not present in database | pass | System will ask the user to start RU3. |

**RU2 - Old user Forgot password/Password reset.**

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| Test Case for RU2 | Description | Pass/Fail. | Remarks |
| TC1 | Required slots are empty. | Pass | System will ask the user to fill the required attributes. |
| TC2 | Invalid email id | Pass | System will ask the user to fill the entity again. |
| TC3 | OTP matched | Pass | Reset the old password with the new password . |
| TC4 | OTP matched | Fail | System will ask the user to start RU1. |

**RA3 - Add slots**

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| Test Case for RU3 | Description | Pass/Fail. | Remarks |
| TC1 | Required slots are empty. | Pass | System will ask the user to fill the required attributes. |
| TC2 | Invalid email ID | Pass | System will ask the user to fill the entity again. |
| TC3 | Confirm password does not match | Pass | Reset the old password with the new password . |
| TC4 | OTP matched | Fail | System will ask the user to start RU1. |
| TC5 | Weak password | Pass | System will inform the user that the password is weak and they need to use a strong password |
| TC6 | Registration successful | Pass | System will add user’s info into the database |
| TC6 | Registration unsuccessful | Pass | System will ask the user to register again |

**RU6 - Hold the booked parking slots for the given vehicle type.**

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| Test Case for RU6 | Description | Pass/Fail. | Remarks |
| TC1 | Required slots are empty. | Pass | System will ask the user to fill the required attributes. |
| TC2 | Parking type and the vehicle type are different | Pass | System will show an error |
| TC3 | Parking type and the vehicle type are same | Pass | System will register the spot for the vehicle |

**RU7 - At the expiry of a given time period of reservation , the user must update the extra time required (within the bound) or vacate the given parking slot**

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| Test Case for RU7 | Description | Pass/Fail. | Remarks |
| TC1 | Required slots are empty. | Pass | System will ask the user to fill the required attributes. |
| TC2 | The entered time is not between the limits | Pass | System will show an error |
| TC2 | The entered time is between the limits | Pass | System will increase the time |

**ADMIN TEST CASES:**

**RA1 - Admin login with credentials.**

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| Test Case for RA1 | Description | Pass/Fail. | Remarks |
| TC0 | Required slots are empty. | Pass | System will ask the user to fill the required attributes. |
| TC1 | Wrong Credentials | Pass | System will ask the admin to re-enter the credentials. |
| TC2 | Credentials Match | Pass | System will redirect the admin to RA2 |

**RA4 - Change the maximum time a vehicle can stay in a given slot.**

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| Test Case for RA4 | Description | Pass/Fail. | Remarks |
| TC1 | The time in seconds is greater than 60 | Pass | System will send a toast to the admin to enter valid time |
| TC2 | The time in minutes is greater than 60 | Pass | System will send a toast to the admin to enter valid time |
| TC3 | Within the bounds | Pass | System will update the new maximum time a vehicle can stay at a particular spot in the database |
| TC4 | Required columns are empty | Pass | System will ask the admin to fill the empty blocks again |

**RA6 - Add FAQ if needed.**

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| Test Case for RA4 | Description | Pass/Fail. | Remarks |
| TC1 | Within the bounds | Pass | System will add the new FAQ into the database |
| TC2 | Required columns are empty | Pass | System will ask the admin to fill the empty blocks again |