Charity Digital Academy

Excel advanced – tips and tricks

Delivered by



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Exercise 1 – Managing data with tables (1)

Creating tables

- 1. Click anywhere on the data in a sheet
- 2. On the **Insert** menu, click on **Table**

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3. Make sure the whole table is selected by checking the cell range and option **My data has headers** is ticked.

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4. From the **Table Design** tab, select the **Table style** you want to change the look & feel

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Data validation

Data validation in Excel is a feature that lets you control what kind of data can be entered into a cell or range of cells.

Data validation - type

1. Click into the first cell of the column where you want to apply data validation

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2. In the **Allow** field select **Date**, in the **Data** field select **greater than** in the Start date put in the earliest possible date e.g. 1/1/2025 as anything earlier would mean someone over 100 being in the prison.

Data Validation	?	\times
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Apply these changes to all other cells with the same settings		
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3. Add an alert to warn them what data is required. This will not stop data entry but just warn when it is entered incorrectly. Change the style to warning, put in a title and give an error message to help users understand what the correct data should be.

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Data validation - List

1. Click into the first cell of the column where you want to apply data validation

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3 HMP 1278	Banyan Raji	HMP Wormwood Scrubs	s	38	\$930	Communicating with	others, Working towards a go	al	Not recorded	2 Agree		1 Really enjoyed	3	
HMP 1279	Azalea Liu	HMP Wormwood Scrubs	5	39	9038	Focusing on a task, V	Jorking as a team, Communic	ating with others	Plays a musical instrumer	t 1 Strongly ag	ree	1 Really enjoyed	2	
5 HMP 1280	Camassia Pinto	HMP Wormwood Scrubs	8	39	9119	Working towards a go	ual, Improving ability through p	aractice	Plays a musical instrumer	t 2 Agree		3 Didn't enjoy	5	
3 HMP 1281	Anise Rivers	HMP Wormwood Scrubs	5	39	¢197	Building relationship	with mentor, Working toward	s a goal	No musical experience	3 Disagree		3 Didn't enjoy	4	
7 HMP 1282	Rue Tansy	HMP Wormwood Scrubs	5	39	9242	Improving ability thro	ugh practice, Communicating	with others	No musical experience	2 Agree		1 Really enjoyed	2	
3 HMP 1283	Basilio Chen	HMP Wormwood Scrubs	5	39	9292	Working as a team, C	ommunicating with others		Plays a musical instrumer	t 2 Agree		4 Really didn't enjoy	5	
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2 HMP 1297	Maple Flores	HMP Wormwood Scrubs	5	35	\$595	Communicating with	others, Working towards a go	ial. I	Plays a musical instrumer	t 3 Disagree		2 Enjoyed	6	
3 HMD 1298	Marinold Einch	HMD Mormwood Scrub		23	3781	Marking towards a g	al Communication with othe	#0 F	Diaue a musical instruman	* 2 Amron		3 Dido't eniou	2	

2. In the **Allow** field select **List**. Click in to the **Source** field and then go to the **Validation lists** sheet, highlight the ethnicity list and click on enter on your keyboard. The worksheet and cell range will then appear in the Source field.

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3. Add an **Error Alert** to stop people entering anything which is not on the validation list. In the **Style** field, select **Stop** and then in the **Title** explain why they cannot enter data.

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Settings	Input Message	Error Alert			
Show e	error alert after inve	alid data is entered			
When user	enters invalid data	a, show this error ale	rt:		
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Conditional formatting

Conditional formatting in Excel lets you automatically change how cells look like colors, icons, or data bars—based on their values, so patterns and important info stand out instantly.

Conditional formatting – Directional

- 1. Select the Change in Optimism column but clicking in the column header
- 2. On the Home tab, click on the Conditional formatting button and then Icon sets to pick a directional arrow.

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th others, working towards a goal Working as a team. Communicating with of 🐺 Clear Rules			77 24 ₩	1 Really en	joyea ioved		3
goal, Improving ability through practice	T	• 🏹 🖄 🤟 👖 🎵	7 -> 7 +	3 Didn't en	joy		5
ip with mentor, Working towards a goal Manage Rules	î	। 🔊 🎐 🕅 🛉		3 Didn't en	joy		4
rough practice, Communicating with others No musical exp	erience	Year		1 Really en	joyed		2

Conditional formatting – Duplicates

- 1. Select the Name column but clicking in the column header
- 2. On the Home tab, click on the Conditional formatting button, Select **Highlight Cells Rules** and then **Duplicate values**

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2	HMP 1277	Palmira Flores	HMP Wormwood Scrub	os	11/03/2006	V	Vorking towards a goal, Com	III New Rule		ument 2
3	HMP 1278	Banyan Raji	HMP Wormwood Scrub	os	01/08/2006	0	communicating with others, '		Pare Occurring	2
4	HMP 1279	Azalea Liu	HMP Wormwood Scrub	os	17/11/2006	F	ocusing on a task, Working a	😥 <u>C</u> lear Rules		ument 1
5	HMP 1280	Camassia Pinto	HMP Wormwood Scrub	os	06/02/2007	V	Vorking towards a goal, Impr	🖽 Manage Rules	Values	ument 2
6	HMP 1281	Anise Rivers	HMP Wormwood Scrub	os	25/04/2007	E	uilding relationship with me			ce 3
7	HMP 1282	Rue Tansy	HMP Wormwood Scrub	DS	09/06/2007	l li	mproving ability through prac	tice, Communicating with othe	Mo Rules	ce 2
8	HMP 1283	Basilio Chen	HMP Wormwood Scrub)S	29/07/2007	V	Vorking as a team. Communi	cating with others	Plays a musical inst	rument 2

Conditional formatting – Highlight a whole row based on its value

- 1. Select the Name column but clicking in the column header
- 2. On the Home tab, click on the Conditional formatting button, Select New rule
- 3. Select Use a formula to determine which cells to format
- 4. In the Format values where this formula is true enter \$P2>5
- 5. Click on Format and select a background colour.

