

# INTERNET APPLICATION DEVELOPMENT

## LAB 07

### PROBLEM STATEMENT

- 1) Refer to Lab 1 (Problem 2(i) and (iii)), you have to incorporate business intelligence in your order processing system by adding customer segmentation analysis. Customer segmentation is the process of dividing a company's customer base into smaller, distinct groups that share similar characteristics, such as demographics, behaviors, or preferences. You are advised to do segmentation of customer behavior, mainly considering purchase habits. Suggested Methodology a) Define and describe customer segments of your own choice: e.g. Frequent Customer, Premium Customer,.. b) Draw a prototype interface on paper for segmentation analysis. c) Write SQL queries to generate segmentation data. d) Develop an interface in Visual Studio for segmentation analysis. Write code for a suitable handler that will execute queries developed in part (c) above and display segmented data to employees of the company. Assumption: Sufficient numbers of orders are present in the database.
- 2) Problem 2) How can you automate targeted marketing using the above segments? [Hint: For all royal customers, send them a complimentary gift through courier and a message of thanks through email/sms.]
- 3) Problem 3: Develop test cases for your segmentation analysis platform? [Hints: (i) No customer in a particular segment, (ii) Uneven distribution of customers across segments.

### Code:

```
using System;
using System.Data;
using System.Data.SqlClient;
using System.Configuration;

namespace IADLAB6
{
    public partial class segmentation : System.Web.UI.Page
    {
        protected void Page_Load(object sender, EventArgs e)
        {
            if (Session["Role"] == null)
            {
                Response.Redirect("login.aspx");
            }

            if (Session["Role"].ToString() != "Admin")
            {
                lblMessage.ForeColor = System.Drawing.Color.Red;
                lblMessage.Text = "Only employees/admin can view customer
segmentation analysis.";
                btnAnalyze.Enabled = false;
            }
        }
    }
}
```

```

protected void btnAnalyze_Click(Object sender, EventArgs e)
{
    string constr =
ConfigurationManager.ConnectionStrings["PineValleyConnectionString"].ConnectionSt
ring;

    SqlConnection con = new SqlConnection(constr);

    SqlCommand cmd = new SqlCommand();
    cmd.Connection = con;

    cmd.CommandText = @"
        SELECT
            C.Customer_Id,
            C.Customer_Name,
            COUNT(O.Order_Id) AS Total_Orders,
            ISNULL(SUM(OL.Ordered_Quantity * P.Standard_Price), 0) AS
Total_Spending,
        CASE
            WHEN ISNULL(SUM(OL.Ordered_Quantity * P.Standard_Price),
0) >= 2000 THEN 'Premium Customer'
            WHEN COUNT(O.Order_Id) >= 3 THEN 'Frequent Customer'
            WHEN COUNT(O.Order_Id) >= 1 THEN 'Regular Customer'
            ELSE 'Low Activity Customer'
        END AS Customer_Segment
    FROM CUSTOMER_t C
    LEFT JOIN ORDER_t O ON C.Customer_Id = O.Customer_Id
    LEFT JOIN Order_line_t OL ON O.Order_Id = OL.Order_Id
    LEFT JOIN PRODUCT_t P ON OL.Product_Id = P.Product_Id
    GROUP BY C.Customer_Id, C.Customer_Name
    ORDER BY Total_Spending DESC";

    try
    {
        SqlDataAdapter da = new SqlDataAdapter(cmd);
        DataTable dt = new DataTable();

        da.Fill(dt);

        GridView1.DataSource = dt;
        GridView1.DataBind();

        lblMessage.ForeColor = System.Drawing.Color.Green;
        lblMessage.Text = "Segmentation report generated successfully.";
    }
    catch (Exception ex)
    {
        lblMessage.ForeColor = System.Drawing.Color.Red;
        lblMessage.Text = ex.Message;
    }
    finally
    {
        con.Close();
        cmd.Dispose();
    }
}
}
}

```

# Pine Valley Furniture Company

## Choose an Option

New Customer Registration

Search Products

Place Order

Update Catalog

Make Payment

Help / Guide

Customer Segmentation Analysis

## Business Intelligence for Order Processing

This page divides customers into segments based on their orders and spending.

Generate Segmentation Report

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### Business Intelligence for Order Processing

This page divides customers into segments based on their orders and spending.

Generate Segmentation Report

Customer_Id	Customer_Name	Total_Orders	Total_Spending	Customer_Segment
2	Valve Furniture	3	6050.00	Premium Customer
4	Eastern Furniture	3	5200.00	Premium Customer
5	Impressions	3	5000.00	Premium Customer
1	Contemporary Casuals	4	3900.00	Premium Customer
3	Home Furnishings	1	1950.00	Regular Customer
8	California Classics	1	1875.00	Regular Customer
12	Battle Creek Furniture	2	1875.00	Regular Customer
15	Mountain Scenes	1	1125.00	Regular Customer
11	American Euro Lifestyles	2	925.00	Regular Customer
13	Heritage Furnishings	0	0.00	Low Activity Customer
14	Kahehe Homes	0	0.00	Low Activity Customer
23	Mahnoor Iqbal	0	0.00	Low Activity Customer
25	Alec	0	0.00	Low Activity Customer
28	Wood furnish	0	0.00	Low Activity Customer
9	M and H Casual Furniture	0	0.00	Low Activity Customer
10	Seminole Interiors	0	0.00	Low Activity Customer
6	Furniture Gallery	0	0.00	Low Activity Customer
7	Period Furniture	0	0.00	Low Activity Customer

Segmentation report generated successfully.

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Customers cannot view the segmentation of customers

## Customer Segmentation Analysis

### Business Intelligence for Order Processing

This page divides customers into segments based on their orders and spending.

[Generate Segmentation Report](#)

Only employees/admin can view customer segmentation analysis.

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