# HOMEWORK 2

## Domain Testing

**Abstract**

.

# Contents

# 1    Group Information and Task Allocation

| Full Name | Student ID | Features |
|---|---|---|
| **Cao Uyen Nhi** | 22127310 | - Sign Up |
| | | - Checkout -> Payment |
| | | - Product Management |
| **Luu Thanh Thuy** | 22127410 | - Sign In |
| | | - User Managerment |
| | | - Filter and Search |
| **Nguyen Phuoc Minh Tri** | 22127424 | - Home |
| | | - Catalog |
| | | - Categories |
| **Vo Le Viet Tu** | 22127435 | - Multi-language |
| | | - Order Management |
| | | - My Profile |
| **Tran Thi Cat Tuong** | 22127444 | - Contact |
| | | - Category Management |

# 2   Equivalence Partitioning and Boundary Value Analysis Design Process

## 2.1   Feature 1: Contact

### 2.1.1   Inputs and Constraints

The Contact form includes the following fields, with variations depending on user authentication status:

- **If the user is logged in:**
    - **Subject**: dropdown selection, required, must select a valid (non-default) option.
    - **Message**: required textarea, must be between 50 and 250 characters.
    - **Attachment**: optional, only `.txt`, `.pdf`, or `.jpg` files allowed, size ≤500KB.
- **If the user is a guest (not logged in):**
    - **First Name**: required text input, max length 120 characters.
    - **Last Name**: required text input, max length 120 characters.
    - **Email**: required, max length 120 characters, must be in valid email format (e.g., name@example.com).
    - **Subject**: same as above.
    - **Message**: same as above.
    - **Attachment**: same as above.

### 2.1.2   Equivalence Partitioning (EP)

| Field | Valid Partition | Invalid Partition |
| --- | --- | --- |
| First Name | Non-empty, ≤120 characters | Empty, > 120 characters |
| Last Name | Non-empty, ≤120 characters | Empty, > 120 characters |
| Email | Valid email format (e.g. `a@b.com`) | Missing `@`, missing domain, empty, malformed format, > 120 characters |
| Subject | A valid selected option (not default/empty) | Not selected (empty/default value) |
| Message | Non-empty, ≥50 and ≤250 characters | Empty, < 50 characters, > 250 characters |

| Field | Valid Partition | Invalid Partition |
|---|---|---|
| Attachment | `.txt`, `.pdf`, `.jpg`, file size ≤500KB | Wrong type (e.g. `.docx`, `.exe`), size > 500KB |

### 2.1.3 Boundary Value Analysis (BVA)

| Field | Valid Values | Invalid Values |
|---|---|---|
| First Name | Length: 1, 120 | Length: 0, 121 |
| Last Name | Length: 1, 120 | Length: 0, 121 |
| Email | Format: `a@b.com`, `a@b.c`; Length: 1, 120 | Format: `a.com`, `a@`, `a@b`, `a@b..com`; Length: 0, 121 |
| Subject | A selected option from dropdown | Default (empty), not in list |
| Message | Length: 50, 250 | Length: 0, 49, 251 |
| Attachment | Type: `.txt`, `.pdf`, `.jpg`; Size: 0KB, 500KB | Type: `.docx`, `.exe`; Size: 501KB |

## 2.2 Feature 2: Category Management

### 2.2.1 Inputs and Constraints

Category Management allows admin to perform the following operations:

1. **Add Category**

- **Parent Id** (Dropdown):
    - Optional.
    - Must be the `id` of an existing category.
    - Cannot be the same as the new category's own `id` (if known).
- **Name** (Text):
    - Required.
    - Maximum length: 120 characters.
    - Cannot be the same as an existing category.
- **Slug** (Text):
    - Required.

- Must be lowercase, URL-safe (hyphens instead of spaces).

- Must be unique (no duplicate slugs allowed in the database).

2. **Edit Category**

- Same input rules as **Add**.

- Cannot change to have itself as its own parent.

3. **Delete Category**

- Allowed only if:

  - The category is not currently set as `Parent Id` of other categories or is having products.

  - Otherwise, a warning is shown: *"Seems like this category is used elsewhere."*

4. **Search Category**

- Search by keyword in the **Name** field.

- Case-insensitive and supports partial match.

- Empty search returns full list.