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	- Format o	only unique o	or duplicat	e values						
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Exercise 2 – Bringing data together with Power Query

Power Query is a data transformation tool built into Excel and Power BI that lets you connect to data sources, clean and reshape data, and automate repetitive tasks—all without writing code

Creating queries

- 1. Click on the table
- 2. On the data tab select From Table/range

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1	Name	Prison	🚽 Prison number 💌	Ethnicity 🔻 Date of birth 💌	Age now	🔻 Musical experie	nce 💌 Skills lean	nt		~	Built a relatio	nship wi	h their m	iento
2	Rowan Alder	HMP Belmarsh	HMP 1234	07/02/1965		Plays a musical	instrum Focusing o	on a task, Working	as a team, C	ommunicating with	2 Agree			
3	Hazel Bramble	HMP Belmarsh	HMP 1235	23/07/1966		Plays a musical	instrum Working to	wards a goal, Imp	roving ability	through practice	3 Disagree			
4	Holly Thorne	HMP Belmarsh	HMP 1236	14/11/1967		No musical exp	erience Working as	s a team, Commur	nicating with	others	2 Agree			
5	Willow Moss	HMP Belmarsh	HMP 1237	30/04/1968		Plays a musical	instrum Working as	s a team, Commur	nicating with	others	1 Strongly agr	ee		
6	Fern Cotter	HMP Belmarsh	HMP 1238	02/12/1969		No musical exp	erience Focusing o	on a task, Working	as a team, C	ommunicating with	1 Strongly agr	ee		
7	Ivy Brook	HMP Belmarsh	HMP 1239	19/09/1970		No musical exp	erience Building re	lationship with m	entor, Worki	ng towards a goal	2 Agree			
8	Laurel Fenn	HMP Belmarsh	HMP 1240	03/03/1971		Plays a musical	instrum Working to	wards a goal, Com	nmunicating	with others	1 Strongly agr	ee		
9	Poppy Heather	HMP Belmarsh	HMP 1241	26/06/1972		Plays a musical	instrum Improving	ability through pra	ctice, Buildi	ng relationship with	1 Strongly agr	ee		
10	Clover Reed	HMP Belmarsh	HMP 1242	11/01/1973		Plays a musical	instrum Improving	ability through pra	ctice, Comr	nunicating with oth	1 Strongly agr	ee		
11	Sorrel Ash	HMP Belmarsh	HMP 1243	08/10/1974		No musical exp	erience Building re	lationship with m	entor, Worki	ng towards a goal	2 Agree			
12	Primrose Tilling	HMP Belmarsh	HMP 1244	25/05/1975		No musical exp	erience Improving	ability through pra	ctice, Buildi	ng relationship with	3 Disagree			
13	Foxglove Banner	HMP Belmarsh	HMP 1245	15/08/1976		Plays a musical	instrum Building re	lationship with m	entor, Worki	ng towards a goal	3 Disagree			
14	Bluebell Harrow	HMP Belmarsh	HMP 1247	06/11/1977		No musical exp	erience Improving	ability through pra	ctice, Comr	nunicating with oth	2 Agree			
15	Baobab Moyo	HMP Belmarsh	HMP 1247	18/02/1978		No musical exp	erience Improving	ability through pra	ctice, Comr	nunicating with oth	3 Disagree			
16	Tamarind Ellis	HMP Belmarsh	HMP 1248	09/07/1979		Plays a musical	instrum Communi	cating with others,	Working tov	vards a goal	2 Agree			
17	Birch Topey	HMP Bolmarch	HMD 1314	20/04/1050		Playe a musical	instrum Working or	a toom Commun	icoting with	othore	2 Adroo			

3. Check the query has the prison name

4. On the home tab, select **Close and Load to**

Close & Refresh Load •	tor	Choose Remove Columns • Columns •	Keep Rows •	Remove Rows •	2↓ ∡↓	Split Column •	Grou By	Data Type: Text *	Merge Queries Append Queries Combine Files	Manage	Data source s • settings	New S	Source * nt Sources * Data	
Close & Load		Manage Columns	Reduc	e Rows	Sort			Transform	Combine	Paramete	rs Data Sources	New 0	/ Query	
🔞 Close & Load To		ple		HMP Be	marsh			HMP 1235		null	23/07/1966	00:00	HMP Belmarsh	
				HMP Bel	marsh			HMP 1236		null	14/11/1967	00:00		
	4	Willow Moss		HMP Be	marsh			HMP 1237		null	30/04/1968	00:00	All Properties	
	5	Fern Cotter		HMP Be	marsh			HMP 1238		null	02/12/1969	00:00	A APPLIED STEPS	
	6	Ivy Brook		HMP Be	marsh			HMP 1239		null	19/09/1970	00:00	Courses.	_
	7	Laurel Fenn		HMP Bel	marsh			HMP 1240		null	03/03/1971	00:00	Source	
	8	Poppy Heather		HMP Be	marsh			HMP 1241		null	26/06/1972	00:00	Changed Type	
	9	Clover Reed		HMP Be	marsh			HMP 1242		null	11/01/1973	00:00		
	10	Sorrel Ash		HMP Be	marsh			HMP 1243		null	08/10/1974	00:00		
	11	Primrose Tilling		HMP Be	marsh			HMP 1244		null	25/05/1975	00:00		
	12	Foxglove Banner		HMP Be	marsh			HMP 1245		null	15/08/1976	00:00		
	13	Bluebell Harrow		HMP Be	marsh			HMP 1247		null	06/11/1977	00:00		
					-						/ /			

