**package com.project.bos.dg.datastore.controller;  
  
import com.fasterxml.jackson.core.JsonProcessingException;  
import com.project.bos.dg.datastore.constants.DocumentGeneratorEventStoreConstants;  
import com.project.bos.dg.datastore.model.entity.Document;  
import com.project.bos.dg.datastore.model.request.CreateDocumentServiceRequestStatus;  
import com.project.bos.dg.datastore.model.request.CreateEventStatusRequest;  
import com.project.bos.dg.datastore.model.request.EventRequest;  
import com.project.bos.dg.datastore.model.request.documentbydocumentIds.DocumentIdsRequest;  
import com.project.bos.dg.datastore.model.response.\*;  
import com.project.bos.dg.datastore.model.response.common.DocumentResponse;  
import com.project.bos.dg.datastore.model.response.documents.DocumentIdsResponse;  
import com.project.bos.dg.datastore.model.response.documentservicerequest.DocumentRequestServiceResponse;  
import com.project.bos.dg.datastore.model.response.eventHistory.EventHistoryApiResponse;  
import com.project.bos.dg.datastore.service.DocumentGeneratorEventStoreService;  
import com.project.bos.dg.datastore.service.DocumentServiceRequestService;  
import jakarta.resource.spi.work.TransactionContext;  
import jakarta.servlet.http.HttpServletRequest;  
import jakarta.validation.ConstraintViolationException;  
import org.junit.jupiter.api.Assertions;  
import org.junit.jupiter.api.BeforeEach;  
import org.junit.jupiter.api.Test;  
import org.mockito.InjectMocks;  
import org.mockito.Mock;  
import org.mockito.Mockito;  
import org.mockito.MockitoAnnotations;  
import org.springframework.beans.factory.annotation.Autowired;  
import org.springframework.boot.test.autoconfigure.web.servlet.AutoConfigureMockMvc;  
import org.springframework.boot.test.context.SpringBootTest;  
import org.springframework.dao.DataAccessException;  
import org.springframework.http.\*;  
import org.springframework.mock.web.MockHttpServletRequest;  
import org.springframework.mock.web.MockHttpServletResponse;  
import org.springframework.test.web.servlet.\*;  
import org.springframework.test.web.servlet.request.MockMvcRequestBuilders;  
import org.springframework.test.web.servlet.result.MockMvcResultMatchers;  
import org.springframework.web.HttpRequestMethodNotSupportedException;  
import org.springframework.web.bind.MissingRequestHeaderException;  
  
import static org.hibernate.validator.internal.util.Contracts.*assertNotNull*;  
import static org.junit.jupiter.api.Assertions.\*;  
import static org.springframework.test.web.client.match.MockRestRequestMatchers.*content*;  
import static org.springframework.test.web.client.match.MockRestRequestMatchers.*jsonPath*;  
import static org.springframework.test.web.servlet.result.MockMvcResultMatchers.\*;  
import static org.springframework.test.web.servlet.request.MockMvcRequestBuilders.\*;  
  
import java.util.\*;  
  
import static org.mockito.Mockito.\*;  
  
@SpringBootTest  
@AutoConfigureMockMvc  
  
public class DocumentGeneratorEventStoreControllerTest {  
 @InjectMocks  
 private DocumentGeneratorEventStoreController eventStoreController;  
 @Mock  
 private DocumentGeneratorEventStoreService documentGeneratorEventStoreService;  
 @Mock  
 private DocumentServiceRequestService documentServiceRequestService;  
  
 @BeforeEach  
 void setUp() {  
 MockitoAnnotations.*openMocks*(this);  
 }  
 @Autowired  
 private MockMvc mockMvc;  
  
 //Method 1: Api to interact with a database to add Event  
 //Scenario 1: testSaveEventWithValidInput  
 @Test  
 public void testSaveEventWithValidInput() throws Exception {  
  
 // Create a sample valid event request  
 EventRequest eventRequest = new EventRequest();  
 eventRequest.setCorrelationId("123");  
  
 // Create a sample response for the service layer  
 EventResponse eventResponse = new EventResponse();  
 eventResponse.setCode(HttpStatus.*CREATED*.value());  
 eventResponse.setMessage("Event added successfully");  
 // You can set other properties of the eventResponse as needed for your test.  
  
 // Mock the service layer to return the sample response  
 *when*(DocumentGeneratorEventStoreService.*saveEvent*(*any*(EventRequest.class)))  
 .thenReturn(Optional.*of*(eventResponse));  
  
 // Perform the controller method invocation  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.saveEvent(eventRequest);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*CREATED*, responseEntity.getStatusCode());  
  
 // Verify the response body  
 EventResponse responseBody = responseEntity.getBody();  
 *assertEquals*(HttpStatus.*CREATED*.value(), responseBody.getCode());  
 *assertEquals*("Event added successfully", responseBody.getMessage());  
 }  
  
 //Scenario 2: testSaveEventWithAlreadyExist  
 @Test  
 public void testSaveEventWithAlreadyExist() throws Exception {  
  
 // Create a sample event request with duplicate data  
 EventRequest eventRequest = new EventRequest();  
 eventRequest.setCorrelationId("123");  
  
 // Create a sample response for the service layer indicating that the event already exists  
 EventResponse eventResponse = new EventResponse();  
 eventResponse.setCode(HttpStatus.*OK*.value());  
 eventResponse.setMessage("Event already exists");  
  
 // Mock the service layer to return the sample response  
 *when*(DocumentGeneratorEventStoreService.*saveEvent*(*any*(EventRequest.class)))  
 .thenReturn(Optional.*of*(eventResponse));  
  
 // Perform the controller method invocation  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.saveEvent(eventRequest);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify the response body  
 EventResponse responseBody = responseEntity.getBody();  
 *assertEquals*(HttpStatus.*OK*.value(), responseBody.getCode());  
 *assertEquals*("Event already exists", responseBody.getMessage());  
 }  
  
 //Scenario 3: testSaveEventWithMissingRequiredFields  
 @Test  
 public void testSaveEventWithMissingRequiredFields() throws Exception {  
 // Create an event request with missing required fields  
 // Missing correlationId and other required fields.  
 EventRequest eventRequest = new EventRequest();  
  
 // Create a sample response for the service layer  
 EventResponse eventResponse = new EventResponse();  
  
 *when*(DocumentGeneratorEventStoreService.*saveEvent*(*any*(EventRequest.class)))  
 .thenReturn(Optional.*of*(eventResponse));  
  
 // Perform the controller method invocation  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.saveEvent(eventRequest);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 4: testSaveEventWithInvalidInputData  
 @Test  
 public void testSaveEventWithInvalidInputData() throws Exception {  
 // Create an event request with invalid input data (e.g., missing required fields)  
 EventRequest eventRequest = new EventRequest();  
 eventRequest.setCorrelationId(null);  
 // Missing required fields.  
  
 // Create a sample response for the service layer (should not be called)  
 EventResponse eventResponse = new EventResponse();  
  
 *when*(DocumentGeneratorEventStoreService.*saveEvent*(*any*(EventRequest.class)))  
 .thenReturn(Optional.*of*(eventResponse));  
  
 // Perform the controller method invocation  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.saveEvent(eventRequest);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 5: testSaveEventWithDatabaseError  
 @Test  
 public void testSaveEventWithDatabaseError() throws Exception {  
 // Create a sample event request  
 EventRequest eventRequest = new EventRequest();  
 eventRequest.setCorrelationId("123");  
  
 // Mock the service layer to throw a DataAccessException, simulating a database error  
 *when*(DocumentGeneratorEventStoreService.*saveEvent*(*any*(EventRequest.class)))  
 .thenThrow(new DataAccessException("Database error") {  
 });  
 // Perform the controller method invocation  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.saveEvent(eventRequest);  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*INTERNAL\_SERVER\_ERROR*, responseEntity.getStatusCode());  
 // Verify error message  
 EventResponse responseBody = responseEntity.getBody();  
 Assertions.*assertNotNull*(responseBody);  
 *assertEquals*("Database error", responseBody.getMessage());  
 }  
  
 //---------------------------------------------------------------------------------------------------------------  
  
 //Method: 2 API to interact with Database to add status for event  
  
//There are two tests testCreateEventStatus\_Success,testCreateEventStatus\_NoResponse  
  
  
 @Test  
 public void testCreateEventStatus\_Success() throws Exception {  
 //setup  
 // Create a sample request  
 CreateEventStatusRequest request = new CreateEventStatusRequest();  
 request.setCorrelationId("123");  
  
 // Create a sample response  
 EventResponse response = new EventResponse();  
  
 // Mock the service method to return the response  
 *when*(documentGeneratorEventStoreService.*saveEventStatus*(*anyString*(), *any*(CreateEventStatusRequest.class)))  
 .thenReturn(Optional.*of*(response));  
 /\*any string as the first argument and any instance of CreateEventStatusRequest as the second argument,  
 it should return an Optional containing the response object \*/  
  
 // Perform the POST request and validate the response  
 // Replace with your expected JSON field and value  
 ResultActions expectedVal = mockMvc.perform((RequestBuilder) *post*("/ event/ {eventId}", "event-id")  
 .contentType(MediaType.*APPLICATION\_JSON*)  
 .contentLength(Long.*parseLong*(new ObjectMapper().writeValueAsString(request))))  
 .andExpect(*status*().isOk())  
 .andExpect((ResultMatcher) *content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.correlationId").value("123"));  
 }  
  
 //Method -2 Test case -2 testCreateEventStatusNullEventId  
 /\*Test what happens when eventId is null. Ensure that it returns an appropriate error response  
 (e.g., 400 Bad Request).\*/  
 @Test  
 public void testCreateEventStatusNullEventId() {  
 //Setup  
 // Arrange: Prepare the test data and behavior  
 String nullEventId = null; // This simulates a null eventId  
 CreateEventStatusRequest request = new CreateEventStatusRequest();  
  
  
 EventResponse response = new EventResponse();  
 response.setCode(HttpStatus.*BAD\_REQUEST*.value());  
 /\*an instance of the EventResponse class is created, and its code property is set to the value of HttpStatus.  
 BAD\_REQUEST.value(),  
 which corresponds to the integer value of the HTTP status code 400 (Bad Request).\*/  
  
  
 // Stub the Mock -the service method to return a response  
 *when*(documentGeneratorEventStoreService.*saveEventStatus*(nullEventId, request))  
 .thenReturn(Optional.*empty*()); // Simulate service returning empty response  
  
 // Act: Perform the actual test  
 ResponseEntity<EventResponse> responseEntity = documentGeneratorEventStoreController.*createEventStatus*(nullEventId, request);  
  
 // Assert: Verify the response and status code  
 *assertNull*(responseEntity);  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 /\*The test asserts that the response from the controller has a status code of 400 Bad Request,  
 as expected for the scenario where eventId is null.\*/  
 }  
  
 //Method 2-testcase -3 Null CreateEventStatusRequest Scenario:  
 /\*Test what happens when CreateEventStatusRequest is null.  
 Ensure that it returns an appropriate error response (e.g., 400 Bad Request).\*/  
  
 @Test  
 public void testCreateEventStatusNullRequest() throws Exception {  
 // Arrange: Prepare the test data and behavior  
 String eventId = "sample-event-id";  
 CreateEventStatusRequest nullRequest = null; // Simulate a null request  
  
 // Stub - Mock the service method to return a response  
 *when*(documentGeneratorEventStoreService.*saveEventStatus*(eventId, nullRequest))  
 .thenReturn(Optional.*empty*());  
  
 // Act: Perform the actual test using MockMvc  
 mockMvc.perform((RequestBuilder) *post*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*)  
 .contentType(MediaType.*valueOf*("")))  
 // Assert: Verify the response and status code  
 .andExpect(*status*().isOk())  
 .andExpect((ResultMatcher) *content*().string(""));  
 /\*This test case covers the scenario where CreateEventStatusRequest is null and ensures that  
 the controller handles it correctly by returning an empty response.\*/  
 }  
  
 //Method -2 testcase 4 Empty Correlation ID Scenario:  
 /\*• Test what happens when the correlationId within CreateEventStatusRequest is empty.  
 Ensure that it returns an appropriate error response or handles this case gracefully.\*/  
 @Test  
 public void testCreateEventStatusEmptyCorrelationId() throws Exception {  
 //Setup  
 // Arrange: Prepare the test data and behavior  
 String eventId = "sample-event-id";  
 CreateEventStatusRequest request = new CreateEventStatusRequest();  
 request.setCorrelationId(""); // Simulate an empty correlation ID  
  
 // Stub-Mock the service method to return a response  
 *when*(documentGeneratorEventStoreService.*saveEventStatus*(eventId, request))  
 .thenReturn(Optional.*empty*());  
  
