

The background of the image is a soft-focus, monochromatic landscape. It features a prominent, dark, craggy rock formation or cliff face on the left side. Several tall, thin pine trees are scattered across the rock face and its base. In the upper right area, there's a cluster of trees and a small, dark, rectangular stone structure, possibly a ruin or a fortification, perched on the edge of the cliff. The overall atmosphere is hazy and ethereal, with a thick mist or fog filling the lower half of the frame.

RE 2708

COMPUTER THINKING

A N D P R O G R A M M I N G



CONDITIONAL STATEMENTS (IF-THEN-ELSE)

Most of our thoughts are decisions! Similarly, most of the operations that we ask the computer to do for us are conditional statements.



REPEATED ITERATIONS (FOR)

The primary reason to use a computer at all is because it can perform repetitive tasks.

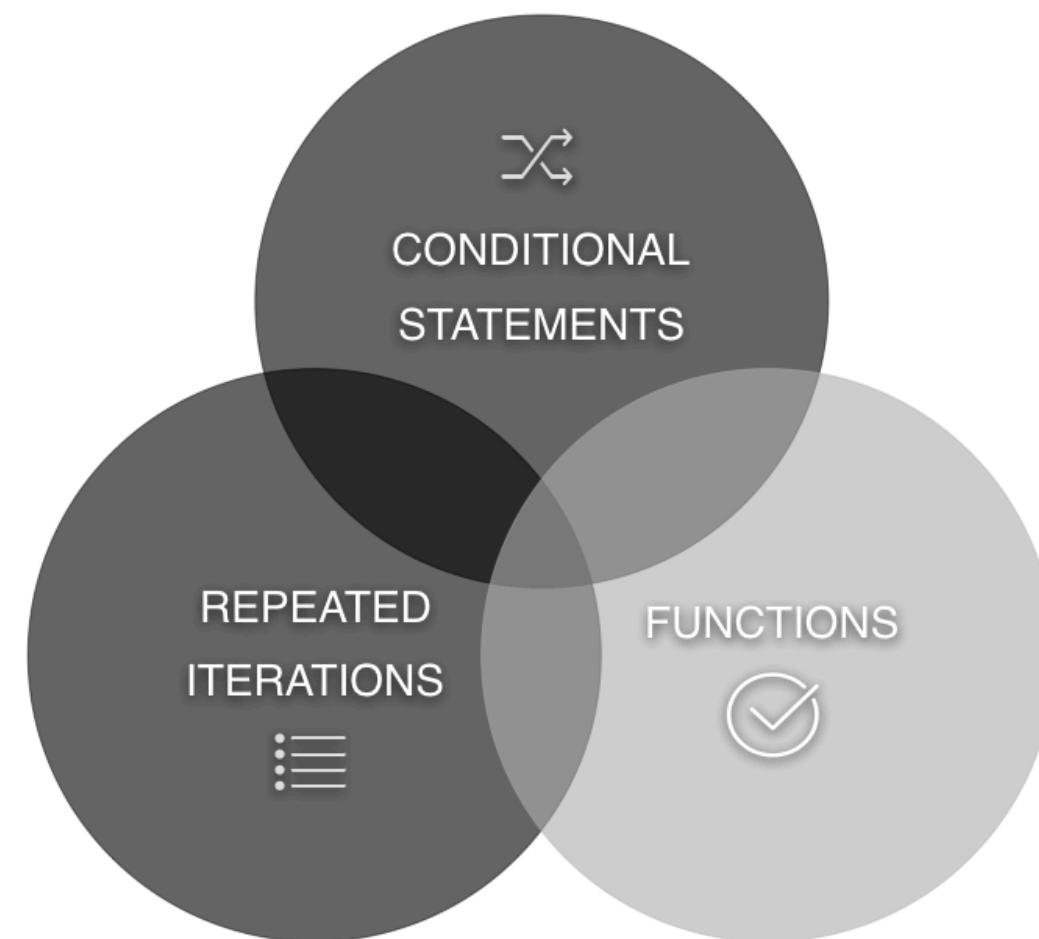


FUNCTIONS

The reason why we write functions is to be able to apply the same operations to many different objects.



O B J E C T S



FEATURES (PROPERTIES)

and

METHODS (PROCEDURES/ROUTINES)

1



A USE CASE SCENARIO

Building a dataset of lease contract details.