- 5. Under the Import data options select **Only Create Connection**
- 6. Click on **OK**

		ھی Quer	ries & Connections				Data Types
y through p	ractice, Com	mur	Import Data		?	×	
С	D		Select how you wan	t to view this data	in your wor	kbook.	
number 🔻	Ethnicity -	Da	PivotC	hart			🤉 🔻 Skills learnt
234		07		reate Connection			trum Focusing on a task, V
235		23	Where do you want	to put the data?			trum Working towards a go
236		14	Existing wor	ksheet:			ence Working as a team, C
237		30	_£4£25	1011000			trum Working as a team, C
238		02	=\$H\$35			I	ance Focusing on a task, V
239		19	New worksh	neet			ance Building relationship
240		03	Add this data to	the Data <u>M</u> odel			trum Working towards a go
241		26					trum Improving ability thro
242		11.	Properties *	ОК	Can	cel	trum Improving ability thro
243		08	/10/1974	No	musical	exper	ience Building relationship
244		25	/05/1975	No	musical	exper	ience Improving ability thro

7. Repeat for the other 3 Prisons

Appending queries

1. Open the Query editor on the Data tab by going to Get Data and selecting Launch Power Query Editor.

	File Home Ins	ert Draw Page	Layout	Formulas	Data	Review	View	Automate	Help
	Get Data - Text/CSV W	m From Table/ Fro	om R ıre ∽ Sc	ecent Exis	ting ections	Refresh All ~	Queries Propert Workbo	s & Connections iies ook Links	; Orgar
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1			▼ Pr	ison	-	Ethnicity	/ 🔽 Da	te of birth 💌	Age now
2	From Other	Sources /	HN	1P Wormwoo	d Scrubs			38787	
3				1P Wormwoo	d Scrubs			38930	
4	Combine Qu	eries	HI	IP wormwoo	d Scrubs			39038	
6	E Launch Power (Duery Editor		rmwoo	d Scrubs			39197	
7	Ev Induction of the second		I HN	1P Wormwoo	d Scrubs			39242	
8	Data Source Set	tings	HN	1P Wormwoo	d Scrubs			39292	
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10	נפצר אויוח	Lotus Menra	HN	1P Wormwoo	d Scrubs			24924	
11	HMP 1296	Magnolia Ncube	HN	1P Wormwoo	d Scrubs			32528	
12	HMP 1297	Maple Flores	HN	1P Wormwoo	d Scrubs			35595	
13	HMP 1298	Marigold Finch	HN	1P Wormwoo	d Scrubs			23781	
4.4	LIMD 4000	O-I-D-	1.18	AD MAL	1. O and a			00004	

2. On the Home tab, select the option Append Queries as New

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🌆 🛛 🙂 •	∓ HMP_	Belmarsh - Po	ower	Query Editor									đ	×
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Close		Query		Manage Columns	Reduc	e Rows	Sort		Transform	Append Queries as New		ew Query		
			2	Hazel Bramble		HMP Bel	marsh		HMP 1235	null		0 null	Plays a mus	sical ir
III HN	/IP_Wormw	ood_Sc	3	Holly Thorne		HMP Bel	marsh		HMP 1236	null	4/11/1967 00:00:0	D null	No musical	exper
			4	Willow Moss		HMP Bel	marsh		HMP 1237	null	30/04/1968 00:00:0	0 null	Plays a mus	sical ir
			5	Fern Cotter		HMP Bel	marsh		HMP 1238	null	02/12/1969 00:00:0	null	No musical	exper
			6	Ivy Brook		HMP Bel	marsh		HMP 1239	null	19/09/1970 00:00:0	null	No musical	exper
			7	Laurel Fenn		HMP Bel	marsh		HMP 1240	null	03/03/1971 00:00:0	0 null	Plays a mus	sical ir
			8	Poppy Heather		HMP Bel	marsh		HMP 1241	null	26/06/1972 00:00:0	o null	Plays a mus	sical ir
			9	Clover Reed		HMP Bel	marsh		HMP 1242	null	11/01/1973 00:00:0	null	Plays a mus	sical ir
			10	Sorrel Ash		HMP Bel	marsh		HMP 1243	null	08/10/1974 00:00:0	null	No musical	exper
			11	Primrose Tilling		HMP Bel	marsh		HMP 1244	null	25/05/1975 00:00:0	D null	No musical	exper

