Name intentionally omitted

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Visual Basic – Final Project

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Documentation Manual/Reflection

Objective:

The goal of the project is to apply my knowledge of visual basic to a real-world problem. In this case, to find a website that is missing something that could improve the quality of life of the users interacting with that website.

Issue:

With the help of my professor, Mr. Chukwuemeka, I was able to find that one of the local area schools had a tuition website that did not have a calculator for parents to breakdown the expenses. The school in question is Tuscarawas Central Catholic Junior and Senior High School, based out of New Philadelphia, Ohio. The website with their tuition rates is https://www.tccsaints.com/tuition-rates.

I noticed quickly that the Tuition Rates page for Tuscarawas Central Catholic Junior and Senior High School did not contain a calculator for parents to figure out what they would owe for their child to attend for a given year. This was the problem that I chose to fix: creating a tuition rate calculator for parents to use.

Description:

This project began with an understanding of what all the possibilities were for the students. This meant looking at and breaking down whether they were a junior high student, a senior high student, a Buckeye Career Center student, or an international student. Once I had the calculations understood, I was able to move forward with the solution.

I was able to solve the problem by looking at the options that could be picked from, such as Junior High vs Senior High, whether the student would participate in sports, and whether the student was the parent's first, second, or third child. I created an application, or in this case a calculator, that would break down the information entered by the user and create a total cost and a cost rundown for the user to

understand how much they would pay for their child to go Tuscarawas Central Catholic Junior and Senior High School.

This solution also solved the problem in it's entirety, as it ensured that all of the possibilities were covered. The solution also informed parents of any issues, such as if their child was an international student, they would not be able to partake in Ohio High School Athletic Association (OHSAA) regulated sports, or that any OHSAA sport fees were covered if the student was going to Buckeye Career Center.

Tuition:

Grades 7-8 NOT Attending a Catholic Church (Not Participating)

**Since they ARE NOT attending a Catholic Church, it does not matter if it is the first, second, or third child.*

	Tuition
Cost:	$4,595.00

Grades 7-8 Attending a Catholic Church (Participating)

** Since they ARE attending a Catholic Church, there ARE differences based on first, second, or third child, as they are eligible for reduced rates.*

	Tuition
First child:	$3,365.00
Second child:	$2,720.00
Third child:	$2,190.00

Grades 9-12 NOT Attending a Catholic Church (Not Participating)

**Since they ARE NOT attending a Catholic Church, it does not matter if it is the first, second, or third child.*

	Tuition
Cost:	$6,530.00

Grades 9-12 Attending a Catholic Church (Participating)

**Since they ARE attending a Catholic Church, there ARE differences based on first, second, or third child, as they are eligible for reduced rates.*

	Tuition

First child:	$5,560.00
Second child:	$4,490.00
Third child:	$3,635.00

Buckeye Career Center (BCC)

**It does not matter if a student is the first, second, or third child from a family when they are attending BCC. There is no change in cost.*

	Tuition
Cost:	$1,092.00

International Student

**It does not matter if a student is the first, second, or third child from a family when they are an international student. There is no change in cost.*

	Tuition
Cost:	$7,649.00

Course Topics/Concepts

There were quite a few topics and concepts from the course that I applied to the program, as well as other topics that I learned from external research. These topics and concepts included the incorporation of variables and various data types, such as strings, doubles, integers, and booleans.

The string data type used to create portions of the final message that the user would see after pressing the "Calculate" button.

Defining the string:

```
Dim Attend As String = "not attending a Catholic Church,
which means they are not eligible for a multi-child discount"
```

Using it in the code:

```
ResultsBox.Text = $"${FormatNumber(Cost, NumDigitsAfterDecimal:=2)}" + vbCrLf + Environment.NewLine +
    "The above is the total cost for your student to attend Tuscarawas Central Catholic." + vbCrLf + Environment.NewLine +
    $"This is because you indicated that your child is {Attend}." + vbCrLf + Environment.NewLine
```

Output:

$4,595.00

The above is the total cost for your student to attend Tuscarawas Central Catholic.

