Eugene Borts

Applied Database II

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Assignment 9B

Introduction

The purpose of this report is to demonstrate the use of Pivot Tables in SQL using the US Financial Aid database from the Getting Started With Report Builder 3 lecture, which lists the total financial aid received from the US for each country by fiscal year. This report is divided into two parts. Part one uses a standard pivot table, while the second part uses a dynamic pivot table. The standard pivot table is quick and easy to use, but the dynamic pivot table allows for a greater level of control and customization.

Part I: US Financial Aid Pivot Table

The total financial aid is displayed for each country per fiscal year, ordered by fiscal year.

Query

```
USE USAidDatabase

SELECT * FROM
	(SELECT
	CountryName,
	FiscalYear,
	Amount
	FROM
		FinancialAid) AS BaseData

PIVOT (
	SUM(Amount)
	FOR CountryName
	IN ([Brazil], [Canada], [India], [Mexico], [Paraguay], [Peru], [Portugal],
[Spain])
) AS PivotTable ORDER BY FiscalYear
```

Result

Results | Messages

	FiscalYear	Brazil	Canada	India	Mexico	Paraguay	Peru	Portugal	Spain
1	1946	206400000.00	NULL	470400000.00	14400000.00	4800000.00	7200000.00	NULL	NULL
2	1947	7800000.00	NULL	NULL	67800000.00	2400000.00	33600000.00	NULL	NULL
3	1948	8400000.00	NULL	4200000.00	180600000.00	2400000.00	7800000.00	NULL	NULL
4	1949	4800000.00	NULL	3000000.00	106800000.00	2400000.00	5400000.00	NULL	NULL
5	1950	4800000.00	NULL	6000.00	120000000.00	3000000.00	5400000.00	189000000.00	NULL
6	1951	7200000.00	NULL	1168800000.00	49200000.00	4200000.00	7800000.00	118200000.00	103200000.00
7	1952	15600000.00	36000000.00	320400000.00	31800000.00	9600000.00	10806000.00	606000.00	213600000.00
8	1953	109200000.00	39600000.00	270600000.00	9600000.00	4800000.00	10200000.00	-2400000.00	58800000.00
9	1954	15600000.00	29400000.00	533400000.00	37200000.00	7200000.00	15600000.00	1200000.00	508200000.00
10	1955	34800000.00	NULL	673200000.00	13200000.00	12000000.00	52200000.00	600000.00	683400000.00
11	1956	238200000.00	NULL	562200000.00	6600000.00	24000000.00	68400000.00	49200000.00	879000000.00
12	1957	727800000.00	NULL	2180400000.00	9000000.00	16200000.00	94800000.00	26400000.00	792600000.00
13	1958	54600000.00	NULL	1057200000.00	115800000.00	31800000.00	63000000.00	21000000.00	811800000.00
14	1959	59505000.00	NULL	1797500000.00	9500000.00	28500000.00	19000000.00	12500000.00	672500000.00
15	1960	67005000.00	NULL	3397500000.00	10000000.00	14500000.00	58000000.00	17000000.00	452000000.00
16	1961	461000000.00	NULL	2445000000.00	22000000.00	54500000.00	176500000...	28000000.00	334500000.00
17	1962	1028000000...	NULL	3597000000.00	182000000.00	40000000.00	298000000...	85000000.00	149000000.00
18	1963	706500000.00	NULL	3272000000.00	116000000.00	45000000.00	63500000.00	36000000.00	47500000.00
19	1964	1684500000...	NULL	3069000000.00	262500000.00	40505000.00	273500000...	77500000.00	34500000.00
20	1965	1354000000...	NULL	3298000000.00	182000000.00	44010000.00	115500000...	20500000.00	33000000.00
21	1966	1645000000...	NULL	4509500000.00	1500000.00	74000000.00	197500000...	15000000.00	38000000.00

Part II: US Financial Aid Dynamic Pivot Table

In the dynamic pivot table, all countries are now included and listed in alphabetical order rather than being manually selected, and all null values have been replaced with a value of zero.

