

Adding Formulas to a Presentation

The PowerPointTemplate object supports some basic formulas. Each of the formulas will perform a specific operation on the values referenced. Formulas are evaluated for all values of the column in the data source, regardless of how many of the values are actually displayed in the document.

To Use

The formula must follow the syntax `%%=FORMULA_NAME(DataSource.ColumnName)` where:

- **FORMULA_NAME** is one of the formulas listed below
- **DataSourceName** is the name of the data source. This name is specified in code when the `PowerPointTemplate.BindData` method is called.
- **ColumnName** is the name of the column that contains the value(s) that will be used in the calculation. The column name must match the columns specified in code.

There must be a call to `PowerPointTemplate.BindData` to bind a data source to the template, however, you do not need to include a full data marker (`%%=DataSource.ColumnName`) in the template to use the formula.

Supported Formulas

PowerPointWriter supports the following data marker formulas:

AVERAGE	Calculates the average of the column values
COUNT	Returns the number of values (that is, the number of rows in the data source) of the column
COUNTA	Returns the number of non-null values of the column
MAX	Returns the maximum value from the column
MIN	Returns the minimum value from the column
PRODUCT	Calculates the product of the column values
STDEV	Returns the standard deviation of the column values, treating the values as a sample
STDEVP	Returns the standard deviation of the column values, treating the values as a population
SUM	Calculates the sum of the column values
VAR	Returns the variance of the column values, treating the values as a sample
VARP	Returns the variance of the column values, treating the values as a population

Examples

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The Template

The example below uses formulas to display the average, standard deviation, maximum, and minimum college entrance exam scores of a group of fictional students as part of a table including their individual scores.

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- **# of Students:** `%%=COUNTA(Data.StudentID)`
- **Top score:** `%%=MAX(Data.Score)`
- **Bottom score:** `%%=MIN(Data.Score)`
- **Avg. score:** `%%=AVERAGE(Data.Score)`
- **Other stats:**
 - **Standard deviation:** `%%=STDEV(Data.Score)` , `%%=STDEVP(Data.Score)`
 - **Variation:** `%%=VAR(Data.Score)` , `%%=VARP(Data.Score)`

`%%=ReplaceText.SlideFooter`

The Code

The following code opens the template and binds data to it using the `SetDataSource` and `SetRepeatBlock` methods, then streams the resulting document to the user:

```

protected void AddFormulas(object sender, EventArgs e)
{
    PowerPointTemplate pptt = new PowerPointTemplate();
    pptt.Open("FormulaTemplate.pptx");

    //Get a Data Table of scores using the helper method
    DataTable ScoreData = GetScores();

    //Create DataBindingProperties
    DataBindingProperties dataBindProps = pptt.CreateDataBindingProperties();

    //Bind the data
    pptt.BindData(ScoreData, "Data", dataBindProps);

    pptt.Process();
    pptt.Save(Response, "ScoreReport.docx", false);
}

private DataTable GetScores()
{
    DataTable dt = new DataTable();

    dt.Columns.Add("StudentID", typeof(string));
    dt.Columns.Add("ReadingScore", typeof(int));
    dt.Columns.Add("WritingScore", typeof(int));
    dt.Columns.Add("MathScore", typeof(int));
    dt.Columns.Add("Score", typeof(int));

    Random rand = new Random();

    int rScore, wScore, mScore;
    for (int i = 0; i < 30; ++i)
    {
        rScore = rand.Next(400, 800);
        wScore = rand.Next(400, 800);
        mScore = rand.Next(400, 800);
        dt.Rows.Add(
            string.Format("S{0:000000}", rand.NextDouble() * 1000000),
            rScore, wScore, mScore, rScore + wScore + mScore
        );
    }

    DataTable dtSorted = dt.Clone();
    foreach (DataRow row in dt.Select("", "StudentID asc"))
        dtSorted.ImportRow(row);

    return dtSorted;
}

```

Results

The formulas are evaluated by PowerPointTemplate, as you can see in the sample output slide:

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- **# of Students:** 35
- **Top score:** 788
- **Bottom score:** 204
- **Avg. score:** 467.88571
- Other stats:
 - **Standard deviation:** 165.18933 , 162.81238
 - **Variation:** 27287.51597 , 26507.87265

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Examples

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