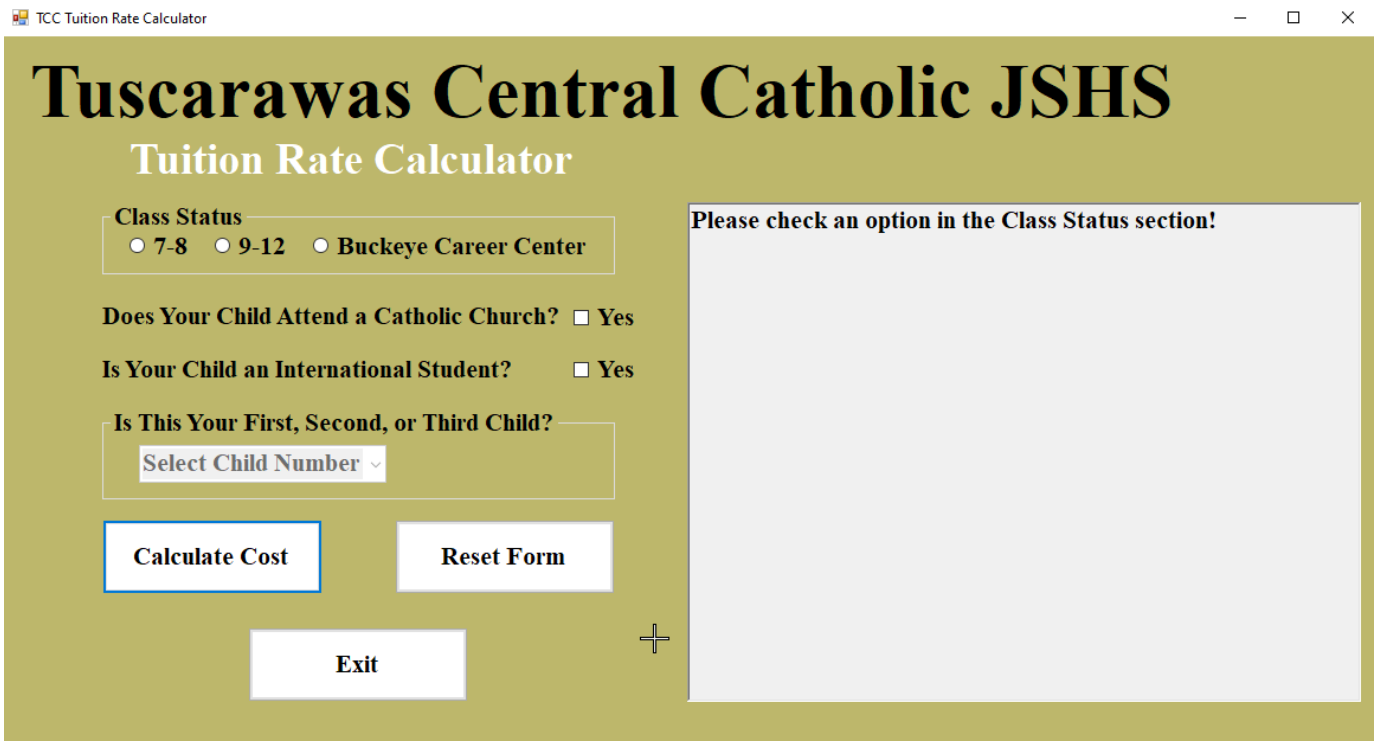
This is because you indicated that your child is not attending a Catholic Church, which means they are not eligible for a multi-child discount.

The double data type was used to calculate the cost for the child to attend, whereas I used the integer data type to keep track of the child number (first, second, or third child).

Lastly, the booleans were used as part of the If/ElseIf/EndIf commands to create error handling as well as to produce the results for the user. The booleans were used more as a form of status checking throughout the program. For instance, I used data-entry-handling to ensure that users were making the selections necessary to receive results:

```
'Ensure that the user selects an option for Class Status and whether it is their First, Second, or Third child.
If JHS.Checked = False And SHS.Checked = False And BCC.Checked = False Then
    ResultsBox.Text = "Please check an option in the Class Status section!"
ElseIf ChildNumber.SelectedIndex = -1 And (JHS.Checked = True Or SHS.Checked = True) Then
    ResultsBox.Text = "Please select whether it is your First, Second, or Third child!"
End If
```

Output:



The project also included formatting the above data types to the most appropriate form for their application. For instance, formatting the costs with "FormatNumber" to have 2 digits after the decimal point:

```
$"${FormatNumber(Cost, NumDigitsAfterDecimal:=2)}"
```

For the output:

$4,595.00

I was also able to incorporate operators such as vbCrLf and Environment.NewLine to create improved spacing within the text shown. The If-Then-ElseIf-EndIf and If-Then-ElseIf-Else-EndIf were quite useful for this program, as I needed to ensure that certain items were checked and met prior to moving forward. These If-Then statements also allowed the program to ensure it was providing the proper responses to the input from the user.

Lastly, and likely one of the more useful items I learned from this course, was the error-handling procedures. While in some assignments they were incorporated differently, in this assignment I was able to use an If-Then-ElseIf-EndIf statement to handle any errors, such as lack of information entry.

Limitation:

The only limitations to the project's solution is the information provided, which I was able to gather by contacting Tuscarawas Central Catholic to clear up. This information was related to taxes, such as sales tax, and as to whether there would be any taxes on top of the Tuition payment. There are no taxes on tuition payments. There was also a mix-up relating the "participating" options as being related to sports, whereas it is intended to be related to whether or not the potential student attends a Catholic Church.

Recommendation:

I intend to reach out to the school to offer the project, the tuition rate calculator, to them if they wish to add it to their website. Otherwise, I would recommend that they add something of the like to their website. It may be quite useful to parents of students as well as to families looking to have their children attend Tuscarawas Central Catholic Junior and Senior High School.

Conclusion:

This project truly allowed me, as a visual basic student, to test my abilities with a real-world problem that needed a fix. There were quite a few topics, concepts, and learning objectives that came to mind when I was working through this project. I was able to incorporate quite a few basic concepts into my solution, including Booleans, Strings, and If/Else/ElseIf sequences. I was also able to make use of error-handling, like that of Module 5 from the course, however I wanted to alert the user without closing the program – thus I decided to make use of the results text box to do so.

This project also showed me just how repetitive coding can be, which can be a blessing or a hardship depending on the situation. Once you code a function and it is in good, working order, it is much easier to reuse in future projects – such as this one. I was able to reuse portions of my previous projects, making adjustments as needed, but they followed the same or similar uses as that of what they did in previous assignments.

References:

"Tuition Rates." n.d. Tuscarawas Central Catholic JSHS, www.tccsaints.com/tuition-rates.

"Welcome to Visual Basic (VB.NET) Programming Language." n.d. Visual Basic, www.samuelchukwuemeka.com/VisualBasic/visualBasic.html.