3. Select the 4 Prison queries by clicking on them and then on **Add**>> so that all 4 queries are in the **Tables to append** box



4. Click on OK

File Home Transform	Ac	ld Column View			
Queries [5]	\times	√ fx = Table.Co	mbine({HMP_Belmarsh, HMP	_Brixton, HMP_Manchester	, HMP_Wormwood_Scrubs})
HMP_Belmarsh		A ^B C Name	A ^B _C Prison	123 Prison number	ABC 123 Ethnicity
HMP_Brixton	1	Rowan Alder	HMP Belmarsh	HMP 1234	null
HMP_Manchester	2	Hazel Bramble	HMP Belmarsh	HMP 1235	null
HMP_Wormwood_Sc	3	Holly Thorne	HMP Belmarsh	HMP 1236	null
Append1		/ Moss	HMP Belmarsh	HMP 1237	null
	5	Fern Cotter	HMP Belmarsh	HMP 1238	null
	6	Ivy Brook	HMP Belmarsh	HMP 1239	null
	7	Laurel Fenn	HMP Belmarsh	HMP 1240	null
	8	Poppy Heather	HMP Belmarsh	HMP 1241	null
	9	Clover Reed	HMP Belmarsh	HMP 1242	null
	10	Sorrel Ash	HMP Belmarsh	HMP 1243	null
	11	Primrose Tilling	HMP Belmarsh	HMP 1244	null
	12	Foxglove Banner	HMP Belmarsh	HMP 1245	null

5. A new query will appear on the left called Append1

6. Double click on **Append 1** or right click and select rename, and rename it to **All participants**

File Home Transform	Ad	ld Column View					
Queries [5]	$\left \right\rangle$	√ fx = Table.Co	mbine({HMP_Belmarsh, HMP_	_Brixton, HMP_Manchester	, HMP_Wormwood_Scrubs})		
HMP_Belmarsh		A ^B C Name	A ^B C Prison	ABC 123 Prison number	ABC 123 Ethnicity	123 Date of birth	ABC Age now
	1	Rowan Alder	HMP Belmarsh	HMP 1234	null	07/02/1965 00:00:00	nı
HMP_Manchester	2	Hazel Bramble	HMP Belmarsh	HMP 1235	null	23/07/1966 00:00:00	nı
HMP_Wormwood_Se		orne	HMP Belmarsh	HMP 1236	null	14/11/1967 00:00:00	п
All participants		Moss	HMP Belmarsh	HMP 1237	null	30/04/1968 00:00:00	п
	5	Fern Cotter	HMP Belmarsh	HMP 1238	null	02/12/1969 00:00:00	nı

7. On the Home tab click on the Close & Load button



8. You should now have a new sheet called **All participants** in your workbook

19	Mahogany Shaw	HMP Brixton	HMP 1252		30321	No musical experience
50	Sakura Inoue	HMP Brixton	HMP 1253		31006	No musical experience V
51	Lotus Mehra	HMP Brixton	HMP 1254		31165	Plays a musical instrument B
52	Bamboo Tanaka	HMP Brixton	HMP 1255		31640	No musical experience V
53	Maranta Leong	HMP Brixton	HMP 1256		32118	No musical experience B
54	Plumeria Anand	HMP Brixton	HMP 1257		32205	Not recorded V
55	Ginger Kiri	HMP Brixton	HMP 1258		32795	Plays a musical instrument B
56	Ash Rowan	HMP Brixton	HMP 1284		28960	Plavs a musical instrument C
	< > Guide	elines All participants	Pris	son 2 Priso	n 3 Prison 4	Validation lists Prison info Sum

Adding source data and refreshing queries

- 1. Add a row of data for a new participant to any of the 4 prison tables
- 2. Refresh the query either individually by clicking on the refresh icon next to the query name