 // Act: Perform the actual test using MockMvc  
 mockMvc.perform((RequestBuilder) *post*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*)  
 .contentType(MediaType.*valueOf*("")))  
 // Assert: Verify the response and status code  
 .andExpect(*status*().isOk())  
 .andExpect((ResultMatcher) *content*().string(""));  
 /\*it ensures that the controller handles it correctly by returning an empty response.\*/  
 }  
 //Method--2 testcase -5 EventService Failure Scenario:  
 /\* Mock the documentGeneratorEventStoreService to simulate a failure when saving the event status.  
 Ensure that the code handles this gracefully and returns an appropriate error response  
 (e.g., 500 Internal Server Error).\*/  
  
 @Test  
 public void testCreateEventStatusServiceFailure() throws Exception {  
 //Setup  
 // Arrange: Prepare the test data and behavior  
 String eventId = "sample-event-id";  
 CreateEventStatusRequest request = new CreateEventStatusRequest();  
 request.setCorrelationId("123");  
  
 // Mock the service method to throw an exception  
 *when*(documentGeneratorEventStoreService.*saveEventStatus*(eventId, request))  
 .thenThrow(new RuntimeException("Service failed")); // Simulate a service failure  
  
 // Act: Perform the actual test using MockMvc  
 mockMvc.perform((RequestBuilder) *post*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*)  
 .contentType(MediaType.*valueOf*("{\"correlationId\":\"123\"}")))  
 // Assert: Verify the response and status code  
 .andExpect(*status*().isInternalServerError())  
 .andExpect((ResultMatcher) *content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("Service failed"));  
 }  
  
 //Method-- 2 Testcase - 6 EventService Success Scenario:  
 /\*Mock the documentGeneratorEventStoreService to return a successful response.  
 Ensure that the code returns a 200 status code with the expected EventResponse.\*/  
  
 @Test  
 public void testCreateEventStatusServiceSuccess() throws Exception {  
 //Setup  
 // Arrange: Prepare the test data and behavior  
 String eventId = "sample-event-id";  
 CreateEventStatusRequest request = new CreateEventStatusRequest();  
 request.setCorrelationId("123");  
  
 //Stub- Mock the service method to return a successful response  
 EventResponse successfulResponse = new EventResponse();  
 successfulResponse.setCode(HttpStatus.*OK*.value());  
  
 *when*(documentGeneratorEventStoreService.*saveEventStatus*(eventId, request))  
 .thenReturn(Optional.*of*(successfulResponse));  
  
 // Act: Perform the actual test using MockMvc  
 mockMvc.perform((RequestBuilder) (RequestBuilder) *post*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*)  
 .contentType(MediaType.*valueOf*("{\"correlationId\":\"123\"}")))  
 // Assert: Verify the response and status code  
 .andExpect(*status*().isOk())  
 .andExpect((ResultMatcher) *content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.code").value(HttpStatus.*OK*.value()));  
 }  
  
 //Method --2 testcase -7. Optional EventResponse Empty Scenario:  
 /\*• Mock the documentGeneratorEventStoreService to return an empty Optional<EventResponse>.  
 Ensure that the code returns a 200 status code with an empty response body\*/  
 @Test  
 public void testCreateEventStatusOptionalEmpty() throws Exception {  
 // Arrange: Prepare the test data and behavior  
 String eventId = "sample-event-id";  
 CreateEventStatusRequest request = new CreateEventStatusRequest();  
 request.setCorrelationId("123");  
  
 // Mock the service method to return an empty Optional  
 *when*(documentGeneratorEventStoreService.*saveEventStatus*(eventId, request))  
 .thenReturn(Optional.*empty*());  
  
 // Act: Perform the actual test using MockMvc  
 mockMvc.perform((RequestBuilder) *post*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*)  
 .contentType(MediaType.*valueOf*("{\"correlationId\":\"123\"}")))  
 // Assert: Verify the response and status code  
 .andExpect(*status*().isOk())  
 .andExpect((ResultMatcher) *content*().string(""));  
 }**

**//-----------------------------------------------------------------------------------------------------------  
  
 // Method 3 "API to retrieve event by eventId"  
  
 //Scenario 1: testRetrieveEventByEventId\_Success  
 @Test  
 public void testRetrieveEventByEventId\_Success() throws Exception {  
 // Set a sample event Response  
 EventResponse eventResponse = new EventResponse();  
 eventResponse.setCorrelationId("123");  
 eventResponse.setApplicationLabel("SampleApp");  
 eventResponse.setCode(200);  
 eventResponse.setStatus("Success");  
 eventResponse.setMessage("Event retrieved successfully");  
 eventResponse.setEventDataResponse(null);  
 eventResponse.setTime("2023-09-23T10:00:00Z");  
 eventResponse.setPath("/event/123");  
 eventResponse.setMethod("GET");  
  
 // Stub the Mock the behavior of documentGeneratorEventStoreService.fetchEventByEventId  
 *when*(documentGeneratorEventStoreService.fetchEventByEventId(*anyString*()))  
 .thenReturn(Optional.*of*(eventResponse));  
  
 // Execute and Assert  
 mockMvc.perform(*get*("/event/{eventId}", "123"))  
 .andExpect(*status*().isOk())  
 .andExpect(MockMvcResultMatchers.*content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.correlationId").value("123"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.applicationLabel").value("SampleApp"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.code").value(200L))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.status").value("Success"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.message").value("Event retrieved successfully"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.eventDataResponse").doesNotExist()) // Adjust as needed  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.time").value("2023-09-23T10:00:00Z"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.path").value("/event/123"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.method").value("GET"));  
  
 // Verify that documentGeneratorEventStoreService.fetchEventByEventId was called with the correct argument  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventByEventId("123");  
 }  
  
 //Scenario 2: testRetrieveEventByEventId\_NotFound  
 @Test  
 public void testRetrieveEventByEventId\_NotFound() throws Exception {  
 // Provide a non-existent eventId  
 String eventId = "nonExistentEventId";  
  
 // Stub the Mock behavior of documentGeneratorEventStoreService.fetchEventByEventId  
 *when*(documentGeneratorEventStoreService.fetchEventByEventId(eventId))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and Assert  
 mockMvc.perform(*get*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isNotFound()); // Expect HTTP status 404 (Not Found)  
  
 // Verify that documentGeneratorEventStoreService.fetchEventByEventId was called with the correct argument  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventByEventId(eventId);  
 }  
  
 //Scenario 3: testRetrieveEventByEventId\_EmptyEventId  
 @Test  
 public void testRetrieveEventByEventId\_EmptyEventId() throws Exception {  
 // Provide an empty eventId  
 String eventId = "";  
  
 // Execute and Assert  
 mockMvc.perform(*get*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect HTTP status 400 (Bad Request)  
 .andExpect((ResultMatcher) *content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Invalid input")) // Verify the error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("Event ID must not be empty")); // Verify the specific error message  
 }  
  
 //Scenario 4: testRetrieveEventByEventId\_NullEventId  
 @Test  
 public void testRetrieveEventByEventId\_NullEventId() throws Exception {  
 // Provide a null eventId  
 String eventId = null;  
  
 // Execute and Assert  
 mockMvc.perform(*get*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect HTTP status 400 (Bad Request)  
 .andExpect((ResultMatcher) *content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Invalid input")) // Verify the error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("Event ID must not be null")); // Verify the specific error message  
 }  
  
 //Scenario 5: testRetrieveEventByEventId\_InvalidCharacters  
 @Test  
 public void testRetrieveEventByEventId\_InvalidCharacters() throws Exception {  
 // Provide an eventId with invalid characters (e.g., special characters)  
 String eventId = "@#%^$\*&"; //Invalid characters in eventId  
  
 // Execute and Assert  
 mockMvc.perform(*get*("/event/{eventId}", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect HTTP status 400 (Bad Request)  
 .andExpect((ResultMatcher) *content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Invalid input")) // Verify the error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("Event ID contains invalid characters")); // Verify the specific error message  
 }  
  
 //Scenario 6: testRetrieveEventByEventId\_ErrorHandling  
 @Test  
 public void testRetrieveEventByEventId\_ErrorHandling() throws Exception {  
 // Provide a valid eventId  
 String eventId = "123";  
  
 // Simulate an exception thrown during event retrieval  
 *when*(documentGeneratorEventStoreService.fetchEventByEventId(eventId))  
 .thenThrow(new RuntimeException("Internal server error"));  
  
 // Execute and Assert  
 mockMvc.perform(*get*("/event/123", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isInternalServerError()) // Expect HTTP status 500 (Internal Server Error)  
 .andExpect((ResultMatcher) *content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Internal Server Error")) // Verify the error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("An error occurred during event retrieval")); // Verify the specific error message  
  
 // Verify that the service method was called once with the provided eventId  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventByEventId(eventId);  
 }  
  
//------------------------------------------------------------------------------------------------------------------------  
  
 //Method 4: API to retrieve error details by eventId  
 //Scenario 1: testRetrieveErrorsResponseByEventId\_Success  
 @Test  
 public void testRetrieveErrorsResponseByEventId\_Success() throws Exception {  
 // Sample event response for testing  
 EventResponse EventResponse = new EventResponse();  
 EventResponse.setCorrelationId("123");  
 EventResponse.setApplicationLabel("SampleApp");  
 EventResponse.setCode(200);  
 EventResponse.setStatus("Success");  
 EventResponse.setMessage("Error retrieved successfully");  
 EventResponse.setEventDataResponse(null);  
 EventResponse.setTime("2023-09-23T10:00:00Z");  
 EventResponse.setPath("/event/123/errors");  
 EventResponse.setMethod("GET");  
  
 // Mock the service to return the sample event response  
 *when*(documentGeneratorEventStoreService.fetchErrorsByEventId("123"))  
 .thenReturn(Optional.*of*(EventResponse));  
  
 // Perform the GET request  
 mockMvc.perform(*get*("/events/123/errors"))  
 .andExpect(*status*().isOk())  
 .andExpect(MockMvcResultMatchers.*content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.correlationId").value("123"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.applicationLabel").value("SampleApp"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.code").value(200L))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.status").value("Success"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.message").value("Error retrieved successfully"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.eventDataResponse").doesNotExist())  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.time").value("2023-09-23T10:00:00Z"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.path").value("/event/123/errors"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.method").value("GET"));  
 }  
  
 //Scenario 2: testRetrieveErrorsResponseByEventId\_InvalidEventId  
 @Test  
 public void testRetrieveErrorsResponseByEventId\_InvalidEventId() throws Exception {  
 // Mock the service to return an empty Optional (indicating that the eventId does not exist)  
 *when*(documentGeneratorEventStoreService.fetchErrorsByEventId("invalidId"))  
 .thenReturn(Optional.*empty*());  
  
 // Perform the GET request with an invalid eventId  
 mockMvc.perform(*get*("/events/invalidId/errors"))  
 .andExpect(*status*().isNotFound()) // Verify that the response status code is 404 (Not Found)  
 .andExpect(MockMvcResultMatchers.*content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Event not found")) // Verify an appropriate error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("The specified event ID 'invalidId' does not exist."));  
 }  
  
 //Scenario 3: testRetrieveErrorsResponseByEventId\_NotFound  
 @Test  
 public void testRetrieveErrorsResponseByEventId\_NotFound() throws Exception {  
 // Mock the service to return an empty Optional, simulating that the event was not found  
 *when*(documentGeneratorEventStoreService.fetchErrorsByEventId(*anyString*()))  
 .thenReturn(Optional.*empty*());  
  
 // Perform the GET request for a non-existent event  
 mockMvc.perform(*get*("/events/nonExistentEventId/errors"))  
 .andExpect(*status*().isNotFound());  
 }  
  
 //Scenario 4: testRetrieveErrorsResponseByEventId\_NullEventId  
 @Test  
 public void testRetrieveErrorsResponseByEventId\_NullEventId() throws Exception {  
 // Perform the GET request with a null eventId  
 mockMvc.perform(*get*("/events/null/errors"))  
 .andExpect(*status*().isBadRequest()) // Verify that the response status code is 400 (Bad Request)  
 .andExpect(MockMvcResultMatchers.*content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Bad Request")) // Verify an appropriate error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("The 'eventId' path parameter is required and must not be null or empty."));  
 }  
  
 //Scenario 5: testRetrieveErrorsResponseByEventId\_EmptyEventId  
 @Test  
 public void testRetrieveErrorsResponseByEventId\_EmptyEventId() throws Exception {  
 // Perform the GET request with an empty eventId  
 mockMvc.perform(*get*("/events//errors"))  
 .andExpect(*status*().isBadRequest()) // Verify that the response status code is 400 (Bad Request)  
 .andExpect(MockMvcResultMatchers.*content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Bad Request")) // Verify an appropriate error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("The 'eventId' path parameter is required and must not be null or empty."));  
 }  
  
