**Test Case Design for Student Registration System**

1. **Test Case Details**

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| --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Title** | **Module/Feature** | **Author** | **Created** | **Updated** |
| TC001 | Validate Student Model | Models | QA Team | DD/MM/YYYY | DD/MM/YYYY |
| TC002 | Validate Student Registration Form | Forms | QA Team | DD/MM/YYYY | DD/MM/YYYY |
| TC003 | Validate Registration View | Views | QA Team | DD/MM/YYYY | DD/MM/YYYY |
| TC004 | Validate Payment View | Views | QA Team | DD/MM/YYYY | DD/MM/YYYY |
| TC005 | Validate Payment Success View | Views | QA Team | DD/MM/YYYY | DD/MM/YYYY |
| TC006 | Validate Registration Flow | Integration | QA Team | DD/MM/YYYY | DD/MM/YYYY |
| TC007 | Validate Payment Flow | Integration | QA Team | DD/MM/YYYY | DD/MM/YYYY |
| TC008 | Validate Payment Failure Flow | Integration | QA Team | DD/MM/YYYY | DD/MM/YYYY |

**2. Test Case Description**

**TC001: Validate Student Model:**

* **Description**: Test the creation and string representation of the Student model.
* **Objectives:** Ensure student model stores and retrieves data correctly.
* **Preconditions:** Database is set up.
* **Dependencies:** Django ORM must be functional.

**TC002: Validate Student Registration Form**

* **Description:** Test the StudentRegistrationForm with valid data.
* **Objectives:** Ensure the form accepts valid inputs and rejects invalid ones.
* **Preconditions:** Registration page is accessible.
* **Dependencies:** Form validation must be implemented.

**TC003: Validate Registration View**

* **Description:** Test the registration view for creating a new student and redirecting to the payment page.
* **Objectives:** Ensure user registration is successful and redirects properly.
* **Preconditions:** Registration page is accessible.
* **Dependencies:** Database and form validation must be active.

**TC004: Validate Payment View**

* **Description:** Test the payment view to ensure it renders the payment page correctly.
* **Objectives:** Ensure payment page loads correctly.
* **Preconditions:** Student must be registered.
* **Dependencies:** Payment system must be integrated.

**TC005: Validate Payment Success View**

* **Description:** Test the payment\_success view to ensure it updates the payment\_status to True.
* **Objectives:** Ensure payment status updates correctly after successful payment.
* **Preconditions:** Student must attempt payment.
* **Dependencies:** Database update must work correctly.

**TC006: Validate Registration Flow**

* **Objectives:** Ensure the registration process completes successfully.
* **Preconditions:** System is running with all dependencies.
* **Dependencies:** Form validation, database, and redirection must function properly.

**TC007: Validate Payment Flow**

* **Objectives:** Ensure payment processing and redirection to Stripe works.
* **Preconditions:** A registered student must attempt payment.
* **Dependencies:** Stripe API integration must be functional.

**TC008: Validate Payment Failure Flow**

* **Objectives:** Ensure failed payments are handled correctly.
* **Preconditions:** Payment attempt must fail.
* **Dependencies:** Stripe API integration must be simulated for failure.

**3. Test Case Steps**

**TC001: Validate Student Model**

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| **Step No** | **Action** | **Expected Result** |
| 1 | Create a Student object with test data | Object is created successfully |
| 2 | Retrieve student data from database | Data matches expected values |
| 3 | Validate string representation | Returns correct student name |

**TC002: Validate Student Registration Form**

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| **Step No** | **Action** | **Expected Result** |
| 1 | Submit valid registration data | Form is submitted successfully |
| 2 | Submit invalid registration data | Form shows validation errors |

**TC003: Validate Registration View**

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| Step No | Action | Expected Result |
| 1 | Navigate to the registration page | Registration form is displayed |
| 2 | Enter valid user details and submit | User is registered successfully |
| 3 | Verify user entry in the database | Student record is created |
| 4 | Ensure redirection to the payment page | User is redirected correctly |

**TC004: Validate Payment View**

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| Step No | Action | Expected Result |
| 1 | Navigate to the payment page with a valid student ID | Payment page loads successfully |
| 2 | Verify student details displayed | Correct student information is shown |
| 3 | Click on proceed to payment | User is redirected to Stripe |

**TC005: Validate Payment Success View**

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| Step No | Action | Expected Result |
| 1 | Complete payment through Stripe | Stripe processes the payment |
| 2 | Verify payment success page loads | Payment success page is displayed |
| 3 | Check database for updated payment status | Student’s payment status is updated to 'Paid' |

**TC006: Validate Registration Flow**

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| Step No | Action | Expected Result |
| 1 | Navigate to the registration page | Registration form is displayed |
| 2 | Submit valid user details | User is registered and redirected to payment page |
| 3 | Complete payment through Stripe | Payment is processed successfully |
| 4 | Verify student entry in database | Student record exists and payment status is 'Paid' |

**TC007: Validate Payment Flow**

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| Step No | Action | Expected Result |
| 1 | Initiate payment for a registered student | Stripe checkout page loads |
| 2 | Complete the payment | Payment is successfully processed |
| 3 | Verify redirection to success page | User is redirected to payment success page |
| 4 | Confirm payment status update in database | Student payment status changes to 'Paid' |

**TC008: Validate Payment Failure Flow**

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| Step No | Action | Expected Result |
| 1 | Initiate payment with an invalid transaction | Stripe returns a failure response |
| 2 | Verify redirection to failure page | User is redirected to payment failure page |
| 3 | Check database for payment status | Payment status remains 'Unpaid' |

**4. Test Data**

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| --- | --- | --- |
| Field | Valid Input | Invalid Input |
| Name | John Doe, Johnathan Christopher Doe the Second | (empty), 12345, @invalid\_name |
| Email | john@example.com, user.test@domain.com | invalid-email, user@.com, user@domain |
| Course | Python Programming, Django Web Development | (empty), 12345, @invalid\_course |
| Card Number | 4242 4242 4242 4242 (valid Stripe test card) | 1111 1111 1111 1111 (invalid) |
| CVC | 123 (valid) | 12 (invalid) |
| Expiration Date | 12/28 (future date) | 01/20 (expired date) |

**5. Expected and Actual Results**

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| --- | --- | --- | --- |
| Test Case ID | Expected Result | Actual Result | Pass/Fail |
| TC001 | Student object is created, stored, and retrieved correctly from the database | Student object created successfully and retrieved from database without errors | Passed |
| TC002 | Form successfully validates correct inputs and displays appropriate errors for invalid inputs | Form accepted valid inputs and showed correct validation errors for invalid inputs | Passed |
| TC003 | User successfully registers, entry is created in the database, and redirection occurs correctly | User was registered, data stored in database, and redirected without issues | Passed |
| TC004 | Payment page displays correctly, showing accurate payment details and student information | Payment page loaded successfully with correct student details | Passed |
| TC005 | Payment status updates to 'Paid' after successful Stripe transaction | Payment was processed successfully and status updated in database | Passed |
| TC006 | Complete registration flow works smoothly from form submission to database entry and redirection | Registration workflow executed correctly, with proper database entries and redirection | Passed |
| TC007 | Payment process completes successfully, and user is redirected to Stripe and back to success page | User was redirected to Stripe, payment processed, and returned to success page | Passed |
| TC008 | System detects failed payments and redirects user to the appropriate failure page | Payment failure was correctly detected, and user was redirected to failure page | Passed |

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