ACTUALLY USEFUL MATHS FOR DATA WORK

A PRACTICAL GUIDE FOR DATABASE PEOPLE

actually data
analytics LTD

WELCOME TO EASIER MATHS
A QUICK INTRO

This booklet is for the fundraisers, data managers, analysts, and CRM heroes holding charity operations together - especially when someone asks, 'Can you just pull a quick report?'

Across these five parts, we've stripped away the stress from maths and shown how everyday calculations(and a bit of logic) can level up your data confidence.

Why We Wrote This

We've seen it happen too often; where a database professional get told they're 'not maths people' - even while they're writing SQL queries, wrangling spreadsheets, and fixing donor reports.

Maths isn't the scary bit. The scary bit is not having time to learn how it fits into your world - and how to use it to make your insights stand out.

What You'll Find Inside

From Excel tips and statistical logic, to retention curves and income forecasting, this guide is full of the practical stuff: the metrics, functions, and automations that make fundraising data smarter.

Who This Is For

Whether you're a fundraising assistant trying to make sense of campaign performance, a data manager tidying supporter records, or a digital lead building dashboards - there's something here for you. It might even help you grow into roles like:

Data & Insight Manager • Fundraising Analyst • CRM Lead • Digital Fundraising Specialist • Supporter Engagement Strategist

What We'll Cover

- **Excel functions that save hours**
- **When averages lie (and what to use instead)**
- **Forecasting fundraising income (realistically)**
- **Modelling attrition and understanding churn**
- **Automating reports with Python while you sleep**

The Right Tool For The Job

Let's be honest: Excel gets a lot of stick. But for database people - especially those working in fundraising - it's one of the most versatile tools available. It's not perfect (no, it's not a database), but it can do a significant amount of the heavy lifting if you know your way around it.

I've used Excel in various ways; from data wrangling, to makeshift CRMs, to mini reporting apps with macros and forms, and even data capture (yes, I know...). Thanks to how widely it's used in most UK charities, it's still one of the easiest ways to share working tools with non-techy teammates. It also now comes with Power Query built in, which is massively useful for connecting to APIs and cleaning up messy data.

The Not-So-Obvious Functions That Save My Bacon (Regularly!)

We all know about SUM, AVERAGE, and COUNT, so let's skip the basics. Here are a few of the slightly nerdier functions that I keep coming back to - especially when I'm helping fundraisers make sense of data.

=IF
If you've ever needed to flag values based on conditions (e.g. donations over £50), IF is your go-to. Example: *=IF(A2>=50,"Top","Bottom")*

=LEN
Want to know how long a postcode or phone number is before importing it into a database with field limits? LEN tells you the character count.

=SUBSTITUTE
Allows you to swap part of a string. Example: *=SUBSTITUTE("Anthony","hony","onia") -> Antonia*

=COUNTA
Counts the number of non-blank cells. Handy for reporting completeness.

=COUNTIFS and =SUMIFS
COUNTIFS = count if multiple conditions are met.
SUMIFS = total up values when specific criteria apply.

=NETWORKDAYS
Returns the number of working days between two dates. Useful for turnaround time tracking.

=LEFT / =RIGHT
Pulls characters from either end of a string.
=LEFT("Anthony",3) -> Ant

=ISDATE
Checks whether something is a valid date.

=ISBLANK, =ISERROR, =ISNA
Error handling functions. Good for catching blanks or invalid results.

=VLOOKUP
Used to bring data from one table into another using a shared value. Classic and still powerful.

New(er) Stuff Worth Knowing About

=XLOOKUP
The more flexible cousin of VLOOKUP. Works in both directions and allows more control.

Excel 2021 & LAMBDA
Includes new functions and advanced custom logic via LAMBDA.