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Get Fram Data = Text/CSV	From From Table/ Web Range S Get & Transfor	From Recent Listing Connection	Refresh MI Connections MI Connections MI Connections Courtes & Connections	Organization Stocks	Currencies Geography v 21 210 X Seet	Filter Clear Filter Scopply Advance Sort & Filter	Test to Flash Ra Columns Fill Du	move Data Consolidate plicates Validation - Data Tools	Data Model ~ Analys	t-If Forecast sis = Sheet = Forecast	up Ungroup Subtotal 1916	ow Detail de Detail			~
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A A	Prison	C I Prison number = 1	D E F Ithnicity V Date of birth V Age now V	G Musical experience V S	H Hills learnt		Built a relationship with	J their mentor 💌 Enjoyed the	sessions = Op	K Mimism at start (1(bad)-10(good)) 💌 Opti	L mism at end (1(bad)-10	(good)) 💌 Chang	Queries & Connections	~ ×
2 Rowan Alder	HMP Belmars	h HMP 1234	07/02/1965	Plays a musical instrum F	ocusing on a task, Working as a team, Co	mmunicating with	2 Agree	1 Really enjo	iyed		2		3	a s la se	
3 Hazel Brambl	e HMP Belmars	h HMP 1235	23/07/1966	Plays a musical instrum V	Norking towards a goal, Improving ability:	through practice	3 Disagree	3 Didn't enjo	У		3		3	Quenes Connections	
4 Holly Thome	HMP Belmars	h HMP 1236	14/11/1967	No musical experience V	Norking as a team, Communicating with e	others	2 Agree	2 Enjoyed			2		2	5 queries	
5 Willow Moss	HMP Belmars	h HMP 1237	30/04/1968	Plays a musical instrum V	Norking as a team, Communicating with e	others	1 Strongly agree	3 Didn't enjo	У		5		6		
6 Fern Cotter	HMP Belmars	h HMP 1238	02/12/1969	No musical experience F	Focusing on a task, Working as a team, Co	mmunicating with	1 Strongly agree	2 Enjoyed			4		5	III HMP_Belmarsh	
7 Ivy Brook	HMP Belmars	h HMP 1239	19/09/1970	No musical experience	Building relationship with mentor, Workin	g towards a goal	2 Agree	4 Really didr	n't enjoy		2		7	Connection only.	
8 Laurel Fenn	HMP Belmars	h HMP 1240	03/03/1971	Plays a musical instrum V	Working towards a goal, Communicating v	vith others	1 Strongly agree	3 Didn't enjo	у		2		2	HMP Briston	
9 Poppy Heathe	er HMP Belmars	h HMP 1241	26/06/1972	Plays a musical instrum I	mproving ability through practice, Buildin	g relationship with	1 Strongly agree	3 Didn't enjo	y		6		7	Connection only	
10 Clover Reed	HMP Belmars	h HMP 1242	11/01/1973	Plays a musical instrum li	mproving ability through practice, Comm	unicating with oth	1 Strongly agree	2 Enjoyed			4		4	construction and p	
11 Sorrel Ash	HMP Belmars	h HMP 1243	08/10/1974	No musical experience	Building relationship with mentor, Workin	g towards a goal	2 Agree	1 Really enjo	iyed		4		2	HMP_Manchester	
12 Primrose Tilli	ng HMP Belmars	h HMP1244	25/05/1975	No musical experience la	mproving ability through practice, Buildin	g relationship with	3 Disagree	2 Enjoyed			3		3	Connection only.	
13 Foxglove Ban	ner HMP Belmars	h HMP 1245	15/08/1976	Plays a musical instrum b	Suilding relationship with mentor, Working	g towards a goal	3 Disagree	2 Enjoyed			6		6	HUND Warmunood Crache	
14 Bluebell Harn	ow HMP Belmars	h HMP1247	06/11/19/7	No musical experience la	mproving ability through practice, Comm	unicating with oth	2 Agree	2 Enjoyed			3			an raw_ridenadou_scidos	
15 Baobab Moyo	HMP Belmars	h HMP 1247	18/02/1978	No musical experience la	mproving ability through practice, Comm	unicating with oth	3 Disagree	2 Enjoyed			6			Connection only.	
16 Tamarind Ellis	S PIMP Decimars	n PIMP 1248	09/07/19/9	Plays a musical Instrum C	communicating with others, working tow	ards a goal	2 Agree	2 Enjoyed			4			All participants	
17 Birch lansy	HMP Belmars	h HMP1314	29/04/1959	Plays a musical instrum V	Norking as a team, Communicating with o	others	2 Agree	4 Really didr	rtenjoy		5			164 rows loaded.	
18 Ginger Vace	HMP Belmars	n HMP1310	12/06/1999	No musical experience V	woning as a team, Communicating with e	stners	2 Agree	2 Enjoyed			2				_
19 Mangola Pinc	n mmp beumans	N HMP 1310	10/12/1900	No musical experience	ocusing on a task, working as a team, Co	minunicating wer	1 acrongly agree	2 Enjoyed	A sector.		4				
20 Plamboyant P	atel HMP Belmars	n nmp1317	03/11/1963	No musical experience	Suilding relationship with mentor, working	g towards a goal	2 Agree	4 Really didr	tenjoy		2				
22 Mauthorn Eve	HMP Belmars	h HMD 1910	21/09/1972	No musical experience is	mended ability through practice. Buildin	g covarus a goar	2 Agree	2 Epicond	iyeu		1				
22 Smidland	HMD Relevant	L HMD 1210	20/07/2007	No musical experience in	mended shills through practice, button	greation with oth	2 Adves	2 Enjoyed			2				
24 Taro Mollie	HMP Belmara	h MMP 1320	19/04/1964	No musical experience in	mproving ability through practice, Comm	unicating with oth	3 Disamea	2 Enjoyed			6				
25 Catoria Rive	HMP Belmars	h MMP 1922	04/10/1983	No musical experience in	Notking as a team. Communication with a	unicating with oth	2 Adves	2 Enjoyed			6		7		
W Yest Domas	HMD Relevant	L HMD 1912	11/02/1001	No musical experience V	Monting as a count, continuance ong with the	there are a second and	2 Adven	2 Dide's agin			2		2		
27 Kanok Anand	HMP Balmara	h HMD 1224	09/03/1976	No musical experience h	mendor ability through practice. Buildin	a relationship with	1 Strongly arres	2 Enimend	,		0				
28 Mahogany Silt	HMP Belmars	h HMP 1325	24/05/2000	No musical experience V	Norking towards a goal. Communicating s	with others	2 40/00	4 Really dide	(Teniny		7		9		
29 Jacaranda Nd	Icon HMP Balmarel	HMP 1326	27/01/1962	No munical experience M	Norking towards a risal. Improving ability:	through practice	3 Disastras	4 Really dide	t enime		2		3		
30 Cacao Mende	za HMP Belmaral	h HMP 1327	15/08/1973	No musical experience	Building relationship with mentor, Workin	t towards a mail	2 Alven	2 Enimend	(conjoj		5		9		
31 Camphor Kat	HMP Belmars	h HMP 1334	27/05/1965	No musical experience	ocusing on a task. Working as a team. Co	mmunicating with	1 Strongly agree	2 Enjoyed			4		5		
32 Sourson Jay	HMP Belmars	h HMP 1335	14/10/1972	No musical experience	fullding relationship with mentor. Workin	towards a goal	2 Adree	4 Really dide	i't enloy		2		7		
33 Julu Elwood	HMP Belmars	h HMP 1336	02/01/1989	No musical experience	Building relationship with mentor, Workin	towards a goal	2 Apree	1 Really enio	wed		4		2		
34 Chervil Kezi	HMP Belmars	h HMP 1337	31/07/1995	No musical experience In	mproving ability through practice, Buildin	g relationship with	3 Disagree	2 Enjoyed			3		3		
35 Mangrove Low	ve HMP Belmars	h HMP 1338	05/03/2001	No musical experience In	mproving ability through practice, Comm	unicating with oth	2 Agree	2 Enjoyed			3		4		
36 Aloe Menon	HMP Belmars	h HMP 1339	18/11/1980	No musical experience In	mproving ability through practice, Comm	unicating with oth	3 Disagree	2 Enjoyed			6		8		
37 Calen Buckth	orn HMP Belmarsi	h HMP 1340	25/04/1968	No musical experience V	Vorking as a team, Communicating with	others	2 Agree	2 Enjoyed			6		7		
38 Draco Kiran	HMP Belmars	h HMP 1341	10/09/1990	No musical experience V	Working towards a goal, Improving ability:	through practice	2 Agree	3 Didn't enjo	y .		2		2		
39 Pandan Watte	HMP Belmars	h HMP 1342	07/02/1997	No musical experience In	mproving ability through practice, Buildin	g relationship with	1 Strongly agree	2 Enjoyed			9		8		
10 Scot Darcy	HMP Belmars	h HMP 1343	20/12/1961	No musical experience V	Working towards a goal, Communicating v	vith others	2 Agree	4 Really didr	i't enjoy		7		9		
\$1 Hombeam Ze	ne HMP Belmars	h HMP 1344	03/06/1986	No musical experience V	Working towards a goal, Improving ability:	through practice	3 Disagree	4 Really didr	n't enjoy		2		3		
42 Sweetgum Ot	ienc HMP Belmarsi	h HMP 1345	22/08/1967	No musical experience E	Building relationship with mentor, Workin,	g towards a goal	2 Agree	2 Enjoyed			5		9		
43 Sloane Yates	HMP Belmars	h HMP 1346	11/01/2003	No musical experience	Building relationship with mentor, Workin	g towards a goal	1 Strongly agree	4 Really didr	i't enjoy		2		6		
44 Cress Hibbert	HMP Belmars	h HMP 1347	09/10/1979	No musical experience V	Working as a team, Communicating with a	others	2 Agree	3 Didn't enjo	Y .		3		3		
45 Celery Dip	HMP Belmars	h HMP 1500													