 //Scenario 6: testRetrieveErrorsResponseByEventId\_SpecialCharacterEventId  
 @Test  
 public void testRetrieveErrorsResponseByEventId\_SpecialCharacterEventId() throws Exception {  
 // Perform the GET request with an eventId containing special characters  
 mockMvc.perform(*get*("/events/!#$%^&\*@e/errors"))  
 .andExpect(*status*().isBadRequest()) // Verify that the response status code is 400 (Bad Request)  
 .andExpect(MockMvcResultMatchers.*content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Bad Request")) // Verify an appropriate error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("The 'eventId' path parameter contains invalid characters. " +  
 "Please use alphanumeric characters or hyphens."));  
 }  
  
 //Scenario 7: testRetrieveErrorsResponseByEventId\_InternalServerError  
 @Test  
 public void testRetrieveErrorsResponseByEventId\_InternalServerError() throws Exception {  
 // Mock the service to throw an exception, simulating an internal server error  
 *when*(documentGeneratorEventStoreService.fetchErrorsByEventId("event123"))  
 .thenThrow(new RuntimeException("Internal Server Error Occurred"));  
  
 // Perform the GET request  
 mockMvc.perform(*get*("/events/event123/errors"))  
 .andExpect(*status*().isInternalServerError()) // Verify that the response status code is 500 (Internal Server Error)  
 .andExpect(MockMvcResultMatchers.*content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.error").value("Internal Server Error")) // Verify an appropriate error message  
 .andExpect((ResultMatcher) *jsonPath*("$.message").value("Internal Server Error Occurred"));  
 }  
//-----------------------------------------------------------------------------------------------------------------------------  
  
 //Method 5: API to retrieve notify details by eventId  
 //Scenario 1: testRetrieveNotifyResponseByEventId\_Success()  
 @Test  
 public void testRetrieveNotifyResponseByEventId\_Success() throws Exception {  
 // Set a sample event Response  
 // Mock eventId  
 EventResponse eventResponse = new EventResponse();  
 String eventId = "123"; // the variable eventId is being initialized  
  
 // Stub the Mock, service response for a successful case  
 *when*(documentGeneratorEventStoreService.fetchNotifyDetailsByEventId(eventId))  
 .thenReturn(Optional.*of*(eventResponse));  
  
 // Execute and assert or simulate the MVC  
 mockMvc.perform(*get*("/event/123/notify", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*)) // JSON format  
 .andExpect(*status*().isOk()) // 200 Ok  
 .andReturn();  
  
 // Verify that the service method was called with the expected eventId  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchNotifyDetailsByEventId(eventId);  
 }  
  
 //Scenario 2: testRetrieveNotifyResponseByEventId\_NotFound()  
 @Test  
 public void testRetrieveNotifyResponseByEventId\_NotFound() throws Exception {  
 // Mock eventId  
 String eventId = "123";  
  
 // Stub the Mock, service response for a scenario where no summary report is found  
 *when*(documentGeneratorEventStoreService.fetchNotifyDetailsByEventId(eventId))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and assert or simulate the MVC  
 MvcResult result = mockMvc.perform(*get*("/event/123/notify", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isNotFound())  
 .andReturn();  
  
 // Verify that the service method was called with the expected eventId  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchNotifyDetailsByEventId(eventId);  
 }  
  
 //Scenario 3: testRetrieveNotifyResponseByEventId\_InvalidInput()  
 @Test  
 public void testRetrieveNotifyResponseByEventId\_InvalidInput() throws Exception {  
 // Mock an invalid eventId (e.g., empty string)  
 String eventId = "null"; // Invalid input  
  
 // Execute and assert or simulate the MVC  
 MvcResult result = mockMvc.perform(*get*("/event/null/notify", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest())  
 .andReturn();  
  
 // Verify that the service method was called with the expected eventId  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchNotifyDetailsByEventId(eventId);  
 }  
  
 //Scenario 4: testRetrieveNotifyResponseByEventId\_InternalServerError()  
 @Test  
 public void testRetrieveNotifyResponseByEventId\_InternalServerError() throws Exception {  
 // Mock eventId  
 String eventId = "123";  
  
 // Stub the Mock, service method to return an empty Optional, simulating an internal server error  
 *when*(documentGeneratorEventStoreService.fetchNotifyDetailsByEventId(eventId))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and assert or simulate the MVC an internal server error  
 mockMvc.perform(MockMvcRequestBuilders.*get*("/event/123/notify", eventId))  
 .andExpect(MockMvcResultMatchers.*status*().isInternalServerError())  
 .andExpect(MockMvcResultMatchers.*content*().contentType("application/json"))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.error").value("Internal Server Error"));  
  
 // Verify that the service method was called with the correct eventId  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchNotifyDetailsByEventId(eventId);  
 }  
  
 //Scenario 5: testRetrieveNotifyResponseByEventId\_EventIdIsEmpty  
 @Test  
 public void testRetrieveNotifyResponseByEventId\_EventIdIsEmpty() throws Exception {  
 // Mock an empty eventId  
 String eventId = " ";  
  
 // Execute and assert or simulate the MVC  
 mockMvc.perform(*get*("/event//notify", eventId)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // 400 Bad Request status  
 .andReturn();  
  
 // Verify that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).fetchNotifyDetailsByEventId(*any*());  
 }  
  
 //Scenario 6: testRetrieveNotifyResponseByEventId\_EmptyEventResponse or EmptyOptional  
 @Test  
 public void testRetrieveNotifyResponseByEventId\_EmptyEventResponse() throws Exception {  
 // Mock eventId  
 String eventId = "123";  
  
 // Stub the Mock, service method to return an empty Optional  
 *when*(documentGeneratorEventStoreService.fetchNotifyDetailsByEventId(eventId))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and assert or simulate the MVC  
 mockMvc.perform(*get*("/event/123/notify", eventId))  
 .andExpect(*status*().isOk())  
 .andExpect((ResultMatcher) *content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect((ResultMatcher) *jsonPath*("$.eventId").value(eventId)) // Assuming eventId is returned in the response  
 .andExpect((ResultMatcher) *jsonPath*("$.data").doesNotExist()); // Ensure that data field is not present in the response  
  
 // Verify that the service method was called with the correct eventId  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchNotifyDetailsByEventId(eventId);  
 }  
//----------------------------------------------------------------------------------------------------------------------------  
  
 // Method 6: API to retrieve a summary report by date range  
 //Scenario 1: testRetrieveSummaryReportByDateRange\_Success()  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_Success() throws Exception {  
 // Mock and required request parameters  
 String type = "sampleType";  
 String startDate = "2023-01-01";  
 String endDate = "2023-12-31";  
  
 // Sample EventSummaryResponse for testing  
 EventSummaryResponse summaryResponse = new EventSummaryResponse();  
  
 // Stub the Mock, service response for a successful case  
 *when*(documentGeneratorEventStoreService.fetchEventSummaryByDateRange(type, startDate, endDate))  
 .thenReturn(Optional.*of*(summaryResponse));  
  
 // Execute and assert or simulate the MVC  
 MvcResult result = mockMvc.perform(*get*("/yourApiEndpoint")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isOk())  
 .andReturn();  
  
 // Verify that the service method was called with the expected parameters  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventSummaryByDateRange(type, startDate, endDate);  
 }  
  
 //Scenario 2: testRetrieveSummaryReportByDateRange\_NotFound  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_NotFound() throws Exception {  
 // Mock and required request parameters  
 String type = "sampleType";  
 String startDate = "2023-01-01";  
 String endDate = "2023-12-31";  
  
 // Stub the Mock, service response for a scenario where no summary report is found  
 *when*(documentGeneratorEventStoreService.fetchEventSummaryByDateRange(type, startDate, endDate))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and assert or simulate the MVC  
 MvcResult result = mockMvc.perform(*get*("/yourApiEndpoint")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isNotFound())  
 .andReturn();  
  
 // Verify that the service method was called with the expected parameters  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventSummaryByDateRange(type, startDate, endDate);  
 }  
  
 //Scenario 3: testRetrieveSummaryReportByDateRange\_InvalidInput()  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_InvalidInput() throws Exception {  
 // Mock and required request parameters with invalid input  
 String type = null; // Invalid input  
 String startDate = "2023-01-01";  
 String endDate = "2023-12-31";  
  
 // Execute and assert or simulate the MVC  
 MvcResult result = mockMvc.perform(*get*("/yourApiEndpoint")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest())  
 .andReturn();  
  
 // Verify that the service method was called with the expected parameters  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventSummaryByDateRange(type, startDate, endDate);  
 }  
  
 //Scenario 4: testRetrieveSummaryReportByDateRange\_InternalServerError()  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_InternalServerError() throws Exception {  
 // Mock and required request parameters  
 String type = "sampleType";  
 String startDate = "2023-01-01";  
 String endDate = "2023-12-31";  
  
 // Stub the Mock, service method to return an empty Optional, simulating an internal server error  
 *when*(documentGeneratorEventStoreService.fetchEventSummaryByDateRange(type, startDate, endDate))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and assert or simulate the MVC an internal server error  
 mockMvc.perform(*get*("/yourApiEndpoint")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isInternalServerError())  
 .andExpect((ResultMatcher) MockMvcResultMatchers.*content*().contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(MockMvcResultMatchers.*jsonPath*("$.error").value("Internal Server Error"));  
  
 // Verify that the service method was called with the expected parameters  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventSummaryByDateRange(type, startDate, endDate);  
 }  
  
 //Scenario 5: testRetrieveSummaryReportByDateRange\_InvalidDateRange  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_InvalidDateRange() throws Exception {  
 // Mock the required request parameters  
 String type = "sampleType";  
 String startDate = "2023-02-01";  
 String endDate = "2023-01-31"; // End date is earlier than start date  
  
 // Stub the Mock, service method to return an empty Optional, simulating an internal server error  
 *when*(documentGeneratorEventStoreService.fetchEventSummaryByDateRange(type, startDate, endDate))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and assert or simulate the MVC  
 mockMvc.perform(MockMvcRequestBuilders.*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()); // Expecting a bad request response  
  
 // Verify that the service method was called with the expected parameters  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventSummaryByDateRange(type, startDate, endDate);  
 }  
  
 //Scenario 6: testRetrieveSummaryReportByDateRange\_EmptyEventResponse  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_EmptyEventResponse() throws Exception {  
 // Mock the required request parameters  
 String type = "sampleType";  
 String startDate = "2023-01-01";  
 String endDate = "2023-01-31";  
  
 // Stub the Mock, the service to return an empty Optional  
 *when*(documentGeneratorEventStoreService.fetchEventSummaryByDateRange(type, startDate, endDate))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and assert or simulate the MVC, Perform the mock HTTP GET request  
 mockMvc.perform(*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isOk()) // Expecting a 200 status code  
 .andExpect((ResultMatcher) *content*().string("")); // Expecting an empty response body  
  
 // Verify that the service method was called with the expected parameters  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchEventSummaryByDateRange(type, startDate, endDate);  
 }  
  
 //Scenario 7: testRetrieveSummaryReportByDateRange\_EmptyDates  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_EmptyDates() throws Exception {  
 // Mock the required request parameters with empty dates  
 String type = "sampleType";  
 String startDate = "";  
 String endDate = "";  
  
 // Stub the mock service response for a scenario where EventSummaryResponse is empty (not found)  
 *when*(documentGeneratorEventStoreService.fetchEventSummaryByDateRange(type, startDate, endDate))  
 .thenReturn(Optional.*empty*());  
  
 // Execute and assert the MVC request  
 mockMvc.perform(*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isNotFound())  
 .andReturn();  
  
 // Verify that the service method was not called  
 Mockito.*verifyNoInteractions*(documentGeneratorEventStoreService); // Because parameter is missing  
 }  
  
 //Scenario 8: testRetrieveSummaryReportByDateRange\_StartDateIsNull  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_StartDateIsNull() throws Exception {  
 // Mock the required request parameters with null startDate  
 String type = "sampleType";  
 String startDate = null; // Set startDate as null  
 String endDate = "2023-12-31";  
  
 // Execute and assert the MVC request with null startDate  
 mockMvc.perform(MockMvcRequestBuilders.*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect a "bad request" response  
 .andReturn();  
  
 // Verify that the service method was not called  
 Mockito.*verifyNoInteractions*(documentGeneratorEventStoreService); // Because startDate is missing  
 }  
  
 //Scenario 9: testRetrieveSummaryReportByDateRange\_StartDateIsEmpty  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_StartDateIsEmpty() throws Exception {  
 // Mock the required request parameters with null startDate  
 String type = "sampleType";  
 String startDate = ""; // Set startDate as an empty string not null  
 String endDate = "2023-12-31";  
  
 // Execute and assert the MVC request with null startDate  
 mockMvc.perform(MockMvcRequestBuilders.*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect a "bad request" response  
 .andReturn();  
  
 // Verify that the service method was not called  
 Mockito.*verifyNoInteractions*(documentGeneratorEventStoreService); // Because startDate is missing  
 }  
  
 //Scenario 10: testRetrieveSummaryReportByDateRange\_EndDateIsNull  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_EndDateIsNull() throws Exception {  
 // Mock the required request parameters with an empty endDate  
 String type = "sampleType";  
 String startDate = "2023-01-01";  
 String endDate = null; // Set endDate as an empty string not null  
  
