**Test Plan for Email Sending Service:**

1. Introduction: Describe the purpose of the test plan and providing an overview of the email sending service being tested.
2. Test Scope: Define the boundaries and features to be tested. Include details about the supported email types (text, HTML), attachments, recipients, etc.
3. Test Environment: Specify the test environment, including hardware, software, email servers, and any required third-party services.
4. Test Cases:

4.1 Sending a Simple Text Email:

* + Verify that a simple text email can be sent successfully.
  + Check if the recipient receives the email as expected.
  + Confirm that the email content is correct.

4.2 Sending an HTML Email:

* + Ensure that HTML emails can be sent without any issues.
  + Verify that the email content is rendered correctly in the recipient's email client.
  + Check if any dynamic HTML elements are displayed properly.

4.3 Sending Email with Attachments:

* + Test sending emails with various types of attachments (e.g., documents, images, etc.).
  + Verify that the attachments can be downloaded and are not corrupted.

4.4 Testing Email Templates:

* + Test the functionality of using email templates for common scenarios (e.g., welcome emails, password reset).
  + Ensure that placeholders are replaced with the appropriate values.

4.5 Testing Bulk Email Sending:

* + Verify that the email sending service can handle sending emails to a large number of recipients simultaneously.
  + Check for any performance issues during bulk sending.

4.6 Testing Email Delivery Time:

* + Verify that emails are delivered promptly and within a reasonable time frame.
  + Check for delays in email delivery under different load conditions.

4.7 Testing Email Personalization:

* + Test the ability to personalize emails with recipient-specific information (e.g., name, company).
  + Verify that personalized information is accurate for each recipient.

4.8 Testing Email Bounces and Errors:

* + Test scenarios where emails are bounced back due to invalid email addresses or other errors.
  + Verify that appropriate error handling and notifications are in place.

4.9 Testing Email Security:

* + Test for any security vulnerabilities related to email content or attachments.
  + Verify that the email service does not expose sensitive information in headers or logs.

4.10 Testing Email Delivery Reports:

* + Verify the accuracy of email delivery reports and tracking features (e.g., read receipts).
  + Ensure that delivery status updates are timely and reliable.

4.11 Testing the Unsubscribe Rate:

* + For marketing email campaigns, the unsubscribe option is required.
  + Ensuring that after giving the access to unsubscribe button whether it is functional or not.

4.11 Testing Click-through Rate:

* + For those containing links in email.
  + Verify that how many links are clickable and the function wired to it correctly.

1. Test Data: Define any test data required for the test cases, such as sample email content, attachments, and recipient addresses.
2. Test Execution Schedule: Provide a timeline for executing the test cases.
3. Defect Reporting: Define the process for reporting and tracking defects, including severity and priority levels.
4. Risk Assessment: Identify potential risks and their impact on the email sending service, along with mitigation strategies.
5. Test Sign-off: Define the criteria for test completion and obtaining approval for the email sending service.
6. Conclusion: Summarize the test plan and any major findings during the testing process.

How can this process be automated:

Email sending service can be used automated using Java along with Selenium and for its API testing RESTFULL can be used.   
  
Using Selenium Java along with TestNG, Page Object Model we would need

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