**EX16\_AC\_CH03\_GRADER\_ML1\_HW - Small Business Loans**

**Project Description:**

*You are the manager of a regional business loan department for the U.S. Small Business Administration office. You have decided to evaluate whether Access could be used in place of the Excel worksheet you are currently using. You will create a table, add some sample customers, and import some recent data from an Excel spreadsheet. You will calculate the payments for the loans that are currently on the books by creating a query using the Pmt function. You will also summarize each loan by the type of loan (M=Mortgage, C=Car, and O=Other).*

**Instructions:**

For the purpose of grading the project you are required to perform the following tasks:

| **Step** | **Instructions** | **Points Possible** |
| --- | --- | --- |
| **1** | Start Access. Open the downloaded Access file named exploring\_a03\_grader\_h2. Note this file is an empty database. | 0 |
| **2** | *There are many different types of loans that are provided by the Small Business Administration. Your manager wants to get a better handle on which customers have each type of loan. You started working in Excel with this information but realize that Access would be a better solution. In Excel, you already have a Customer ID column, so you need to start building the customer table in Access to match the ID’s in the spreadsheet.*  In Design view, create a table named **Customers**. Add the first field named **CustomerID** with AutoNumber Data Type. Add **Company** as the second field name, and **FirstName** as the third field name. Accept the default data types. | 10 |
| **3** | Add the following fields to the Customers table (in this order), accepting the default data type of Short Text:   **LastName** **City** **State** **Zip**  Verify that CustomerID is the primary field. | 10 |
| **4** | Save the table and switch to Datasheet view. Add the following records to the table:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Company | FirstName | LastName | City | State | Zip | | **Jones and Co** | **Robert** | **Paterson** | **Greensboro** | **NC** | **27401** | | **Elements, Inc.** | **Merve** | **Kana** | **Paterson** | **NJ** | **07505** | | **Godshall Meats, LLC** | **Francisco** | **De La Cruz** | **Beverly Hills** | **CA** | **90210** | | 10 |
| **5** | *Since you already had some data in an Excel spreadsheet, you can easily import the data into an Access database to create a table of the types of loans.*  Import the spreadsheet in the downloaded Excel file *exploring\_a03\_h2\_Loans* into a new table. Choose LoanID as the primary key and accept all other defaults in the Import Wizard. | 10 |
| **6** | *It is important to be sure the fields have the correct formatting to ensure the data makes sense. For example: the interest rate is always a percentage value, so it is important to make sure this is set correctly.*  Open the Loans table in Design view. Change the InterestRate field format to Percent. Change the field size for the CustomerID field to Long Integer. Save and close the table. Click Yes when prompted that some data may be lost. | 10 |
| **7** | Create a relationship between the CustomerID fields in the Customers and Loans tables. Enforce referential integrity. Save and close the Relationships window. | 10 |
| **8** | Create a query using the two tables that will calculate the payment amount for each loan. Add the following fields: Company, LoanID, Amount, InterestRate, Term, and LoanClass, in that order. Sort the query by LoanID in ascending order. Save the query as **Loan Payments**. | 5 |
| **9** | *One piece of information you wish to extract from the data is the monthly loan payments for each of the loans from the customers. This information is not found directly within the database; however, you can get this information by using the built-in PMT function. Like Excel, Access has the power to build these functions from the existing fields in the database. Using the “Expression Builder” can make this task a little easier.*  Use the Expression Builder to add a calculated field named **Payment** in the first blank column to calculate the loan payment for each loan using the Pmt function. Assume the loans have monthly payments (12 payments per year). Ensure the payment displays as a positive number. Run the query. Hint: To open the Expression Builder, on the Design tab, in the Query Setup group, click Builder. The formula should be **Payment: Pmt([InterestRate]/12,[Term]\*12,-[Amount])**. To run the query, on the DESIGN tab, in the Results group, click Run. | 5 |
| **10** | Switch to Design view and change the format for the Payment calculated field to Currency. Run the query again to verify your change. | 5 |
| **11** | *A “total row” makes it easy to figure out the sum or average of a field. This information is important for reporting the total amount of loans that have been issued by the Small Business Association.*  In Datasheet view, add a Totals row. Use it to calculate the sum of the Amount column, the average InterestRate, and the average Term. Save and close the query. | 5 |
| **12** | Create a copy of Loan Payments. Save the new query as **Loan Payments Summary**. Open the Loan Payments Summary query in Design view and rearrange the columns as follows: LoanClass, LoanID, Amount, and InterestRate. Delete columns Company, Term, and Payment. | 5 |
| **13** | *Grouping a query allows you to summarize your data by the values of a field. In this case, you would love to be able to obtain more information about each loan class. Setting the Loan Type as the field that everything is grouped under allows you to get some aggregate values like the sum or average of fields that are being grouped. This can help in your reports to your superiors.*  Group the Loan Payments Summary query by the LoanClass field. Display the number of loans in the LoanID column, the sum in the Amount column, and the average in the InterestRate column. Run the query. | 5 |
| **14** | *When you do group by a specific field, the column headings, which are the names of the fields, may not make sense. In this instance, you have the sum of the loan amounts based on the loan types. Changing the caption of that column name to something that is more descriptive can help when you create a report from this query.*  Switch to Design view and display the Property Sheet. For the LoanID field, change the caption to **Loans**. For the Amount field, change the caption to **Total Amount** and change the format to Currency. For the InterestRate field, change the caption to **Avg Interest Rate** and change the format to Percent. Run the query. Save and close the query. | 10 |
| **15** | Close all database objects. Close the database and then exit Access. Submit the database as directed. | 0 |

| **Total Score** | **100** |
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