 // Execute and assert the MVC request with an empty endDate  
 mockMvc.perform(*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect a "bad request" response  
 .andReturn();  
  
 // Verify that the service method was not called  
 Mockito.*verifyNoInteractions*(documentGeneratorEventStoreService); // Because endDate is null  
 }  
  
 //Scenario 11: testRetrieveSummaryReportByDateRange\_EndDateIsEmpty  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_EndDateIsEmpty() throws Exception {  
 // Mock the required request parameters with an empty endDate  
 String type = "sampleType";  
 String startDate = "2023-01-01";  
 String endDate = ""; // Set endDate as an empty string not null  
  
 // Execute and assert the MVC request with an empty endDate  
 mockMvc.perform(*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect a "bad request" response  
 .andReturn();  
  
 // Verify that the service method was not called  
 Mockito.*verifyNoInteractions*(documentGeneratorEventStoreService); // Because endDate is empty  
 }  
  
 //Scenario 12: testRetrieveSummaryReportByDateRange\_AllInputsAreNull  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_AllInputsAreNull() throws Exception {  
 // Mock the required request parameters with an empty endDate  
 String type = null;  
 String startDate = null;  
 String endDate = null; // Set endDate as an empty string not null  
  
 // Execute and assert the MVC request with an empty endDate  
 mockMvc.perform(*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect a "bad request" response  
 .andReturn();  
  
 // Verify that the service method was not called  
 Mockito.*verifyNoInteractions*(documentGeneratorEventStoreService); // Because endDate is empty  
 }  
  
 //Scenario 13: testRetrieveSummaryReportByDateRange\_AllInputsAreEmpty  
 @Test  
 public void testRetrieveSummaryReportByDateRange\_AllInputsAreEmpty() throws Exception {  
 // Mock the required request parameters with an empty endDate  
 String type = "";  
 String startDate = "";  
 String endDate = ""; // Set endDate as an empty string not null  
  
 // Execute and assert the MVC request with an empty endDate  
 mockMvc.perform(*get*("/event-summary")  
 .param("type", type)  
 .param("startDate", startDate)  
 .param("endDate", endDate)  
 .contentType(MediaType.*APPLICATION\_JSON*))  
 .andExpect(*status*().isBadRequest()) // Expect a "bad request" response  
 .andReturn();  
  
 // Verify that the service method was not called  
 Mockito.*verifyNoInteractions*(documentGeneratorEventStoreService); // Because endDate is empty  
 }  
//-----------------------------------------------------------------------------------------------------------------------------  
  
 //Method 7: API to retrieve document details by customerAccountUuid and inputId  
 //Scenario 1: testRetrieveDocumentResponseByInputId\_Success  
 @Test  
 public void testRetrieveDocumentResponseByInputId\_Success() throws Exception {  
 // Mock dependencies  
 UUID customerAccountUuid = UUID.*randomUUID*();  
 String inputId = "validInputId";  
 EventResponse expectedResponse = new EventResponse(/\* Initialize with expected data \*/);  
  
 *when*(documentGeneratorEventStoreService.fetchDocumentByInputId(customerAccountUuid, inputId)  
 .thenReturn(Optional.*of*(expectedResponse));  
  
 // Set up HttpServletRequest mock  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 // Call the controller method  
 ResponseEntity<EventResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByInputId(httpRequest, customerAccountUuid, inputId);  
  
 // Verify the response status code and content  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(expectedResponse, responseEntity.getBody());  
  
 // Verify that the service method was called with the correct parameters  
 *verify*(documentGeneratorEventStoreService).fetchDocumentByInputId(customerAccountUuid, inputId);  
 }  
  
 //Scenario 2: testRetrieveDocumentResponseByInputId\_DocumentNotFound  
 @Test  
 public void testRetrieveDocumentResponseByInputId\_DocumentNotFound() throws Exception {  
 // Mock dependencies  
 UUID customerAccountUuid = UUID.*randomUUID*();  
 String inputId = "nonExistentInputId";  
 *when*(documentGeneratorEventStoreService.fetchDocumentByInputId(customerAccountUuid, inputId))  
 .thenReturn(Optional.*empty*());  
  
 // Set up HttpServletRequest mock  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 // Call the controller method  
 ResponseEntity<EventResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByInputId(httpRequest, customerAccountUuid, inputId);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*NOT\_FOUND*, responseEntity.getStatusCode());  
  
 // Verify that the service method was called with the correct parameters  
 *verify*(documentGeneratorEventStoreService).fetchDocumentByInputId(customerAccountUuid, inputId);  
 }  
  
 //Scenario 3: testRetrieveDocumentResponseByInputId\_InvalidInput  
 @Test  
 public void testRetrieveDocumentResponseByInputId\_InvalidInput() throws Exception {  
 // Call the controller method with invalid input  
 ResponseEntity<EventResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByInputId(null, null, null);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 4: testRetrieveDocumentResponseByInputId\_InvalidCustomerAccountUuid  
 @Test  
 public void testRetrieveDocumentResponseByInputId\_InvalidCustomerAccountUuid() throws Exception {  
 UUID customerAccountUuid = null; // Invalid UUID  
 String inputId = "validInputId";  
  
 // Mock the service to return an empty Optional (document not found)  
 *when*(documentGeneratorEventStoreService.fetchDocumentByInputId(null, "validInputId"))  
 .thenReturn(Optional.*empty*());  
  
 // Set up HttpServletRequest mock  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 // Call the controller method with the invalid customerAccountUuid  
 ResponseEntity<EventResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByInputId(httpRequest, null, inputId);  
  
 // Verify the response status code (it should be 400 Bad Request)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 5: testRetrieveDocumentResponseByInputId\_InvalidInputId  
 @Test  
 public void testRetrieveDocumentResponseByInputId\_InvalidInputId() throws Exception {  
  
 UUID customerAccountUuid = UUID.*randomUUID*();  
 String inputId = "invalidInputId";  
  
 // Set up HttpServletRequest mock (it's not used in the test)  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 // Mock the service to return an empty Optional (document not found)  
 *when*(documentGeneratorEventStoreService.fetchDocumentByInputId(httpRequest, null))  
 .thenReturn(Optional.*empty*());  
  
 // Call the controller method with the invalid customerAccountUuid  
 ResponseEntity<EventResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByInputId(httpRequest, customerAccountUuid, null);  
  
 // Verify the response status code (it should be 400 Bad Request)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 6: testRetrieveDocumentResponseByInputId\_NullHttpRequest  
 @Test  
 public void testRetrieveDocumentResponseByInputId\_InvalidHttpRequest() throws Exception {  
 UUID customerAccountUuid = UUID.*randomUUID*(); // Valid UUID  
 String validInputId = "validInputId"; // Valid inputId  
  
 // Call the controller method with a null HTTP request  
 ResponseEntity<EventResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByInputId(null, customerAccountUuid, validInputId);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 7: testRetrieveDocumentResponse\_InternalServerError  
 @Test  
 public void testRetrieveDocumentResponse\_InternalServerError() {  
 // Mock the service to simulate an internal server error  
 DocumentGeneratorEventStoreService documentGeneratorEventStoreService = Mockito.*mock*(DocumentGeneratorEventStoreService.class);  
 UUID customerAccountUuid = UUID.*randomUUID*();  
 String validInputId = "validInputId";  
 Mockito.*when*(documentGeneratorEventStoreService.fetchDocumentByInputId(customerAccountUuid, validInputId))  
 .thenThrow(new RuntimeException("Internal server error occurred"));  
  
 // Call the controller method  
 ResponseEntity<EventResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByInputId(null, customerAccountUuid, validInputId);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*INTERNAL\_SERVER\_ERROR*, responseEntity.getStatusCode());  
 }  
  
//-------------------------------------------------------------------------------------------------------------------------------------------------  
  
 //Method 8:  
 //Scenario 1: testRetrieveDocumentListByEventIdAndStatus\_Success  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_Success() {  
 // Prepare test data  
 String eventId = "12345";  
 String notStatus = "draft";  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 DocumentRetrievalResponse expectedResponse = new DocumentRetrievalResponse();  
  
 // Mock the service method to return the expected response  
 *when*(documentGeneratorEventStoreService.fetchDocumentListByEventIdAndStatus(eventId, notStatus))  
 .thenReturn(Optional.*of*(expectedResponse));  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest,  
 "correlationId", "applicationLabel", eventId, notStatus);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(expectedResponse, responseEntity.getBody());  
  
 // Verify that the service method was called with the expected arguments  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchDocumentListByEventIdAndStatus(eventId, notStatus);  
 }  
  
 //Scenario 2: testRetrieveDocumentListByEventIdAndStatus\_MissingNotStatus  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_MissingNotStatus() {  
 // Prepare test data  
 String eventId = "12345";  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 DocumentRetrievalResponse expectedResponse = new DocumentRetrievalResponse();  
  
 // Mock the service method to return the expected response  
 *when*(documentGeneratorEventStoreService.fetchDocumentListByEventIdAndStatus(eventId, null))  
 .thenReturn(Optional.*of*(expectedResponse));  
  
 // Call the controller method without providing the notStatus parameter  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest, "correlationId", "applicationLabel", eventId, null);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(expectedResponse, responseEntity.getBody());  
  
 // Verify that the service method was called with the expected arguments (including null for notStatus)  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchDocumentListByEventIdAndStatus(eventId, null);  
 }  
  
 //Scenario 3: testRetrieveDocumentListByEventIdAndStatus\_EmptyNotStatus  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_EmptyNotStatus() {  
 // Prepare test data  
 String eventId = "12345";  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 DocumentRetrievalResponse expectedResponse = new DocumentRetrievalResponse();  
  
 // Mock the service method to return the expected response  
 *when*(documentGeneratorEventStoreService.fetchDocumentListByEventIdAndStatus(eventId, ""))  
 .thenReturn(Optional.*of*(expectedResponse));  
  
 // Call the controller method with an empty string for notStatus  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest, "correlationId", "applicationLabel", eventId, "");  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(expectedResponse, responseEntity.getBody());  
  
 // Verify that the service method was called with the expected arguments (including an empty string for notStatus)  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchDocumentListByEventIdAndStatus(eventId, "");  
 }  
  
 //Scenario 4: testRetrieveDocumentListByEventIdAndStatus\_NotFoundNotStatus  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_NotFoundNotStatus() {  
 // Prepare test data  
 String eventId = "12345";  
 String notStatus = "invalidStatus"; // This status doesn't exist  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 DocumentRetrievalResponse expectedResponse = new DocumentRetrievalResponse();  
 expectedResponse.setDocumentList(Collections.*emptyList*()); // Empty document list  
  
 // Mock the service method to return the expected response  
 // Assume that the service handles the notStatus parameter and returns an empty list  
 *when*(documentGeneratorEventStoreService.fetchDocumentListByEventIdAndStatus(eventId, notStatus))  
 .thenReturn(Optional.*of*(expectedResponse));  
  
 // Call the controller method with an invalid notStatus  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest, "correlationId", "applicationLabel", eventId, notStatus);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(expectedResponse, responseEntity.getBody());  
  
 // Verify that the service method was called with the expected arguments (including the invalid notStatus)  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchDocumentListByEventIdAndStatus(eventId, notStatus);  
 }  
  
 //Scenario 5: testRetrieveDocumentListByEventIdAndStatus\_MatchingDocuments  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_MatchingDocuments() {  
 // Prepare test data  
 String eventId = "12345";  
 String notStatus = "draft"; // This status matches some documents  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 // Create a list of sample documents  
 Document document1 = new Document("Document1", "published");  
 Document document2 = new Document("Document2", "draft");  
 Document document3 = new Document("Document3", "approved");  
  
 // Expected response with documents that do not have the specified notStatus  
 List<Document> expectedDocumentList = Arrays.*asList*(document1, document3);  
  
 DocumentRetrievalResponse expectedResponse = new DocumentRetrievalResponse();  
 expectedResponse.setDocumentList(expectedDocumentList);  
  
 // Mock the service method to return the expected response  
 *when*(documentGeneratorEventStoreService.fetchDocumentListByEventIdAndStatus(eventId, notStatus))  
 .thenReturn(Optional.*of*(expectedResponse));  
  
 // Call the controller method with a matching notStatus  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest, "correlationId", "applicationLabel", eventId, notStatus);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(expectedResponse, responseEntity.getBody());  
  
 // Verify that the service method was called with the expected arguments (including the matching notStatus)  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchDocumentListByEventIdAndStatus(eventId, notStatus);  
 }  
  
 //Scenario 6: testRetrieveDocumentListByEventIdAndStatus\_MissingEventId  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_MissingEventId() {  
 // Omit the eventId parameter in the request  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String notStatus = "draft"; // Provide a notStatus to make it a valid request  
  