### 2.2.2   Equivalence Partitioning (EP)

| Operation | Field | Valid Partition | Invalid Partition |
| --- | --- | --- | --- |
| Add/Edit | Parent Id | Empty or existing category id ($\neq$ own id) | Non-existing `id`, or same as own `id` |
| Add/Edit | Name | Non-empty string $\leq$ 120 characters | Empty string, > 120 characters |
| Add/Edit | Slug | Unique, lowercase, hyphenated, $\leq$ 120 characters | Empty, contains spaces/special chars, duplicate in database |
| Delete | Category | Category with no child categories | Category used as parent elsewhere |
| Search | Keyword | Empty or string that matches existing category name (partial) | Strings that don't match any name |

### 2.2.3   Boundary Value Analysis (BVA)

| Field | Valid Values | Invalid Values |
|---|---|---|
| Name | Length: 1, 120 | Length: 0, 121 |
| Slug | Length: 1, 120; Format: `hand-tools` | Length: 0, 121; Format: `Hand Tools`, `tool!` |
| Parent Id | Existing IDs ≠ current id | Own `id`, non-existing ids |
| Search | Length: 0 (returns all), Length: 1–120 | — (no functional invalid case for input size) |

# 3 Manual Test Cases

## 3.1 Feature 1: Contact – Test Cases

1. Test case 1

- **Test Case ID**: `TC_CONTACT_01`

- **Title**: Submit contact form as logged-in user with valid data

- **Preconditions**: User is logged in

- **Inputs**:

    - Subject: "Feedback"
    - Message: 100-character valid text
    - Attachment: `sample.pdf` (400KB)

- **Test Steps**:

    1. Select a valid subject
    2. Enter a message of 100 characters
    3. Attach a `.pdf` file (400KB)
    4. Click "Submit"

- **Expected Result**: Form submitted successfully with a confirmation message

- **Type**: EP

2. Test Case 2

- **Test Case ID**: `TC_CONTACT_02`

- **Title**: Submit form as guest with invalid email

- **Preconditions**: User is not logged in

- **Inputs**:

    - Email: `invalidemail`
    - First Name: "John"
    - Last Name: "Doe"
    - Message: Valid message

- **Test Steps**:

    1. Enter invalid email
    2. Fill in other fields
    3. Click "Submit"

- **Expected Result**: Validation error for email format

- **Type**: EP

3. Test Case 3

- **Test Case ID**: `TC_CONTACT_03`

- **Title**: Check lower boundary for message length

- **Preconditions**: User is logged in

- **Inputs**:

    – Message: 50 characters

- **Test Steps**:

    1. Enter exactly 50 characters into the message field
    2. Click "Submit"

- **Expected Result**: Form is accepted

- **Type**: BVA

4. Test Case 4

- **Test Case ID**: `TC_CONTACT_04`

- **Title**: Upload oversized attachment

- **Preconditions**: User is logged in

- **Inputs**:

    – Attachment: `file.exe` (600KB)

- **Test Steps**:

    1. Attach an `.exe` file larger than 500KB

2. Click "Submit"

• **Expected Result**: File type and size error message is shown

• **Type**: EP

## 3.2 Feature 2: Category Management – Test Cases

1. Test Case 1

• **Test Case ID**: `TC_CATEGORY_01`

• **Title**: Add new root category with valid data

• **Preconditions**: Admin is logged in

• **Inputs**:

  – Name: "Cutting Tools"
  – Slug: `cutting-tools`
  – Parent ID: empty

• **Test Steps**:

  1. Enter category name
  2. Enter a valid slug
  3. Leave Parent ID empty
  4. Click "Save"

• **Expected Result**: New root category is created successfully

• **Type**: EP

2. Test Case 2

• **Test Case ID**: `TC_CATEGORY_02`

• **Title**: Add category with duplicate slug

• **Preconditions**: A category with slug `hammer` already exists

• **Inputs**:

  – Name: "Hammer 2"

– Slug: `hammer`

- **Test Steps**:

    1. Enter category name
    2. Enter duplicate slug
    3. Click "Save"

- **Expected Result**: Error message for duplicate slug is shown

- **Type**: EP

3. Test Case 3

- **Test Case ID**: `TC_CATEGORY_03`

- **Title**: Edit category with own ID as parent

- **Preconditions**: Category with ID = 5 exists

- **Inputs**:

    – Parent ID: 5 (same as the category being edited)

- **Test Steps**:

    1. Select category to edit
    2. Set its own ID as parent
    3. Click "Save"

- **Expected Result**: Validation error for circular reference

- **Type**: EP

4. Test Case 4

- **Test Case ID**: `TC_CATEGORY_04`

- **Title**: Enter category name with 121 characters

- **Preconditions**: Admin is on Add Category form

- **Inputs**:

    – Name: 121-character string

- **Test Steps**:

    1. Enter 121-character category name
    2. Click "Save"

- **Expected Result**: Validation error for exceeding max length

- **Type**: BVA

# 4 Use of AI Tools

# 5 Self-Evaluation

| Criteria | Self-Evaluation | Notes |
|---|---|---|
| Chose appropriate features | | Features are clearly divided |
| Applied EP/BVA correctly | | Input constraints are well justified |
| Clear test cases | | Excel sheet provided |
| Correct use of AI | | Prompt and verification included |
| Executed testing properly | | Full test results documented |