Excel Help Reference: https://support.microsoft.com/en-us/office/excel-functions-by-category-5f91f4e9-7b42-46d2-9bd1-63f26a86c0eb

Why Knowing Your Way Around A JOIN Means You've Got This

You know what's funny? I've met plenty of database pros who can optimise a query faster than you can say "LEFT OUTER JOIN"- but the second someone asks for a median or a percentage change, they freeze. And I get it. "Maths" still carries the weight of exams, teachers, and those weird word problems with two trains leaving different stations. But here's the thing: if you're working with data-especially in fundraising-you're already doing the hard bit. You're thinking logically, spotting patterns, and translating raw numbers into something useful.

Quick Fixes That Change Everything

1. Averages That Don't Lie

Let's say a board member asks: "What's our average donation?" You check the data. It's £250. Except it isn't. That figure's been inflated by a handful of major donors. Most people gave £20. The median? £22.

2. Spotting Drop-Off Before It Happens

You're tracking monthly donor retention. It looks steady on paper-around 70%. All good? Maybe not. By finding the mode you might spot that Month 3 is when things fall apart.

3. Turning Raw Numbers Into Meaning

Answering questions like "Are we raising more from companies than last year?" or "Is this event pulling its weight?" isn't about gut feeling-it's about percentage change.

You've Already Got the Brain for This

You debug weird data issues. You think in logic. You spot patterns others miss. That *is* maths-it's just not how we were taught to think of it.

How These Look in SQL, Excel, Power BI DAX

Calculation	SQL	Excel Formula	Power BI DAX
Mean (Average)	AVG(DonationAmount)	=AVERAGE(A2:A100)	AVERAGE('Table'[DonationAmount])
Median	Depends on SQL flavour	=MEDIAN(A2:A100)	MEDIAN('Table'[DonationAmount])
Mode	Use frequency logic	=MODE.SNGL(A2:A100)	Use MAX + COUNTROWS or visuals
% Change	Custom calc	=(B2-A2)/A2*100	DIVIDE([Current]-[Previous],[Previous],0)*100
Sum	SUM(DonationAmount)	=SUM(A2:A100)	SUM('Table'[DonationAmount])
Count	COUNT(*)	=COUNTA(A2:A100)	COUNT('Table'[Column])

A Word on Python

If your team's embedding analytics into internal processes-things like automated retention flagging or income forecasting-Python helps automate logic, connect to CRMs, and build useful workflows.

TL;DR: You've Got This

If you can write SQL, you can understand percentages. If you can debug a NULL, you can spot a dodgy average. The difference between an "OK" report and a "let's act on this" report? Often, it's just the right metric.

What Is Forecasting (And Why Should You Bother)?

Forecasting is just a fancy word for educated guessing, backed by data. In fundraising, it helps you plan realistically, spot shortfalls, allocate time and money better, and set clearer expectations.

Start With What You Know

You don't have to predict the future from scratch. Look at past data: income trends, campaign performance, and conversion rates.

The Donor Funnel: Forecasting From the Ground Up

Example: 5,000 contacts -> 30% open -> 10% click -> 5% convert -> £25 avg gift. That gives you a realistic estimate of campaign return.

What Tools Can You Use?

Task	Excel	Power BI	Python
Simple Forecasting	=TREND, =FORECAST.LINEAR	Forecast visuals	pandas, statsmodels, prophet
Budget scenarios	Manual modelling	What-if parameters	Dynamic scripts with inputs
Seasonality detection	Manual with AVERAGEIFS	Line charts, filters	Time series decomposition
Alerts/automation	N/A	Alerts in dashboards	Scheduled scripts + emails

Including Costs? Staff Time? You Bet.

Consider total ROI. Factor in staff time, venue costs, printing, and opportunity cost to understand the true value of a campaign.

What About Forecasting Regular Giving?

Use cohort analysis. Track donor lifespan and average monthly gift to project ongoing income. Use Excel, Power BI, or Python.

TL;DR

Start small, layer in more detail, automate when ready. A decent forecast beats a hopeful guess every time.