 // Call the controller method without providing eventId  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest, "correlationId", "applicationLabel", null, notStatus);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("eventId is required", responseEntity.getBody().getMessage());  
  
 // Ensure that the service method was not called since the request is invalid  
 *verifyNoInteractions*(documentGeneratorEventStoreService);  
 }  
  
 //Scenario 7: testRetrieveDocumentListByEventIdAndStatus\_InvalidEventId  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_InvalidEventId() {  
 // Prepare test data  
 String invalidEventId = "nonExistentEventId"; // An invalid event ID  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String notStatus = "draft"; // Provide a notStatus to make it a valid request  
  
 // Mock the service method to return an empty result for the invalid eventId  
 *when*(documentGeneratorEventStoreService.fetchDocumentListByEventIdAndStatus(invalidEventId, notStatus))  
 .thenReturn(Optional.*empty*());  
  
 // Call the controller method with an invalid eventId  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest, "correlationId", "applicationLabel", invalidEventId, notStatus);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*NOT\_FOUND*, responseEntity.getStatusCode());  
 *assertEquals*("Event ID not found: nonExistentEventId", responseEntity.getBody().getMessage());  
  
 // Verify that the service method was called with the invalid eventId  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchDocumentListByEventIdAndStatus(invalidEventId, notStatus);  
 }  
  
 //Scenario 8: testRetrieveDocumentListByEventIdAndStatus\_InvalidNotStatus  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_InvalidNotStatus() {  
 // Prepare test data  
 String eventId = "12345";  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String invalidNotStatus = "invalidStatus"; // An invalid notStatus value  
  
 // Mock the service method to return an error response for the invalid notStatus  
 *when*(documentGeneratorEventStoreService.fetchDocumentListByEventIdAndStatus(eventId, invalidNotStatus))  
 .thenReturn(Optional.*empty*()); // Simulate an error response  
  
 // Call the controller method with an invalid notStatus  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest, "correlationId", "applicationLabel", eventId, invalidNotStatus);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Invalid notStatus value: invalidStatus", responseEntity.getBody().getMessage());  
  
 // Verify that the service method was called with the invalid notStatus  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchDocumentListByEventIdAndStatus(eventId, invalidNotStatus);  
 }  
  
 //Scenario 9: testRetrieveDocumentListByEventIdAndStatus\_InternalServerError  
 @Test  
 public void testRetrieveDocumentListByEventIdAndStatus\_InternalServerError() {  
 // Prepare test data  
 String eventId = "12345";  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String notStatus = "draft";  
  
 // Mock the service method to simulate an internal server error  
 *when*(documentGeneratorEventStoreService.fetchDocumentListByEventIdAndStatus(eventId, notStatus))  
 .thenThrow(new RuntimeException("Internal Server Error Occurred"));  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity =  
 eventStoreController.retrieveDocumentListByEventIdAndStatus(httpRequest, "correlationId", "applicationLabel", eventId, notStatus);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*INTERNAL\_SERVER\_ERROR*, responseEntity.getStatusCode());  
 *assertEquals*("Internal Server Error Occurred", responseEntity.getBody().getMessage());  
  
 // Verify that the service method was called with the expected arguments  
 *verify*(documentGeneratorEventStoreService, *times*(1)).fetchDocumentListByEventIdAndStatus(eventId, notStatus);  
 }  
//--------------------------------------------------------------------------------------------------------------------------------------  
  
 //Method 9: API to interact with Database to save document service request status  
 //Scenario 1: testSaveDocumentServiceRequestStatus\_Success  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_Success() {  
 // Prepare the input data  
 String correlationId = "your-correlation-id";  
 String applicationLabel = "your-application-label";  
 UUID documentId = UUID.*randomUUID*();  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus(/\* Initialize your request object \*/);  
  
 // Prepare the expected response  
 DocumentRetrievalResponse expectedResponse = new DocumentRetrievalResponse();  
 expectedResponse.setCode(HttpStatus.*CREATED*.value());  
  
 // Mock the service method to return the expected response  
 *when*(documentGeneratorEventStoreService.saveDocumentServiceRequestStatus(documentId, request))  
 .thenReturn(Optional.*of*(expectedResponse));  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*CREATED*, responseEntity.getStatusCode());  
 *assertEquals*(expectedResponse, responseEntity.getBody());  
 }  
  
 //Scenario 2: testSaveDocumentServiceRequestStatus\_MissingCorrelationId  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_MissingCorrelationId() {  
 // Prepare the input data  
 String correlationId = null; // Set correlationId to null to simulate missing value  
 String applicationLabel = "your-application-label";  
 UUID documentId = UUID.*randomUUID*();  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus(/\* Initialize your request object \*/);  
  
 *when*(documentGeneratorEventStoreService.saveDocumentServiceRequestStatus(documentId, request))  
 .thenReturn(Optional.*of*(testEmptyResponse();  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Expected error message", responseEntity.getBody().getErrorMessage());  
  
 // Ensure that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).saveDocumentServiceRequestStatus(*any*(), *any*());  
 }  
  
 //Scenario 3: testSaveDocumentServiceRequestStatus\_InvalidCorrelationId  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_InvalidCorrelationId() {  
 // Prepare the input data  
 String correlationId = "invalid-correlation-id"; // Set an invalid correlation ID  
 String applicationLabel = "your-application-label";  
 UUID documentId = UUID.*randomUUID*();  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus(/\* Initialize your request object \*/);  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Expected error message", responseEntity.getBody().getErrorMessage());  
  
 // Ensure that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).saveDocumentServiceRequestStatus(*any*(), *any*());  
 }  
  
 //Scenario 4: testSaveDocumentServiceRequestStatus\_MissingApplicationLabel  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_MissingApplicationLabel() {  
 // Prepare the input data  
 String correlationId = "your-correlation-id";  
 String applicationLabel = null; // Set applicationLabel to null to simulate missing value  
 UUID documentId = UUID.*randomUUID*();  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus(/\* Initialize your request object \*/);  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Expected error message", responseEntity.getBody().getErrorMessage());  
  
 // Ensure that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).saveDocumentServiceRequestStatus(*any*(), *any*());  
 }  
  
 //Scenario 5: testSaveDocumentServiceRequestStatus\_EmptyApplicationLabel  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_EmptyApplicationLabel() {  
 // Prepare the input data  
 String correlationId = "your-correlation-id";  
 String applicationLabel = ""; // Set applicationLabel to an empty string  
 UUID documentId = UUID.*randomUUID*();  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus(/\* Initialize your request object \*/);  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Expected error message", responseEntity.getBody().getErrorMessage());  
  
 // Ensure that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).saveDocumentServiceRequestStatus(*any*(), *any*());  
 }  
  
 //Scenario 6: testSaveDocumentServiceRequestStatus\_MissingDocumentId  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_MissingDocumentId() {  
 // Prepare the input data  
 String correlationId = "your-correlation-id";  
 String applicationLabel = "your-application-label";  
 UUID documentId = null; // Set documentId to null to simulate missing value  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus(/\* Initialize your request object \*/);  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Expected error message", responseEntity.getBody().getErrorMessage());  
  
 // Ensure that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).saveDocumentServiceRequestStatus(*any*(), *any*());  
 }  
  
 //Scenario 7: testSaveDocumentServiceRequestStatus\_InvalidDocumentIdFormat  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_InvalidDocumentIdFormat() {  
 // Prepare the input data  
 String correlationId = "your-correlation-id";  
 String applicationLabel = "your-application-label";  
 String invalidDocumentId = "invalid-uuid-format"; // Set an invalid UUID format  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus(/\* Initialize your request object \*/);  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, UUID.*fromString*(invalidDocumentId), request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Expected error message", responseEntity.getBody().getErrorMessage());  
  
 // Ensure that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).saveDocumentServiceRequestStatus(*any*(), *any*());  
 }  
  
 //Scenario 8: testSaveDocumentServiceRequestStatus\_MissingRequestObject  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_MissingRequestObject() {  
 // Prepare the input data  
 String correlationId = "your-correlation-id";  
 String applicationLabel = "your-application-label";  
 UUID documentId = UUID.*randomUUID*();  
 CreateDocumentServiceRequestStatus request = null; // Set the request object to null to simulate missing request  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Expected error message", responseEntity.getBody().getErrorMessage());  
  
 // Ensure that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).saveDocumentServiceRequestStatus(*any*(), *any*());  
 }  
  
 //Scenario 9:  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_InvalidRequestObject() {  
 // Prepare the input data  
 String correlationId = "your-correlation-id";  
 String applicationLabel = "your-application-label";  
 UUID documentId = UUID.*randomUUID*();  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus();  
 // Set request object with an invalid state that does not meet the required criteria  
 request.setDescription(""); // Assuming description is required and empty here  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 *assertEquals*("Expected error message", responseEntity.getBody().getErrorMessage());  
  
 // Ensure that the service method was not called  
 *verify*(documentGeneratorEventStoreService, *never*()).saveDocumentServiceRequestStatus(*any*(), *any*());  
 }  
  
 //Scenario 10: testSaveDocumentServiceRequestStatus\_InternalServerError  
 @Test  
 public void testSaveDocumentServiceRequestStatus\_InternalServerError() {  
 // Prepare the input data  
 String correlationId = "your-correlation-id";  
 String applicationLabel = "your-application-label";  
 UUID documentId = UUID.*randomUUID*();  
 CreateDocumentServiceRequestStatus request = new CreateDocumentServiceRequestStatus(/\* Initialize your request object \*/);  
  
 // Prepare an expected error response  
 DocumentRetrievalResponse errorResponse = new DocumentRetrievalResponse();  
 errorResponse.setCode(HttpStatus.*INTERNAL\_SERVER\_ERROR*.value());  
 errorResponse.setMessage("Internal Server Error");  
  
 // Mock the service method to throw an exception  
 *when*(documentGeneratorEventStoreService.saveDocumentServiceRequestStatus(documentId, request))  
 .thenThrow(new RuntimeException("Simulated Internal Server Error"));  
  
 // Call the controller method  
 ResponseEntity<DocumentRetrievalResponse> responseEntity = eventStoreController  
 .createDocumentServiceRequestStatus(correlationId, applicationLabel, documentId, request);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*INTERNAL\_SERVER\_ERROR*, responseEntity.getStatusCode());  
 *assertEquals*(errorResponse, responseEntity.getBody());  
 }  
  
//--------------------------------------------------------------------------------------------------------------------  
  
 //Method 10: EventResponseMapper  
  
 //Scenario 1: testEventResponseMapper\_Success  
 @Test  
 public void testEventResponseMapper\_Success () {  
 // Arrange  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 TransactionContext context = new TransactionContext();  
 context.setApplicationLabel("testAppLabel");  
 context.setCorrelationID("testCorrelationId");  
  
 EventDataResponse eventDataResponse = new EventDataResponse();  
 EventResponse eventResponseData = new EventResponse();  
 eventResponseData.setEventDataResponse(eventDataResponse);  
 //mock the httpRequest  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(context);  
  
 // Mock the eventResponse with Optional.ofNullable to handle null scenarios  
 Optional<EventResponse> eventResponse = Optional.*of*(eventResponseData);  
  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.eventResponseMapper(httpRequest, eventResponse);  
  
 // Assertions  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
 *assertEquals*("testAppLabel", responseEntity.getBody().getApplicationLabel());  
 *assertEquals*("testCorrelationId", responseEntity.getBody().getCorrelationId());  
 *assertEquals*(DocumentGeneratorEventStoreConstants.*SUCCESS*, responseEntity.getBody().getMessage());  
 }  
  
 //Scenario 2: testEventResponseMapper\_WithEmptyResponse  
 @Test  
 public void testEventResponseMapper\_WithEmptyResponse() {  
 // Arrange  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 TransactionContext context = new TransactionContext();  
  
 // Mock the httpRequest  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(context);  
  
 // Mock the eventResponse with Optional.ofNullable to handle null scenarios  
 Optional<EventResponse> eventResponse = Optional.*ofNullable*(null);  
  
  
 //call eventResponseMapper Method  
  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.eventResponseMapper(httpRequest, eventResponse);  
  
 // Assertions for an empty response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
 *assertNull*(responseEntity.getBody());  
 }  
  
 //Scenario 3: testEventResponseMapper\_NullEventResponse  
 @Test  
 public void testEventResponseMapper\_NullEventResponse() {  
 // Arrange  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 TransactionContext context = new TransactionContext();  
 context.setApplicationLabel("testAppLabel");  
 context.setCorrelationID("testCorrelationId");  
  
 // Mock the httpRequest to return the context  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(context);  
  
 // Mock the eventResponse as null  
 Optional<EventResponse> eventResponse = Optional.*ofNullable*(null);  
  
 // Call the eventResponseMapper method  
 ResponseEntity<EventResponse> responseEntity =eventStoreController. eventResponseMapper(httpRequest, eventResponse);  
  
 // Assertions for null eventResponse  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
 *assertNull*(responseEntity.getBody());  
 }  
  
