Data Analytics Tool:
- Intimo, a clothing store, is in need of a way to analyze data they have acquired from past sales.
- Data analytics is common in larger stores because there is a vast majority of data that is obtained throughout the years that can help them attain insights to help increase their sales.
- Currently, Intimo does not have a system in place that allows them to use all the data that was collected in a way to make predictions that will increase their profitability and improve marketing.
- Having a system that can perform data analytics will help Intimo be more prepared for future sales.

Current System
- Currently, Intimo has no way to analyze previous data that they have collected.
- Intimo is performing the following post-ordering processes manually:
  - Update shipping information which includes: Carrier, Tracking number, Synchronize their inventory database with Yahoo!

Requirements
- The requirements of the system that I am responsible for are the following:
  - Obtain a report of the products that are most commonly sold during a given period of time.
  - Obtain a report on a certain product and the days it is most commonly sold.
  - Obtain a report of customers who have not shopped during a given period of time.
  - Allow the user to select a product to view a report on.
  - Allow the user to select the dates desired to create a report.
  - Enforce password restrictions when creating an account.
  - Lock a user’s account upon multiple wrong password login attempts.
  - Allow the user to create an account.
  - The system shall allow the user to login.
  - The system shall allow the user to logout.
  - Automatically update the shipping information on Yahoo! Merchants.

Process Automation:
- Intimo is manually performing tasks like updating shipping information and synchronizing their inventory with Yahoo!
- Having the above tasks being performed automatically will save them time and will guarantee accuracy.

Proposed System
The proposed system should allow users to access an application where they can run reports on data that has been collected throughout the years. This data is from past orders and customers who have previously ordered. The application should be secured and require a username and password to access.

System Design
Below is a package diagram showing the main components of the system:

Object Design
Below are the classes that I implemented for the Data Analytics tool:

Implementation
- The Data Analytics Tool is implemented in Java using NetBeans and Swing which is a Java GUI widget toolkit.
- The data for the reports is stored in a MySQL database and it is accessed from Java using JDBC. Below is a snippet of how JDBC is used to access data.

```
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.Connection;
import java.sql.SQLException;

public class ReportGenerator {
    private Connection connection;
    private String query;

    public ReportGenerator(Connection connection, String query) {
        this.connection = connection;
        this.query = query;
    }

    public ResultSet generateReport() throws SQLException {
        PreparedStatement pstmt = connection.prepareStatement(query);
        ResultSet result = pstmt.executeQuery();
        return result;
    }
}
```

Verification
Below is an example of a sunny day system test case:

<table>
<thead>
<tr>
<th>Test Case ID:</th>
<th>System_ResetPassword_SunnyDay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose:</td>
<td>To validate changing the password in an existing user's account.</td>
</tr>
<tr>
<td>Preconditions:</td>
<td>Username has been created, the user has security questions.</td>
</tr>
<tr>
<td>Expected Output:</td>
<td>Notifies the user that the password was successfully changed, changes the password in the database.</td>
</tr>
<tr>
<td>Actual Output:</td>
<td>Same as expected</td>
</tr>
</tbody>
</table>

Two Sunny Day and one Rainy Day test case for each use case of the system.

Summary
- The Data Analytics tool is a user-friendly application to analyze data gathered throughout the years by the retail store Intimo.
- Analyzes past purchase data to inform Intimo which days of the year a product is sold more often and how much is sold.
- Evaluates past customer information and lists which customers have not shopped again since a given date.
- Allows the user to export the reports that were generated onto their computers.

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