L E A S I N G

"Singapore's largest retail & lifestyle destination – VivoCity, is positioned as a first of its kind one-stop retail, entertainment & lifestyle destination. Mapletree's vision is to create an iconic destination that will constantly surprise and stimulate visitors with its vibrant mix of unique, ever- evolving, refreshing new-to-market retail and entertainment brands and concepts. It features wide open spaces for waterfront relaxation and entertainment, and an ever- changing year-round calendar of festivals and events that will draw repeat visitations from both local residents and foreign visitors.

The name, "VivoCity" captures Mapletree's vision for the development. Derived from the word, "vivacity", it evokes a lifestyle experience that is modern, stimulating and accessible to everyone, a place bubbling with energy and flowing with vitality."



Source: Mapletree Commercial Property Management Pte. Ltd.



VivoCity (怡丰城) Fact Sheet

Gross Floor Area (GFA):	1.5 million sq ft
Net Lettable Area (NLA):	1.077 million sq ft
No. of Floors:	3 storeys and 2 basements (with an 8-storey carpark)
Construction	
Commencement Date:	January 2004
Business	
Commencement Date:	7 October 2006
Developer:	Mapletree Investments Pte Ltd 丰树产业私人有限公司

A DIVERSE MIX OF TENANTS

VIVO^{city}

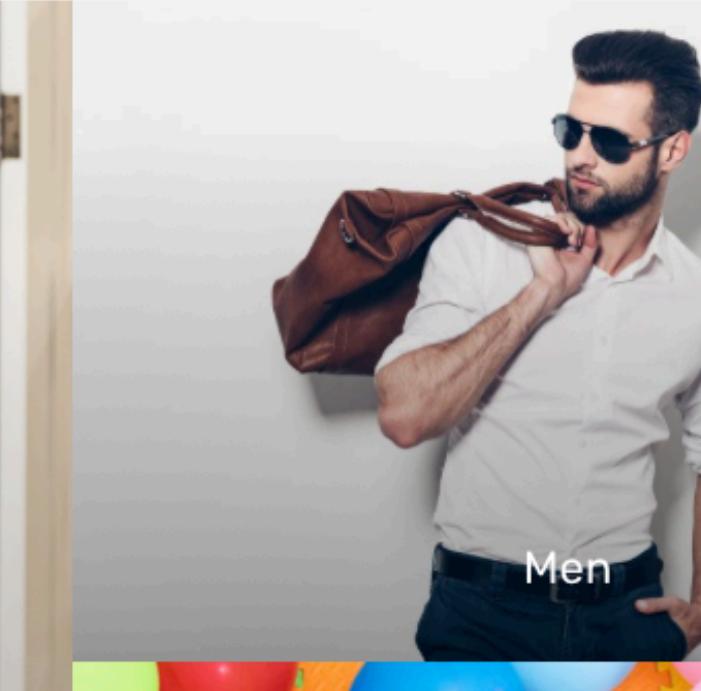
PROMOTIONS DIRECTORY SHOPPING GUIDE HAPPENINGS FUN & LEARNING VIVOREWARDS TOURIST  MEMBER LOGIN >

Shopping Guide

[Shopping](#) [Dining](#)