 //Scenario 4: testEventResponseMapper\_EmptyTransactionContext  
  
 @Test  
 public void testEventResponseMapper\_EmptyTransactionContext() {  
 // Arrange  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 // Mock the httpRequest to return an empty context (null context)  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(null);  
  
 // Mock the eventResponse with Optional.ofNullable to handle null scenarios  
 Optional<EventResponse> eventResponse = Optional.*of*(new EventResponse());  
  
 // Call the eventResponseMapper method  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.eventResponseMapper(httpRequest, eventResponse);  
  
 // Assertions for an empty TransactionContext  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
 *assertNull*(responseEntity.getBody());  
  
 }  
  
 //Scenario 5: testEventResponseMapper\_WithNullTransactionContext  
 @Test  
 public void testEventResponseMapper\_WithNullTransactionContext() {  
 // Arrange  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 //// Mock the httpRequest to return null context  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(null);  
  
 // Create EventResponse  
 EventResponse eventResponseData = new EventResponse();  
  
 // // Mock the eventResponse with Optional.ofNullable  
 Optional<EventResponse> eventResponse = Optional.*ofNullable*(new EventResponse());  
  
 // Call the eventResponseMapper method  
 ResponseEntity<EventResponse> responseEntity =eventStoreController.eventResponseMapper(httpRequest, eventResponse);  
  
 // Assertions for null TransactionContext  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
 *assertNull*(responseEntity.getBody());  
 }  
  
  
 //Scenario 6: testEventResponseMapper\_NullEventDataResponse  
 @Test  
 public void testEventResponseMapper\_NullEventDataResponse() {  
 // Arrange  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 TransactionContext context = new TransactionContext();  
 context.setApplicationLabel("testAppLabel");  
 context.setCorrelationID("testCorrelationId");  
  
 // Mock the httpRequest to return the context  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(context);  
  
 // Create EventResponse with null eventDataResponse  
 EventResponse eventResponseData = new EventResponse();  
 eventResponseData.setEventDataResponse(null);  
  
 // Mock the eventResponse with Optional.ofNullable  
 Optional<EventResponse> eventResponse = Optional.*of*(eventResponseData);  
  
 // Call the eventResponseMapper method  
 ResponseEntity<EventResponse> responseEntity = eventStoreController.eventResponseMapper(httpRequest, eventResponse);  
  
 // Assertions  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
  
 // Additional assertions based on your actual response handling logic  
 *assertEquals*(DocumentGeneratorEventStoreConstants.*NOT\_FOUND*, responseEntity.getBody().getMessage());  
 }  
  
//-------------------------------------------------------------------------------------------------------------------------  
  
 //Method 11: eventControlResponseMapper  
  
 //Scenario 1: testEventControlResponseMapperWhenEventResponseIsPresent  
 @Test  
 public void testEventControlResponseMapperWhenEventResponseIsPresent() {  
 // Create mock objects  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 TransactionContext context = new TransactionContext();  
 context.setApplicationLabel("YourApplication");  
 context.setCorrelationID("12345");  
  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(context);  
  
 // Create a mock EventSummaryResponse  
 EventSummaryResponse eventResponseMock = new EventSummaryResponse();  
 eventResponseMock.setCode(0); // Set the initial code  
 eventResponseMock.setMessage("SomeMessage");  
  
 // Call the method with mock objects  
 ResponseEntity<EventSummaryResponse> responseEntity = eventStoreController  
 .eventControlResponseMapper(httpRequest, Optional.*of*(eventResponseMock));  
  
 // Verify the responseEntity  
 *verify*(httpRequest).getAttribute(BOSConstants.TRANSACTION\_CONTEXT);  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
  
 EventSummaryResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
 *assertEquals*(HttpStatus.*OK*.value(), responseBody.getCode());  
 *assertEquals*("YourApplication", responseBody.getApplicationLabel());  
 *assertEquals*("12345", responseBody.getCorrelationId());  
 *assertEquals*(DocumentGeneratorEventStoreConstants.*SUCCESS*, responseBody.getMessage());  
 }  
  
 //Scenario 2: testEventControlResponseMapperWhenTransactionContextIsNull  
 @Test  
 public void testEventControlResponseMapperWhenTransactionContextIsNull() {  
 // Create mock objects  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 // Simulate that the TransactionContext is not present in the request  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(null);  
  
 // Create a mock EventSummaryResponse  
 EventSummaryResponse eventResponseMock = new EventSummaryResponse();  
 eventResponseMock.setCode(0); // Set the initial code  
 eventResponseMock.setMessage("SomeMessage");  
  
 // Call the method with mock objects  
 ResponseEntity<EventSummaryResponse> responseEntity = eventStoreController  
 .eventControlResponseMapper(httpRequest, Optional.*of*(eventResponseMock));  
  
 // Verify the responseEntity  
 *verify*(httpRequest).getAttribute(BOSConstants.TRANSACTION\_CONTEXT);  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
  
 EventSummaryResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
 *assertEquals*(HttpStatus.*OK*.value(), responseBody.getCode());  
 *assertNull*(responseBody.getApplicationLabel());  
 *assertNull*(responseBody.getCorrelationId());  
 *assertEquals*(DocumentGeneratorEventStoreConstants.*SUCCESS*, responseBody.getMessage());  
 }  
  
 //Scenario 3: testEventControlResponseMapperWhenEventResponseIsEmpty  
 @Test  
 public void testEventControlResponseMapperWhenEventResponseIsEmpty() {  
 // Create mock objects  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 TransactionContext context = new TransactionContext();  
 context.setApplicationLabel("YourApplication");  
 context.setCorrelationID("12345");  
  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(context);  
  
 // Create an empty mock EventSummaryResponse (Optional.empty())  
 Optional<EventSummaryResponse> emptyEventResponse = Optional.*empty*();  
  
 // Call the method with the empty eventResponse  
 ResponseEntity<EventSummaryResponse> responseEntity = eventStoreController  
 .eventControlResponseMapper(httpRequest, emptyEventResponse);  
  
 // Verify the responseEntity  
 *verify*(httpRequest).getAttribute(BOSConstants.TRANSACTION\_CONTEXT);  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
  
 EventSummaryResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
 *assertEquals*(HttpStatus.*OK*.value(), responseBody.getCode());  
 *assertEquals*("YourApplication", responseBody.getApplicationLabel());  
 *assertEquals*("12345", responseBody.getCorrelationId());  
 *assertEquals*(DocumentGeneratorEventStoreConstants.*SUCCESS*, responseBody.getMessage());  
 }  
  
 //Scenario 4: testEventControlResponseMapperWithDifferentStatusCode  
 @Test  
 public void testEventControlResponseMapperWithDifferentStatusCode() {  
 // Create mock objects  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 TransactionContext context = new TransactionContext();  
 context.setApplicationLabel("YourApplication");  
 context.setCorrelationID("12345");  
  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(context);  
  
 // Create a mock EventSummaryResponse with a different initial code  
 EventSummaryResponse eventResponseMock = new EventSummaryResponse();  
 eventResponseMock.setCode(HttpStatus.*BAD\_REQUEST*.value()); // Set a different initial code  
 eventResponseMock.setMessage("SomeMessage");  
  
 // Call the method with mock objects  
 ResponseEntity<EventSummaryResponse> responseEntity = eventStoreController  
 .eventControlResponseMapper(httpRequest, Optional.*of*(eventResponseMock));  
  
 // Verify the responseEntity  
 *verify*(httpRequest).getAttribute(BOSConstants.TRANSACTION\_CONTEXT);  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode()); // Should still be HttpStatus.OK  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
  
 EventSummaryResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*.value(), responseBody.getCode()); // Ensure the code is correctly set  
 *assertEquals*("YourApplication", responseBody.getApplicationLabel());  
 *assertEquals*("12345", responseBody.getCorrelationId());  
 *assertEquals*(DocumentGeneratorEventStoreConstants.*SUCCESS*, responseBody.getMessage());  
 }  
  
 //Scenario 5: testEventControlResponseMapperWhenEventResponseIsNull  
 @Test  
 public void testEventControlResponseMapperWhenEventResponseIsNull() {  
 // Create mock objects  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 TransactionContext context = new TransactionContext();  
 context.setApplicationLabel("YourApplication");  
 context.setCorrelationID("12345");  
  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenReturn(context);  
  
 // Create a null EventSummaryResponse  
 Optional<EventSummaryResponse> nullEventResponse = null;  
  
 // Call the method with the null eventResponse  
 ResponseEntity<EventSummaryResponse> responseEntity = eventStoreController  
 .eventControlResponseMapper(httpRequest, nullEventResponse);  
  
 // Verify the responseEntity  
 *verify*(httpRequest).getAttribute(BOSConstants.TRANSACTION\_CONTEXT);  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
  
 EventSummaryResponse responseBody = responseEntity.getBody();  
 *assertNull*(responseBody); // Ensure that the response body is null  
 }  
  
 //Scenario 6: testEventControlResponseMapperExceptionHandling  
 @Test  
 public void testEventControlResponseMapperExceptionHandling() {  
 // Create a mock HttpServletRequest that throws an exception when accessing attributes  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenThrow(new RuntimeException("Simulated Exception"));  
  
 // Create a mock EventSummaryResponse  
 EventSummaryResponse eventResponseMock = new EventSummaryResponse();  
 eventResponseMock.setCode(HttpStatus.*OK*.value()); // Set the initial code  
 eventResponseMock.setMessage("SomeMessage");  
  
 // Call the method with mock objects  
 ResponseEntity<EventSummaryResponse> responseEntity = eventStoreController  
 .eventControlResponseMapper(httpRequest, Optional.*of*(eventResponseMock));  
  
 // Verify the responseEntity  
 *verify*(httpRequest).getAttribute(BOSConstants.TRANSACTION\_CONTEXT);  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
  
 EventSummaryResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
 *assertEquals*(HttpStatus.*OK*.value(), responseBody.getCode());  
 *assertNull*(responseBody.getApplicationLabel());  
 *assertNull*(responseBody.getCorrelationId());  
 *assertEquals*(DocumentGeneratorEventStoreConstants.*SUCCESS*, responseBody.getMessage());  
 }  
  
 //Scenario 7: testEventControlResponseMapperInternalServerError  
 @Test  
 public void testEventControlResponseMapperInternalServerError() {  
 // Create a mock HttpServletRequest that throws an exception to simulate an internal server error  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 *when*(httpRequest.getAttribute(BOSConstants.TRANSACTION\_CONTEXT)).thenThrow(new RuntimeException("Simulated Internal Server Error"));  
  
 // Create a mock EventSummaryResponse  
 EventSummaryResponse eventResponseMock = new EventSummaryResponse();  
 eventResponseMock.setCode(HttpStatus.*OK*.value()); // Set the initial code  
 eventResponseMock.setMessage("SomeMessage");  
  
 // Call the method with mock objects  
 ResponseEntity<EventSummaryResponse> responseEntity = eventStoreController  
 .eventControlResponseMapper(httpRequest, Optional.*of*(eventResponseMock));  
  
 // Verify the responseEntity  
 *verify*(httpRequest).getAttribute(BOSConstants.TRANSACTION\_CONTEXT);  
 *assertEquals*(HttpStatus.*INTERNAL\_SERVER\_ERROR*, responseEntity.getStatusCode()); // Verify internal server error status  
 *assertEquals*(MediaType.*APPLICATION\_JSON*, responseEntity.getHeaders().getContentType());  
  
 EventSummaryResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
 *assertEquals*(HttpStatus.*OK*.value(), responseBody.getCode()); // Initial code should remain unchanged  
 *assertNull*(responseBody.getApplicationLabel());  
 *assertNull*(responseBody.getCorrelationId());  
 *assertEquals*("Simulated Internal Server Error", responseBody.getMessage()); // Verify the error message  
 }  
  
//-------------------------------------------------------------------------------------------------------------------------  
  
  
 //Method 12: API to retrieve document history details by customerAccountUuid  
 //Scenario 1: testRetrieveDocumentHistoryDetails\_Successful  
 @Test  
 public void testRetrieveDocumentHistoryDetails\_Successful() throws JsonProcessingException {  
 // Define valid input parameters  
 HttpServletRequest httpRequest = new MockHttpServletRequest();  
 String correlationId = "valid-correlation-id";  
 String applicationLabel = "valid-application-label";  
 String customerAccountUuid = "valid-customer-account-uuid";  
  
 // Call the controller method  
 ResponseEntity<EventHistoryApiResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByCustomerAccountUuid(  
 httpRequest, correlationId, applicationLabel, customerAccountUuid);  
  
 // Verify the HTTP status code  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify that the response body is not null  
 *assertNotNull*(Objects.*requireNonNull*(responseEntity.getBody()));  
  
 // You can further validate the response body JSON if needed  
 EventHistoryApiResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
 }  
  
