**Create Product Types Table**

sql

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CREATE TABLE tbl\_product\_types (

id INT PRIMARY KEY AUTO\_INCREMENT,

product\_type\_name VARCHAR(100) NOT NULL

);

**Create Product Attributes Table**

sql

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CREATE TABLE tbl\_product\_attributes (

id INT PRIMARY KEY AUTO\_INCREMENT,

product\_type\_id INT NOT NULL,

attribute\_name VARCHAR(100) NOT NULL,

attribute\_type ENUM('text', 'number', 'dropdown') NOT NULL,

FOREIGN KEY (product\_type\_id) REFERENCES tbl\_product\_types(id)

);

**Create Attribute Values Table (For Dropdown)**

sql

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CREATE TABLE tbl\_attribute\_values (

id INT PRIMARY KEY AUTO\_INCREMENT,

attribute\_id INT NOT NULL,

value\_name VARCHAR(100) NOT NULL,

FOREIGN KEY (attribute\_id) REFERENCES tbl\_product\_attributes(id)

);

**Step 2: Insert Sample Data**

**Insert Product Types**

sql

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INSERT INTO tbl\_product\_types (product\_type\_name) VALUES ('Honey');

INSERT INTO tbl\_product\_types (product\_type\_name) VALUES ('Seeds');

**Insert Attributes for Each Product Type**

sql

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INSERT INTO tbl\_product\_attributes (product\_type\_id, attribute\_name, attribute\_type) VALUES

(1, 'Flavor', 'dropdown'),

(1, 'Bottle Size', 'text'),

(1, 'Bottle Type', 'dropdown'),

(1, 'Organic Certification', 'text'),

(2, 'Seed Type', 'text'),

(2, 'Germination Rate', 'number'),

(2, 'Package Weight', 'text'),

(2, 'Growing Season', 'text');

**Insert Attribute Values for Dropdowns**

sql

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INSERT INTO tbl\_attribute\_values (attribute\_id, value\_name) VALUES

(1, 'Wildflower'),

(1, 'Clover'),

(1, 'Manuka'),

(3, 'Glass Bottle'),

(3, 'Plastic Bottle');

**Step 3: Create Models in CodeIgniter**

**Model: Product\_model.php**

php

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class Product\_model extends CI\_Model {

public function get\_product\_types() {

return $this->db->get('tbl\_product\_types')->result\_array();

}

public function get\_product\_attributes($product\_type\_id) {

return $this->db->where('product\_type\_id', $product\_type\_id)

->get('tbl\_product\_attributes')

->result\_array();

}

public function get\_attribute\_values($attribute\_id) {

return $this->db->where('attribute\_id', $attribute\_id)

->get('tbl\_attribute\_values')

->result\_array();

}

public function insert\_product\_attribute($data) {

return $this->db->insert('tbl\_product\_attributes', $data);

}

public function insert\_attribute\_value($data) {

return $this->db->insert('tbl\_attribute\_values', $data);

}

}

**Step 4: Create Controller**

**Controller: Admin.php**

php

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class Admin extends CI\_Controller {

public function manage\_product\_attributes() {

$this->load->model('Product\_model');

$data['product\_types'] = $this->Product\_model->get\_product\_types();

$data['product\_attributes'] = $this->Product\_model->get\_product\_attributes($this->input->get('product\_type\_id'));

$this->load->view('admin/manage\_product\_attributes', $data);

}

public function add\_product\_attribute() {

$this->load->model('Product\_model');

$data = [

'product\_type\_id' => $this->input->post('product\_type\_id'),

'attribute\_name' => $this->input->post('attribute\_name'),

'attribute\_type' => $this->input->post('attribute\_type')

];

$this->Product\_model->insert\_product\_attribute($data);

redirect('admin/manage\_product\_attributes');

}

public function add\_attribute\_value() {

$this->load->model('Product\_model');

$data = [

'attribute\_id' => $this->input->post('attribute\_id'),

'value\_name' => $this->input->post('value\_name')

];

$this->Product\_model->insert\_attribute\_value($data);

redirect('admin/manage\_product\_attributes');

}

}

**Step 5: Create View**

**View: manage\_product\_attributes.php**

php

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<h2>Manage Product Attributes</h2>

<!-- Add Attribute Form -->

<form method="post" action="<?= base\_url('admin/add\_product\_attribute') ?>">

<label>Product Type:</label>

<select name="product\_type\_id">

<?php foreach ($product\_types as $type) { ?>

<option value="<?= $type['id'] ?>"><?= $type['product\_type\_name'] ?></option>

<?php } ?>

</select>

<label>Attribute Name:</label>

<input type="text" name="attribute\_name" required>

<label>Attribute Type:</label>

<select name="attribute\_type">

<option value="text">Text</option>

<option value="number">Number</option>

<option value="dropdown">Dropdown</option>

</select>

<button type="submit">Add Attribute</button>

</form>

<!-- Add Attribute Values for Dropdown -->

<h3>Add Attribute Values</h3>

<form method="post" action="<?= base\_url('admin/add\_attribute\_value') ?>">

<label>Attribute:</label>

<select name="attribute\_id">

<?php foreach ($product\_attributes as $attr) { ?>

<option value="<?= $attr['id'] ?>"><?= $attr['attribute\_name'] ?></option>

<?php } ?>

</select>

<label>Value Name:</label>

<input type="text" name="value\_name" required>

<button type="submit">Add Value</button>

</form>

<!-- Show Existing Attributes -->

<table border="1">

<tr>

<th>Product Type</th>

<th>Attribute Name</th>

<th>Attribute Type</th>

</tr>

<?php foreach ($product\_attributes as $attr) { ?>

<tr>

<td><?= $attr['product\_type\_id'] ?></td>

<td><?= $attr['attribute\_name'] ?></td>

<td><?= $attr['attribute\_type'] ?></td>

</tr>

<?php } ?>

</table>

**Step 6: Update Admin Menu**

php

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<li>

<a href="<?= base\_url()?>admin/manage\_product\_types">

<i class="icon-list menu-icon"></i> <span class="nav-text">Manage Product Types</span>

</a>

</li>

<li>

<a href="<?= base\_url()?>admin/manage\_product\_attributes">

<i class="icon-settings menu-icon"></i> <span class="nav-text">Manage Product Attributes</span>

</a>

</li>