What Is Attrition Modelling?

It's a way to understand how and when people stop engaging-whether that's regular donors cancelling, event attendees not coming back, or email subscribers dropping off.

Where to Start: Look Back Before You Look Forward

Ask: When did they last give? How many months until they stopped responding? What's the average donor lifespan? Do different groups behave differently?

Build a Retention Curve

Create a line chart for each donor cohort. Track what % of donors are still active each month. Compare different channels or campaigns to spot trends.

Key Metrics to Try

Metric	What It Tells You	Why It Matters
Churn rate	% who stop giving each month	Helps predict drop-off and set goals
Median donor lifespan	How long supporters stick around	Target re-engagement before they leave
Attrition point	When most drop off	Perfect timing for interventions
Cost-adjusted value	Value after costs	Shows true profitability

Included Costs

Track net value: include staff time, tech fees, campaign costs. Donor value isn't just income-it's income minus effort.

Let's Talk Tools

Task	Excel	Power BI	Python
Track last gift date	=MAXIFS()	Filter + DAX	pandas date functions
Retention curves	Manual cohorts + charts	Custom visuals	matplotlib cohort plot
Attrition rate	COUNTIFS, pivots	CALCULATE with filters	date diffs in pandas
LTV modelling	SUMIFS + cost fields	Net income per donor	regressions or calculations

What To Do With What You Learn

Set up thank-you campaigns, create CRM alerts, improve messaging for high-attrition segments, and invest in channels with stronger retention.

TL;DR

Attrition modelling helps you anticipate supporter drop-off. Use it to act earlier, smarter, and with more context.

Why Python?

Python is a scripting language that automates data tasks, connects to databases and spreadsheets, cleans data, and runs in the background - freeing you up to focus on strategy.

Real-World Use Cases

Task	What Python Can Do
Data cleaning	Remove duplicates, fix postcodes, format dates
Income tracking	Identify supporters who haven't given in X days
Segmentation	Pull data from tools like Typeform or JustGiving
Web form syncing	Value after costs
Forecasting	Run automated models using historical data
Alerting	Notify team when KPIs fall below thresholds

Python + Your Data Stack

Data Source	Python Can...
CRM (via API)	Extract supporter data, update records
Excel/CSV	Read, write, clean, and format data
SQL database	Query data directly, export to CSV or dashboards
Power BI	Value after costs
Forecasting	Feed data into dashboards via cleaned exports
Email platform	Sync mailing lists, automate updates

How Hard Is It to Learn?

It's surprisingly approachable. Here's an example script that reads a CSV and finds large donations:

```python
import pandas as pd
df = pd.read_csv("donations.csv")
print(df[df["DonationAmount"] > 100])
```

Embedding Python in Your Org

You can schedule scripts, integrate with Excel, or run logic behind the scenes in a tool like ADRFM.

Starter Projects

Ideas to try: flag lapsed donors, identify missed major gifts, clean CSVs, forecast income, or email key charts each month.

TL;DR

Python helps automate boring but important tasks. It's scalable, powerful, and friendlier than it looks - perfect for database pros who want to get ahead.

THANKS FOR READING

Let's Make Your Data Even More Useful

We hope this guide made the maths feel a little less scary—and a lot more relevant. Whether you're forecasting next quarter's income, modelling donor attrition, or just trying to wrangle a spreadsheet that refuses to behave, you're already doing the hard part: thinking clearly and caring about the impact.

At Actually Data Analytics, we help fundraising teams like yours turn messy data into meaningful insight. From one-off projects to long-term support, we bring clarity, calm, and tools that actually work.

If you'd like help automating your reports, improving retention analysis, or exploring our platform ADRFM, we'd love to chat. No pushy sales. Just practical advice from people who've been in your shoes.
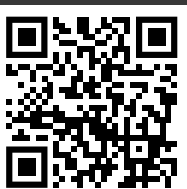
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