2.4.4.5 Create *callback* Function

Create a `callback` function in **Oauth.php** file controller. Verify state parameters and get an access token using the authorization code grant.

```php
public function callback() {

  if (empty($this->input->get('state')) || ($this->input->get('state') !== $this->session->userdata('oauth2state'))) {

    $this->session->unset_userdata('oauth2state');

    show_error('Invalid state');

  }


  try {

    $accessToken = $this->provider->getAccessToken('authorization_code', [

      'code' => $this->input->get('code'),

    ]);
```

Figure 48: *callback* Function

Fetch user information and check if hashed IC number exists in the administrators table.

```php
$resourceOwner = $this->provider->getResourceOwner($accessToken);

$userData = $resourceOwner->toArray();

$nric = $userData['nric'];

$hashed_nric = hash('sha256', $nric);

$this->db->where('ic_number', $hashed_nric);

$user = $this->db->get('administrators')->row_array();
```

Figure 49: Fetch User Information

Verify if the hashed IC number matches in the database. If the IC number is found and matches, log the user in. Then, if the IC number is not found or does not match, handle linking or registration.

```php
if ($user) {
    $this->session->set_userdata('keycloak_user', $userData);
    $this->session->set_userdata('admin_id', $user['user_id']);
    $this->session->set_userdata('admin_profile_img', $user['profile_img']);
    $this->session->set_userdata('chat_token', $user['token']);
    $this->session->set_userdata('role', $user['role']);
    $access_result_data = $this->db->where('admin_id', $user['user_id'])->where('access', 1)->select('module_id')->get('admin_access')->result_array();
    $access_result_data_array = array_column($access_result_data, 'module_id');
    $this->session->set_userdata('access_module', $access_result_data_array);
    redirect('admin/dashboard');
} else {
    $this->session->set_userdata('keycloak_temp_data', $userData);
    redirect('admin/oauth/show_modal_options');
}
} catch (Exception $e) {
    show_error('Failed to authenticate with Keycloak: ' . $e->getMessage());
}
}
```

Figure 50: Verify IC Number