Or by clicking on Refresh all on the Data tab

File	Home	Insert Draw Pag	je Layout 🛛 Formulas	Data Review	View Automa	ate Help	р						
Get Data	From Text/CSV	From From Table/ F Web Range Pic	rom Recent Las ture × Sources Conne	Refresh All ~	Queries & Conne Properties Workbook Links	ections	Organization	Stocks	Currencies	Geography ₹	2↓ ZAZ Z↓ Sort	Filter	Text to Columns
		Get & Transform	Data	Qu	eries & Connections			Da	ata Types			Sort & Filter	
F50	~ i	$\times \checkmark f_x \sim$											
	Α	В	С	D	E	F	G				Н		
1 Na	ne	Prison	🚽 Prison number	💌 Ethnicity 💌 🛙	ate of birth 💌 A	ge now 💌	Musical expe	erience 🔽	Skills learn			💌 Bi	uilt a relatio
2 Rov	van Alder	HMP Belmarsh	HMP 1234	C	7/02/1965		Plays a musi	cal instrun	n Focusing or	n a task, Working	as a team, Co	mmunicating with 2.	Agree
3 Ha	el Bramble	HMP Belmarsh	HMP 1235	2	3/07/1966		Plays a musi	cal instrun	n Working tov	vards a goal, Imp	roving ability 1	through practice 3	Disagree
4 Ho	ly Thorne	HMP Belmarsh	HMP 1236	1	4/11/1967		No musical e	experience	Working as	a team, Commur	nicating with o	others 2.	Agree
5 Wil	low Moss	HMP Belmarsh	HMP 1237	3	0/04/1968		Plays a musi	cal instrun	n Working as	a team, Commur	nicating with o	others 1	Strongly agr
6 Fer	n Cotter	HMP Belmarsh	HMP 1238	C	2/12/1969		No musical e	experience	Focusing or	n a task, Working	as a team, Co	mmunicating with 1	Strongly agr
7 Ivv	Brook	HMP Belmarsh	HMP 1239	1	9/09/1970		No musical e	experience	Building rel	ationship with m	entor. Workins	otowards a goal 2	Agree

Exercise 3: Managing data with tables (2)