 //Scenario 2: testMissingCorrelationIdHeader  
 @Test  
 public void testMissingCorrelationIdHeader() throws JsonProcessingException {  
 // Define valid input parameters with missing correlationId  
 HttpServletRequest httpRequest = new MockHttpServletRequest();  
 String applicationLabel = "valid-application-label";  
 String customerAccountUuid = "valid-customer-account-uuid";  
  
 // Call the controller method  
 ResponseEntity<EventHistoryApiResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByCustomerAccountUuid(  
 httpRequest, null, applicationLabel, customerAccountUuid); // Pass null for correlationId  
  
 // Verify the HTTP status code  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
  
 EventHistoryApiResponse responseBody = responseEntity.getBody();  
  
 *assertNotNull*(responseBody);  
 *assertEquals*("MissingHeaderError", responseBody.getCode()); //An error code  
 *assertEquals*("CorrelationId header is missing.", responseBody.getMessage()); //An error message  
 }  
  
 // Scenario 3: testMissingApplicationLabelHeader  
 @Test  
 public void testMissingApplicationLabelHeader() throws JsonProcessingException {  
 // Define valid input parameters with missing applicationLabel  
 HttpServletRequest httpRequest = new MockHttpServletRequest();  
 String correlationId = "valid-correlation-id";  
 String customerAccountUuid = "valid-customer-account-uuid";  
  
 // Call the controller method  
 ResponseEntity<EventHistoryApiResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByCustomerAccountUuid(  
 httpRequest, correlationId, null, customerAccountUuid); // Pass null for applicationLabel  
  
 // Verify the HTTP status code  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
  
 // You can further validate the response body JSON if needed  
 EventHistoryApiResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
  
 *assertEquals*("MissingHeaderError", responseBody.getCode());  
 *assertEquals*("ApplicationLabel header is missing.", responseBody.getMessage());  
 }  
  
 //Scenario 4: testInvalidCustomerAccountUuid  
 @Test  
 public void testInvalidCustomerAccountUuid() throws JsonProcessingException {  
 // Define valid input parameters with an invalid customerAccountUuid  
 HttpServletRequest httpRequest = new MockHttpServletRequest();  
 String correlationId = "valid-correlation-id";  
 String applicationLabel = "valid-application-label";  
 String invalidCustomerAccountUuid = "invalid-customer-account-uuid";  
  
 // Call the controller method with the invalid customerAccountUuid  
 ResponseEntity<EventHistoryApiResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByCustomerAccountUuid(  
 httpRequest, correlationId, applicationLabel, invalidCustomerAccountUuid);  
  
 // Verify the HTTP status code  
 *assertEquals*(HttpStatus.*NOT\_FOUND*, responseEntity.getStatusCode());  
  
 // You can further validate the response body JSON if needed  
 EventHistoryApiResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
  
 *assertEquals*("CustomerAccountNotFound", responseBody.getCode());  
 *assertEquals*("Customer account not found with the provided UUID.", responseBody.getMessage());  
 }  
  
 // Scenario 5: testNullCustomerAccountUuid  
 @Test  
 public void testNullCustomerAccountUuid() throws JsonProcessingException {  
 // Define valid input parameters with a null customerAccountUuid  
 HttpServletRequest httpRequest = new MockHttpServletRequest();  
 String correlationId = "valid-correlation-id";  
 String applicationLabel = "valid-application-label";  
 String nullCustomerAccountUuid = null; // Set the customerAccountUuid to null  
  
 // Call the controller method with the null customerAccountUuid  
 ResponseEntity<EventHistoryApiResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByCustomerAccountUuid(  
 httpRequest, correlationId, applicationLabel, nullCustomerAccountUuid);  
  
 // Verify the HTTP status code  
 *assertEquals*(HttpStatus.*NOT\_FOUND*, responseEntity.getStatusCode());  
  
 // You can further validate the response body JSON if needed  
 EventHistoryApiResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
  
 // Assuming your response body has fields like 'errorCode' and 'errorMessage' to indicate the error  
 // You can check if the response contains the expected error code and message for a null customerAccountUuid.  
 *assertEquals*("CustomerAccountNotFound", responseBody.getCode();  
 *assertEquals*("Customer account not found with the provided UUID.", responseBody.getMessage());  
 }  
  
 //Scenario 6: testEventHistoryNotFound  
 @Test  
 public void testEventHistoryNotFound() throws JsonProcessingException {  
 // Define valid input parameters with a customerAccountUuid that has no event history data  
 HttpServletRequest httpRequest = new MockHttpServletRequest();  
 String correlationId = "valid-correlation-id";  
 String applicationLabel = "valid-application-label";  
 String customerAccountUuid = "no-event-history-customer-account-uuid";  
  
 // Mock the service layer to return an empty list of event history data  
 *when*(documentGeneratorEventStoreService.fetchResponseByCustomerAccountUuid(customerAccountUuid))  
 .thenReturn(Collections.*emptyList*());  
  
 // Call the controller method  
 ResponseEntity<EventHistoryApiResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByCustomerAccountUuid(  
 httpRequest, correlationId, applicationLabel, customerAccountUuid);  
  
 // Verify the HTTP status code  
 *assertEquals*(HttpStatus.*NOT\_FOUND*, responseEntity.getStatusCode());  
  
 // You can further validate the response body JSON if needed  
 EventHistoryApiResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
  
 *assertEquals*("EventHistoryNotFound", responseBody.getCode());  
 *assertEquals*("Event history data not found for the provided customerAccountUuid.", responseBody.getMessage());  
 }  
  
 // Scenario 7: testForInternalServerError  
 @Test  
 public void testForInternalServerError() throws JsonProcessingException {  
 // Define valid input parameters  
 HttpServletRequest httpRequest = new MockHttpServletRequest();  
 String correlationId = "valid-correlation-id";  
 String applicationLabel = "valid-application-label";  
 String customerAccountUuid = "valid-customer-account-uuid";  
  
 // Mock the service layer to throw an exception (simulating an internal server error)  
 *when*(documentGeneratorEventStoreService.fetchResponseByCustomerAccountUuid(customerAccountUuid))  
 .thenThrow(new RuntimeException("Internal server error occurred"));  
  
 // Call the controller method  
 ResponseEntity<EventHistoryApiResponse> responseEntity = eventStoreController  
 .retrieveDocumentResponseByCustomerAccountUuid(  
 httpRequest, correlationId, applicationLabel, customerAccountUuid);  
  
 // Verify the HTTP status code  
 *assertEquals*(HttpStatus.*INTERNAL\_SERVER\_ERROR*, responseEntity.getStatusCode());  
  
 // You can further validate the response body JSON if needed  
 EventHistoryApiResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
  
 *assertEquals*("InternalServerError", responseBody.getCode());  
 *assertEquals*("An internal server error occurred while processing the request.", responseBody.getMessage());  
 }  
//-------------------------------------------------------------------------------------------------------------------------------  
  
 //Method 13: API to retrieve pending document request by status  
  
 //Scenario 1: testRetrievePendingDocumentRequests\_Success  
 @Test  
 public void testRetrievePendingDocumentRequests\_Success() {  
 // Mocking the service response  
 List<DocumentRequestServiceResponse> mockResponse = new ArrayList<>();  
 // Add mock data as needed  
 DocumentRequestServiceResponse mockDocumentResponse = new DocumentRequestServiceResponse();  
 mockDocumentResponse.setRequestId("123");  
 // Set other properties as needed  
 mockResponse.add(mockDocumentResponse);  
 *when*(documentServiceRequestService.fetchByDocumentTypeAndRequestStatus(*anyString*(), *anyString*(), *anyInt*()))  
 .thenReturn(mockResponse);  
  
 // Call the controller method with valid input parameters  
 ResponseEntity<List<DocumentRequestServiceResponse>> responseEntity = eventStoreController  
 .retrieveDocumentDetailsByTypeAndStatus(  
 null,  
 "correlationId",  
 "applicationLabel",  
 "valid-document-type",  
 "Pending",  
 50);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify the content of the response  
 List<DocumentRequestServiceResponse> actualResponse = responseEntity.getBody();  
 *assertEquals*(mockResponse, actualResponse);  
 }  
  
 //Scenario 2: testRetrievePendingDocumentRequests\_NullDocumentType\_Success  
 @Test  
 public void testRetrievePendingDocumentRequests\_NullDocumentType\_Success() {  
 // Mocking the service response  
 List<DocumentRequestServiceResponse> mockResponse = new ArrayList<>();  
 // Add mock data as needed  
 DocumentRequestServiceResponse mockDocumentResponse = new DocumentRequestServiceResponse();  
 mockDocumentResponse.setRequestId("123");  
 // Set other properties as needed  
 mockResponse.add(mockDocumentResponse);  
 *when*(documentServiceRequestService.fetchByDocumentTypeAndRequestStatus(*eq*(null), *anyString*(), *anyInt*()))  
 .thenReturn(mockResponse);  
  
 // Call the controller method with no documentType provided  
 ResponseEntity<List<DocumentRequestServiceResponse>> responseEntity = eventStoreController  
 .retrieveDocumentDetailsByTypeAndStatus(  
 null,  
 "correlationId",  
 "applicationLabel",  
 null,  
 "Pending",  
 50);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify the content of the response  
 List<DocumentRequestServiceResponse> actualResponse = responseEntity.getBody();  
 *assertEquals*(mockResponse, actualResponse);  
 }  
  
 //Scenario 3: testRetrievePendingDocumentRequests\_NullDocumentStatus\_Success  
 @Test  
 public void testRetrievePendingDocumentRequests\_NullDocumentStatus\_Success() {  
 // Mocking the service response  
 List<DocumentRequestServiceResponse> mockResponse = new ArrayList<>();  
 // Add mock data as needed  
 DocumentRequestServiceResponse mockDocumentResponse = new DocumentRequestServiceResponse();  
 mockDocumentResponse.setRequestId("123");  
 // Set other properties as needed  
 mockResponse.add(mockDocumentResponse);  
 *when*(documentServiceRequestService.fetchByDocumentTypeAndRequestStatus(*anyString*(), *eq*(null), *anyInt*()))  
 .thenReturn(mockResponse);  
  
 // Call the controller method with no documentStatus provided (null)  
 ResponseEntity<List<DocumentRequestServiceResponse>> responseEntity = eventStoreController  
 .retrieveDocumentDetailsByTypeAndStatus(  
 null,  
 "correlationId",  
 "applicationLabel",  
 "valid-document-type",  
 null,  
 50);  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify the content of the response  
 List<DocumentRequestServiceResponse> actualResponse = responseEntity.getBody();  
 *assertEquals*(mockResponse, actualResponse);  
 }  
  
 //Scenario 4: testRetrievePendingDocumentRequests\_NoNoOfRecords\_Success  
 @Test  
 public void testRetrievePendingDocumentRequests\_NoNoOfRecords\_Success() {  
 // Mocking the service response  
 List<DocumentRequestServiceResponse> mockResponse = new ArrayList<>();  
 // Add mock data as needed  
 DocumentRequestServiceResponse mockDocumentResponse = new DocumentRequestServiceResponse();  
 mockDocumentResponse.setRequestId("123");  
 // Set other properties as needed  
 mockResponse.add(mockDocumentResponse);  
 *when*(documentServiceRequestService.fetchByDocumentTypeAndRequestStatus(*anyString*(), *anyString*(), *eq*(50)))  
 .thenReturn(mockResponse); // Default value for noOfRecords is 50  
  
 // Call the controller method with no noOfRecords provided  
 ResponseEntity<List<DocumentRequestServiceResponse>> responseEntity = eventStoreController  
 .retrieveDocumentDetailsByTypeAndStatus(  
 null,  
 "correlationId",  
 "applicationLabel",  
 "valid-document-type",  
 "Pending",  
 null); // No noOfRecords provided  
  
 // Verify the response  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify the content of the response  
 List<DocumentRequestServiceResponse> actualResponse = responseEntity.getBody();  
 *assertEquals*(mockResponse, actualResponse);  
 }  
  
 //Scenario 5: testRetrievePendingDocumentRequests\_InvalidDocumentType  
 @Test  
 public void testRetrievePendingDocumentRequests\_InvalidDocumentType() {  
 // Mocking the service response for an invalid documentType  
 *when*(documentServiceRequestService.fetchByDocumentTypeAndRequestStatus(*eq*("invalid-document-type"), *anyString*(), *anyInt*()))  
 .thenReturn(Collections.*emptyList*()); // Return an empty list or appropriate error response  
  
 // Call the controller method with an invalid documentType  
 ResponseEntity<List<DocumentRequestServiceResponse>> responseEntity = eventStoreController  
 .retrieveDocumentDetailsByTypeAndStatus(  
 null,  
 "correlationId",  
 "applicationLabel",  
 "invalid-document-type",  
 "Pending",  
 50);  
  
 // Verify the response status (in this case, it should be an error status)  
 *assertEquals*(HttpStatus.*NOT\_FOUND*, responseEntity.getStatusCode()); // You can customize the status code as needed  
  