Query

```
USE USAidDatabase
GO
DECLARE @DynamicPivotQuery AS NVARCHAR(MAX),
        @PivotColumnNames AS NVARCHAR(MAX),
        @PivotSelectColumnNames AS NVARCHAR(MAX)
SELECT @PivotColumnNames= ISNULL(@PivotColumnNames + ',','')
+ QUOTENAME(CountryName)
FROM (SELECT DISTINCT CountryName FROM FinancialAid) AS CountryName
SELECT @PivotSelectColumnNames
    = ISNULL(@PivotSelectColumnNames + ',','')
    + 'ISNULL(' + QUOTENAME(CountryName) + ', 0) AS '
    + QUOTENAME(CountryName)
FROM (SELECT DISTINCT CountryName FROM FinancialAid) AS CountryName ORDER BY
CountryName
SET @DynamicPivotQuery =
N'SELECT FiscalYear, ' + @PivotSelectColumnNames + '
FROM FinancialAid
PIVOT(SUM(Amount)
```

```
FOR CountryName IN (' + @PivotColumnNames + ')) AS PVTTable
ORDER BY FiscalYear'
EXEC sp_executesql @DynamicPivotQuery
```

Result

Results Messages

	FiscalYear	Afghanistan	Albania	Algeria	Angola	Antigua and Barbuda	Argentina	Armenia	Asia (not specified)	Australia	Austria	Azerbaijan	Bahamas, The
1	1946	0.00	156000000.00	0.00	0.00	0.00	12000.00	0.00	12000.00	0.00	789600000.00	0.00	0.00
2	1946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	1947	0.00	44400000.00	0.00	0.00	0.00	6000.00	0.00	0.00	40200000.00	602400000.00	0.00	0.00
4	1948	0.00	0.00	0.00	0.00	0.00	6000.00	0.00	0.00	0.00	970200000.00	0.00	0.00
5	1949	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1644000000.00	0.00	0.00
6	1949	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189000000.00	7800000.00	1200000.00	0.00	0.00
7	1950	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4200000.00	0.00	0.00	0.00	0.00
8	1950	6000.00	0.00	0.00	0.00	0.00	0.00	0.00	145800000.00	0.00	6000.00	0.00	0.00
9	1950	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	1950	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1012800000.00	0.00	0.00
11	1951	600000.00	0.00	0.00	0.00	0.00	0.00	0.00	205200000.00	0.00	6000.00	0.00	0.00
12	1951	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4800000.00	0.00	711600000.00	0.00	0.00
13	1951	0.00	0.00	0.00	0.00	0.00	0.00	0.00	130200000.00	0.00	0.00	0.00	0.00
14	1952	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206400000.00	0.00	0.00	0.00	0.00
15	1952	1800000.00	0.00	0.00	0.00	0.00	0.00	0.00	3594000.00	0.00	697800000.00	0.00	0.00
16	1952	0.00	0.00	0.00	0.00	0.00	0.00	0.00	600000.00	0.00	10800000.00	0.00	0.00
17	1952	0.00	0.00	0.00	0.00	0.00	0.00	0.00	144000000.00	0.00	0.00	0.00	0.00
18	1953	13200000.00	0.00	0.00	0.00	0.00	0.00	0.00	6600000.00	0.00	298800000.00	0.00	0.00
19	1953	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6000.00	0.00	1200000.00	0.00	0.00

Conclusion

In conclusion, pivot tables are a quick, easy, and powerful tool to sort and organize data in a way that allows the user to compare results by specific fields and values, in this case comparing the yearly financial aid amount by country for each fiscal year. This allows for quick comparison of yearly financial aid among different countries, as well as sorting the financial aid of each country by fiscal year, allowing the user to see how the financial aid for a target country compares from one year to the next. Dynamic pivot tables are even more powerful and effective than pivot tables, allowing for greater control over the contents of the pivot table and how those contents are displayed.