Adding totals

Adding a total row

- 1. Click anywhere on the table to select it
- 2. On the **Table Design** tab, tick the **Total row** box

File Home	Insert Draw Page Lay	out Formulas Data Review	ew Automate Help Tab	le Design Query			
Table Name: All_participants	Summarize with PivotTa Remove Duplicates Convert to Range Tools	linsert Slicer External Table	 ✓ Header Row ✓ Total Row ✓ Banded Rows 	First Column Filter Last Column Banded Columns Table Style Options	Table Styles	÷	
1161 ~	$X \sim f_{X} \sim 1$ Strong	y agree					
Name	 Prison 	▼ Prison number ▼ Ethnicity	▼ Date of birth ▼ Age now ▼	Musical experience	Skills learnt	Built a relationship with their mentor	 Enjoyed the sessions Optimisr
112 Dandelion Pike	e HMP Manchester	HMP 1274	38492	Plays a musical instrument	Improving ability through practice, Building relationship with mento	r 3 Disagree	2 Enjoyed
113 Tamarindo Rey	yes HMP Manchester	HMP 1275	38541	No musical experience	Building relationship with mentor, Working towards a goal	1 Strongly agree	2 Enjoyed
114 Kapok Okoro	HMP Manchester	HMP 1276	38651	Plays a musical instrument	Communicating with others, Working towards a goal	3 Disagree	2 Enjoyed
115 Hawthorn Eve	rly HMP Manchester	HMP 1290	37658	Plays a musical instrument	Improving ability through practice, Communicating with others	3 Disagree	2 Enjoyed
116 Ivy Brook	HMP Manchester	HMP 1291	34984	Plays a musical instrument	Improving ability through practice, Communicating with others	4 Strongly disagree	4 Really didn't enjoy
117 Kapok Anand	HMP Manchester	HMP 1292	31900	Plays a musical instrument	Working as a team, Communicating with others	3 Disagree	2 Enjoyed
118 Laurel Bambar	ra HMP Manchester	HMP 1293	24336	Plays a musical instrument	Building relationship with mentor, Working towards a goal	2 Agree	2 Enjoyed
110 Prose Sillevee	d HMD Menchester	LIMD 40CE	00550	Managements of an endowed and	We do a second of a second of a second	0.4 mm	0 Distrik sectors

Selecting a type of total

1. Click in the total row in the column where you want to add a calculation and select it off the list

Adding formulas with Flash Fill

- 1. Add a formula in the first cell of the column where you want the formula
- 2. Drag it down a few cells
- 3. Right mouse click and select Flash fill to have the formula populate all the way down

	E	F G	н	1	J	K	L	M	N	0	Р
1	of birth 💌	Age now 💌 Musical experience 🛛 💌	Skills learnt	Built a relationship with their mentor	Enjoyed the sessions	 Optimism at start (1(bad)-10(good)) 	 Optimism at end (1(bad)-10(good)) 	Change 💌	Hours booked 💌 Hou	rs Attended 💌 🛛	Difference 💌
2	23780	Plays a musical instrument	Focusing on a task, Working as a team, Communicating with others	2 Agree	1 Really enjoyed		2 3	3 1	8	7	
3	24311	Plays a musical instrument	Working towards a goal, Improving ability through practice	3 Disagree	3 Didn't enjoy		3 3	3 0	26	24	
4	24790	No musical experience	Working as a team, Communicating with others	2 Agree	2 Enjoyed		2 2	2 0	4	3	
5	24958	Plays a musical instrument	Working as a team, Communicating with others	1 Strongly agree	3 Didn't enjoy		5 6	5 1	27	25	
6	25539	No musical experience	Focusing on a task, Working as a team, Communicating with others	1 Strongly agree	2 Enjoyed		4 5	5 1	9	8	
7	25830	No musical experience	Building relationship with mentor, Working towards a goal	2 Agree	4 Really didn't enjoy		2 7	7 5	32	31	
8	25995	Plays a musical instrument	Working towards a goal, Communicating with others	1 Strongly agree	3 Didn't enjoy		2 2	2 0	23	23	
9	26476	Plays a musical instrument	Improving ability through practice, Building relationship with mentor	1 Strongly agree	3 Didn't enjoy		6 7	7 1	8	8	
10	26675	Plays a musical instrument	Improving ability through practice, Communicating with others	1 Strongly agree	2 Enjoyed		4 4	4 0	19	18	
11	27310	No musical experience	Building relationship with mentor, Working towards a goal	2 Agree	1 Really enjoyed		4 2	2 -2	3	2	
12	27539	No musical experience	Improving ability through practice, Building relationship with mentor	3 Disagree	2 Enjoyed		3 3	3 0	23	22	
13	27987	Plays a musical instrument	Building relationship with mentor, Working towards a goal	3 Disagree	2 Enjoyed		6 6	5 0	5	5	
14	28435	No musical experience	Improving ability through practice, Communicating with others	2 Agree	2 Enjoyed		3 4	4 1	23	23	
15	28539	No musical experience	Improving ability through practice, Communicating with others	3 Disagree	2 Enjoyed		6 8	в	35	34	
16	29045	Plays a musical instrument	Communicating with others, Working towards a goal	2 Agree	2 Enjoyed		4 5	5	Com Calls	8	
17	21669	Plays a musical instrument	Working as a team, Communicating with others	2 Agree	4 Really didn't enjoy		5 9	9	Copy can	12	
18	36323	No musical experience	Working as a team, Communicating with others	2 Agree	2 Enjoyed		2 2	2	 Fill Formatting Only 	3	
19	31764	No musical experience	Focusing on a task, Working as a team, Communicating with others	1 Strongly agree	2 Enjoyed		4 5	5	 Fill Without Formatt 	ting 8	
20	24051	No musical experience	Building relationship with mentor, Working towards a goal	2 Agree	4 Really didn't enjoy		2 7	7	O Elash Fill	31	
21	37258	No musical experience	Building relationship with mentor, Working towards a goal	2 Agree	1 Really enjoyed		4 2	2	3	2	
22	26563	No musical experience	Improving ability through practice. Building relationship with mentor	3 Disagree	2 Enjoyed		3 3	3	23	22	