 String errorMessage = "Invalid documentType provided";  
 *assertEquals*(errorMessage, responseEntity.getBody()); // Assuming you have an error response structure  
 }  
  
 //Scenario 6: testRetrievePendingDocumentRequests\_InvalidDocumentStatus  
 @Test  
 public void testRetrievePendingDocumentRequests\_InvalidDocumentStatus() {  
 // Mocking the service response for an invalid documentStatus  
 *when*(documentServiceRequestService.fetchByDocumentTypeAndRequestStatus(*anyString*(), *eq*("invalid-document-status"), *anyInt*()))  
 .thenReturn(Collections.*emptyList*()); // Return an empty list or appropriate error response  
  
 // Call the controller method with an invalid documentStatus  
 ResponseEntity<List<DocumentRequestServiceResponse>> responseEntity = eventStoreController  
 .retrieveDocumentDetailsByTypeAndStatus(  
 null,  
 "correlationId",  
 "applicationLabel",  
 "valid-document-type",  
 "invalid-document-status",  
 50);  
  
 // Verify the response status (in this case, it should be an error status)  
 *assertEquals*(HttpStatus.*NOT\_FOUND*, responseEntity.getStatusCode()); // You can customize the status code as needed  
  
 String errorMessage = "Invalid documentStatus provided";  
 *assertEquals*(errorMessage, responseEntity.getBody()); // Assuming you have an error response structure  
 }  
  
 //Scenario 7: testRetrievePendingDocumentRequests\_InvalidNoOfRecords  
 @Test  
 public void testRetrievePendingDocumentRequests\_InvalidNoOfRecords() {  
 // Mocking the service response for an invalid noOfRecords  
 *when*(documentServiceRequestService.fetchByDocumentTypeAndRequestStatus(*anyString*(), *anyString*(), *eq*(-1)))  
 .thenReturn(Collections.*emptyList*()); // Return an empty list or appropriate error response  
  
 // Call the controller method with an invalid noOfRecords (-1 in this case)  
 ResponseEntity<List<DocumentRequestServiceResponse>> responseEntity = eventStoreController  
 .retrieveDocumentDetailsByTypeAndStatus(  
 null,  
 "correlationId",  
 "applicationLabel",  
 "valid-document-type",  
 "Pending",  
 -1); // Invalid noOfRecords  
  
 // Verify the response status (in this case, it should be an error status)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode()); // You can customize the status code as needed  
 String errorMessage = "Invalid noOfRecords provided";  
 *assertEquals*(errorMessage, responseEntity.getBody()); // Assuming you have an error response structure  
 }  
  
 //Scenario 8: testRetrievePendingDocumentRequests\_InternalServerError  
 @Test  
 public void testRetrievePendingDocumentRequests\_InternalServerError() {  
 // Mock the service to throw an exception  
 *when*(documentServiceRequestService.fetchByDocumentTypeAndRequestStatus(*anyString*(), *anyString*(), *anyInt*()))  
 .thenThrow(new RuntimeException("Internal Server Error")); // Simulate an exception  
  
 // Call the controller method  
 ResponseEntity<?> responseEntity = eventStoreController  
 .retrieveDocumentDetailsByTypeAndStatus(  
 null,  
 "correlationId",  
 "applicationLabel",  
 "valid-document-type",  
 "Pending",  
 50);  
  
 // Verify the response status (in this case, it should be an internal server error)  
 *assertEquals*(HttpStatus.*INTERNAL\_SERVER\_ERROR*, responseEntity.getStatusCode());  
 }  
//--------------------------------------------------------------------------------------------------------------------  
  
 //Method 14: API to retrieve document details by documentId/documentIds  
  
 //Scenario 1: testRetrieveDocumentsByDocumentIds\_Success  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_Success() {  
 // Prepare test data  
 DocumentIdsRequest documentIdsRequest = new DocumentIdsRequest();  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String applicationLabel = "app-label";  
  
 List<DocumentResponse> documentResponseList = new ArrayList<>();  
 // Add mock DocumentResponse objects to the list  
  
 *when*(documentGeneratorEventStoreService.fetchDocumentsByDocumentIds(documentIdsRequest))  
 .thenReturn(documentResponseList);  
  
 // Call the controller method  
 ResponseEntity<DocumentIdsResponse> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, documentIdsRequest, correlationId, applicationLabel);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify the response body, you may need to implement your own logic for this  
 // depending on the actual response structure  
 DocumentIdsResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
 // Add assertions for the response body properties  
 }  
  
 //Scenario 2: testRetrieveDocumentsByDocumentIds\_EmptyList  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_EmptyList() {  
 // Prepare test data  
 DocumentIdsRequest documentIdsRequest = new DocumentIdsRequest();  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String applicationLabel = "app-label";  
  
 List<DocumentResponse> emptyDocumentResponseList = Collections.*emptyList*();  
  
 // Mock the service method to return an empty list  
 *when*(documentGeneratorEventStoreService.fetchDocumentsByDocumentIds(documentIdsRequest))  
 .thenReturn(emptyDocumentResponseList);  
  
 // Call the controller method  
 ResponseEntity<DocumentIdsResponse> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, documentIdsRequest, correlationId, applicationLabel);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify the response body  
 DocumentIdsResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
  
 // Verify that the response contains an empty list of documents  
 List<DocumentResponse> documents = responseBody.getDocuments();  
 *assertNotNull*(documents);  
 *assertTrue*(documents.isEmpty());  
 }  
  
 //Scenario 3: testRetrieveDocumentsByDocumentIds\_NonEmptyList  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_NonEmptyList() {  
 // Prepare test data  
 DocumentIdsRequest documentIdsRequest = new DocumentIdsRequest();  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String applicationLabel = "app-label";  
  
 // Create a list of mock DocumentResponse objects with some data  
 List<DocumentResponse> documentResponseList = new ArrayList<>();  
 documentResponseList.add(new DocumentResponse(/\* Add data as needed \*/));  
 documentResponseList.add(new DocumentResponse(/\* Add data as needed \*/));  
  
 // Mock the service method to return the list  
 *when*(documentGeneratorEventStoreService.fetchDocumentsByDocumentIds(documentIdsRequest))  
 .thenReturn(documentResponseList);  
  
 // Call the controller method  
 ResponseEntity<DocumentIdsResponse> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, documentIdsRequest, correlationId, applicationLabel);  
  
 // Verify the response status code  
 *assertEquals*(HttpStatus.*OK*, responseEntity.getStatusCode());  
  
 // Verify the response body  
 DocumentIdsResponse responseBody = responseEntity.getBody();  
 *assertNotNull*(responseBody);  
  
 // Verify that the response contains the expected list of documents  
 List<DocumentResponse> documents = responseBody.getDocuments();  
 *assertNotNull*(documents);  
 *assertFalse*(documents.isEmpty());  
 }  
  
 //Scenario 4: testRetrieveDocumentsByDocumentIds\_InternalServerError  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_InternalServerError() {  
 // Prepare test data  
 DocumentIdsRequest documentIdsRequest = new DocumentIdsRequest();  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String applicationLabel = "app-label";  
  
 // Mock the service method to throw an exception (e.g., RuntimeException)  
 *when*(documentGeneratorEventStoreService.fetchDocumentsByDocumentIds(documentIdsRequest))  
 .thenThrow(new RuntimeException("Internal Server Error"));  
  
 // Call the controller method  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, documentIdsRequest, correlationId, applicationLabel);  
  
 // Verify the response status code (should be HttpStatus.INTERNAL\_SERVER\_ERROR)  
 *assertEquals*(HttpStatus.*INTERNAL\_SERVER\_ERROR*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 5: testRetrieveDocumentsByDocumentIds\_InvalidRequest  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_InvalidRequest() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String applicationLabel = "app-label";  
  
 // Pass a null DocumentIdsRequest to the controller method  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, null, correlationId, applicationLabel);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 6: testRetrieveDocumentsByDocumentIds\_MissingCorrelationIdHeader  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_MissingCorrelationIdHeader() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String applicationLabel = "app-label";  
  
 // Simulate a MissingRequestHeaderException for the CorrelationId header  
 *doThrow*(MissingRequestHeaderException.class)  
 .when(httpRequest).getHeader(*eq*("BOSConstants.CORRELATION\_ID\_HEADER"));  
  
 // Call the controller method  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), null, applicationLabel);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 7: testRetrieveDocumentsByDocumentIds\_MissingApplicationLabelHeader  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_MissingApplicationLabelHeader() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
  
 // Simulate a MissingRequestHeaderException for the ApplicationLabel header  
 *doThrow*(MissingRequestHeaderException.class)  
 .when(httpRequest).getHeader(*eq*("BOSConstants.APPLICATION\_LABEL\_HEADER"));  
  
 // Call the controller method  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), correlationId, null);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 8: testRetrieveDocumentsByDocumentIds\_EmptyCorrelationId  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_EmptyCorrelationId() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String emptyCorrelationId = "";  
 String applicationLabel = "app-label";  
  
 // Call the controller method with an empty CorrelationId  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), emptyCorrelationId, applicationLabel);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 9: testRetrieveDocumentsByDocumentIds\_EmptyApplicationLabel  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_EmptyApplicationLabel() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String emptyApplicationLabel = "";  
  
 // Call the controller method with an empty ApplicationLabel  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), correlationId, emptyApplicationLabel);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 10: testRetrieveDocumentsByDocumentIds\_NullCorrelationId  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_NullCorrelationId() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = null; // Set CorrelationId to null  
 String applicationLabel = "app-label";  
  
 // Call the controller method with a null CorrelationId  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), correlationId, applicationLabel); //CorrelationId is null here  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 11: testRetrieveDocumentsByDocumentIds\_NullApplicationLabel  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_NullApplicationLabel() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String applicationLabel = null; // Set ApplicationLabel to null  
  
 // Call the controller method with a null ApplicationLabel  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), correlationId, applicationLabel); //applicationLabel is null here  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 12: testRetrieveDocumentsByDocumentIds\_InvalidCorrelationId  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_InvalidCorrelationId() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String invalidCorrelationId = "correlation\_id\_with\_invalid\_characters"; // Invalid characters in CorrelationId  
 String applicationLabel = "app-label";  
  
 // Call the controller method with an invalid CorrelationId  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), invalidCorrelationId, applicationLabel);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 13: testRetrieveDocumentsByDocumentIds\_InvalidApplicationLabel  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_InvalidApplicationLabel() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String invalidApplicationLabel = "invalid\_application\_label\_with\_@"; // Invalid characters in ApplicationLabel  
  
 // Call the controller method with an invalid ApplicationLabel  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), correlationId, invalidApplicationLabel);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 14: testRetrieveDocumentsByDocumentIds\_MissingCorrelationIdAndApplicationLabel  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_MissingCorrelationIdAndApplicationLabel() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
  
 // Simulate MissingRequestHeaderExceptions for both CorrelationId and ApplicationLabel headers  
 *doThrow*(MissingRequestHeaderException.class)  
 .when(httpRequest).getHeader(*eq*("BOSConstants.CORRELATION\_ID\_HEADER"));  
 *doThrow*(MissingRequestHeaderException.class)  
 .when(httpRequest).getHeader(*eq*("BOSConstants.APPLICATION\_LABEL\_HEADER"));  
  
 // Call the controller method  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), null, null);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 15: testRetrieveDocumentsByDocumentIds\_InvalidHttpRequest  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_InvalidHttpRequest() {  
 // Prepare test data  
 HttpServletRequest httpRequest = *mock*(HttpServletRequest.class);  
 String correlationId = "correlation-id";  
 String applicationLabel = "app-label";  
  
 // Simulate an invalid HTTP request by throwing HttpRequestMethodNotSupportedException  
 *doThrow*(HttpRequestMethodNotSupportedException.class)  
 .when(httpRequest).getMethod();  
  
 // Call the controller method  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 httpRequest, new DocumentIdsRequest(), correlationId, applicationLabel);  
  
 // Verify the response status code (should be HttpStatus.METHOD\_NOT\_ALLOWED)  
 *assertEquals*(HttpStatus.*METHOD\_NOT\_ALLOWED*, responseEntity.getStatusCode());  
 }  
  
 //Scenario 16: testRetrieveDocumentsByDocumentIds\_MissingHttpRequest  
 @Test  
 public void testRetrieveDocumentsByDocumentIds\_MissingHttpRequest() {  
 // Prepare test data  
 String correlationId = "correlation-id";  
 String applicationLabel = "app-label";  
  
 // Call the controller method with a null HttpServletRequest  
 ResponseEntity<?> responseEntity = eventStoreController.retrieveDocumentsByDocumentIds(  
 null, new DocumentIdsRequest(), correlationId, applicationLabel);  
  
 // Verify the response status code (should be HttpStatus.BAD\_REQUEST or a custom error status)  
 *assertEquals*(HttpStatus.*BAD\_REQUEST*, responseEntity.getStatusCode());  
 }  
}**