Exercise 4: Pivot Tables & Charts

Pivot tables are a feature in Excel and Power BI that lets you summarise, explore, and analyse large datasets quickly and interactively — without writing formulas from scratch.

1. Using the **All participants** sheet, insert a Pivot table (Insert tab and select the PivotTable)

- 2. Name the Pivot Table 'Enjoyment' (see top left of PivotTable Analyse Tab, or click down arrow under PivotTable Command)
- 3. Select the following fields in the PivotTable Fields list on the far-right of your screen: Prison, Prison number, Enjoyed the sessions (*If you don't see these options, make sure you have clicked somewhere in the PivotTable on the left*)
- 4. Drag 'Prison' to Columns; drag 'Prison number to Values; drag 'Enjoyed the sessions' to Rows. Check the Values is showing as 'Count of Prison number'.

Drag fields between areas below:						
T Filters	Columns					
	Enjoyed the sessions 🛛 👻					
Rows	Σ Values					
Prison ~	Count of Prison number 🗸					

5. Now change the Value Field Settings to show as % of Row Total (Click on the down arrow next to 'Prison ID' in the Values quadrant and choose % of Row Total from the 'Show Values As' tab)

Value Field Settings — 🗆 🗙								
Source Name: Prison number								
Custom Name:								
Summarise Values By		Show Values A	s					
Show values as								
% of Row Tota	al					~		
Base field:				Base item:				
Name								
Prison numbe Ethnicity Date of birth Age now	r		Ŧ			Ŧ		
Number Format				ОК	C	ancel		

- 6. Remove the decimal places (Highlight the cells with % in them in the PivotTable, go to the Home Tab, Number Group, and select the Decrease Decimal command twice to remove decimal places (using the right arrow icon)
- 7. Rename the new Sheet to 'Enjoyment Pivot' (Double click Sheet tab at the bottom to rename)
- 8. Now repeat the above choosing Built a relationship with their mentor in place of the Enjoyed the sessions, renaming the new sheet created 'Relationship Pivot'.
- 9. Using the Relationship pivot, click on the Pivot table analyse tab and then select Pivot Chart on the top menu (towards the right). Create a Stacked bar chart to compare the prisons performance.



10. Add the Musical experience field to the Filter area of the Pivot table – this should now appear on your chart. Do the building a relationship with your mentor results differ depending on whether participants did or did not have prior musical experience?

Exercise 5: Bringing data from one sheet to another

The GETPIVOTDATA() formula in Excel is like a smart query tool that lets you pull specific values from a PivotTable based on its structure—not just cell location

- 1. In the Summary sheet, create a Get Pivot Data formula in the top cell of the Enjoyment Column (for Belmarsh Prison) by clicking in the cell and entering =
- Then go to the Enjoyment Pivot Sheet and click on the cell with the results for Belmarsh prison and '1 Really Enjoyed'. Now click on the + sign and click the cell with the results for Belmarsh prison and '2 Enjoyed'. Press Enter.
- 3. Copy this formula to remaining rows and you'll see an error. In the Formulae in the next cell down change the Prison name to "HMP Brixton" (type this in, in the formula bar, overriding HMP Belmarsh in the 2 places it occurs in the formulae)
- 4. In the next cell down, this time remove the Prison name (including the speech marks "") and replace with the cell reference for the Prison name (in the Prison column in the Summary sheet) that you want to replace it with (in this case HMP Manchester cell A6) Again, you will need to do this twice for each instance that the Prison name occurs in the formula.
- 5. Now copy the formula down to the Wormwood Scrubs row and check the answer is correct
- 6. Repeat for the Built a relationship with their mentor data

Using Xlookup

This formula searches a range or an array for a match and returns the corresponding item from a second range or array. By default an exact match is used.

- 7. In the Summary sheet, use Xlookup to bring in data for the respective prisons from the Prison info sheet into the Number of mentors column.
- Follow the Xlookup format below
 XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])

For this scenario you'll need to use =XLOOKUP(A4, 'Prison info'!A:A,'Prison info'!F:F) and then copy the formulae down.

Using Countif

This Counts the number of cells within a range that meet the given condition.

- 9. Still in the Summary sheet, use the Countif formula to bring in data for the respective prisons from the Prison info sheet into the Number of mentors column.
- 10. Follow the Countif format below

COUNTIF(**range**, criteria)

For this scenario you'll need to use =COUNTIF(All_participants[Prison], 'Summary sheet'!A4)