Women



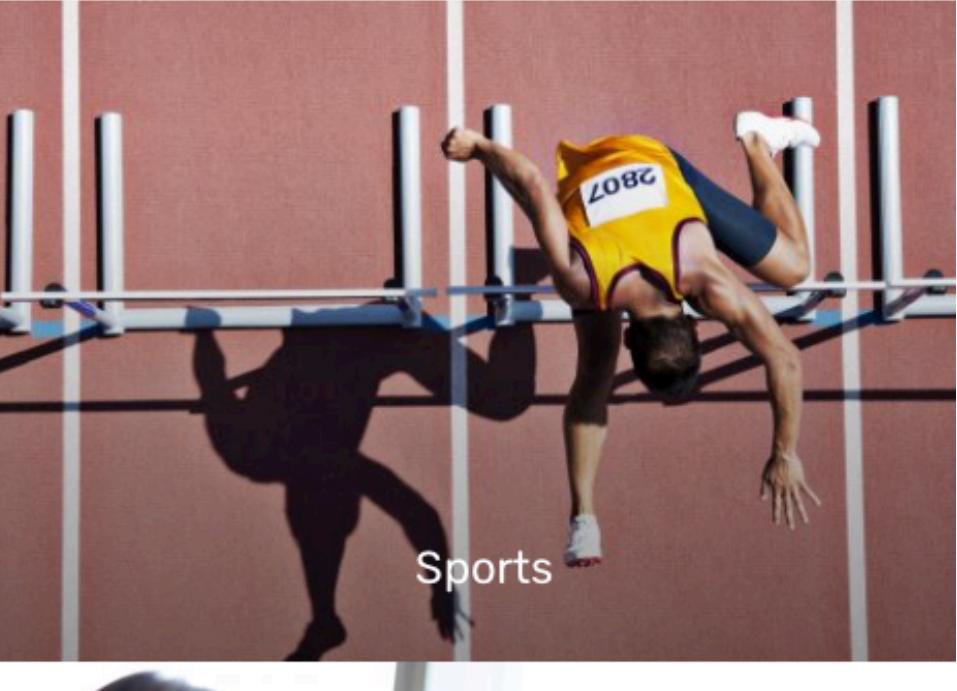
Men



Kids



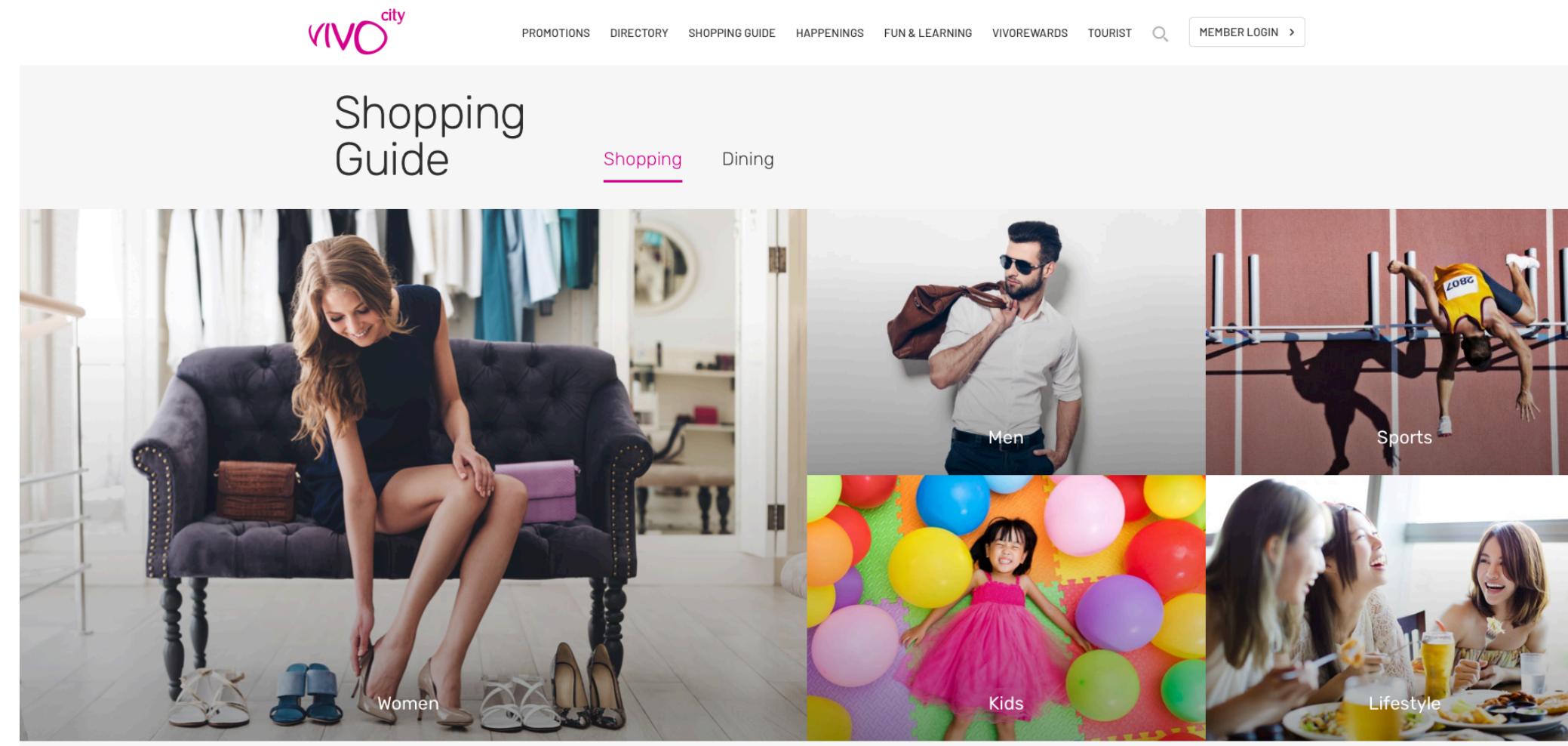
Lifestyle



Sports



A DIVERSE MIX OF TENANTS



One of the most frequent applications of Visual Basic concerns **automatising** processes that would otherwise be done manually.

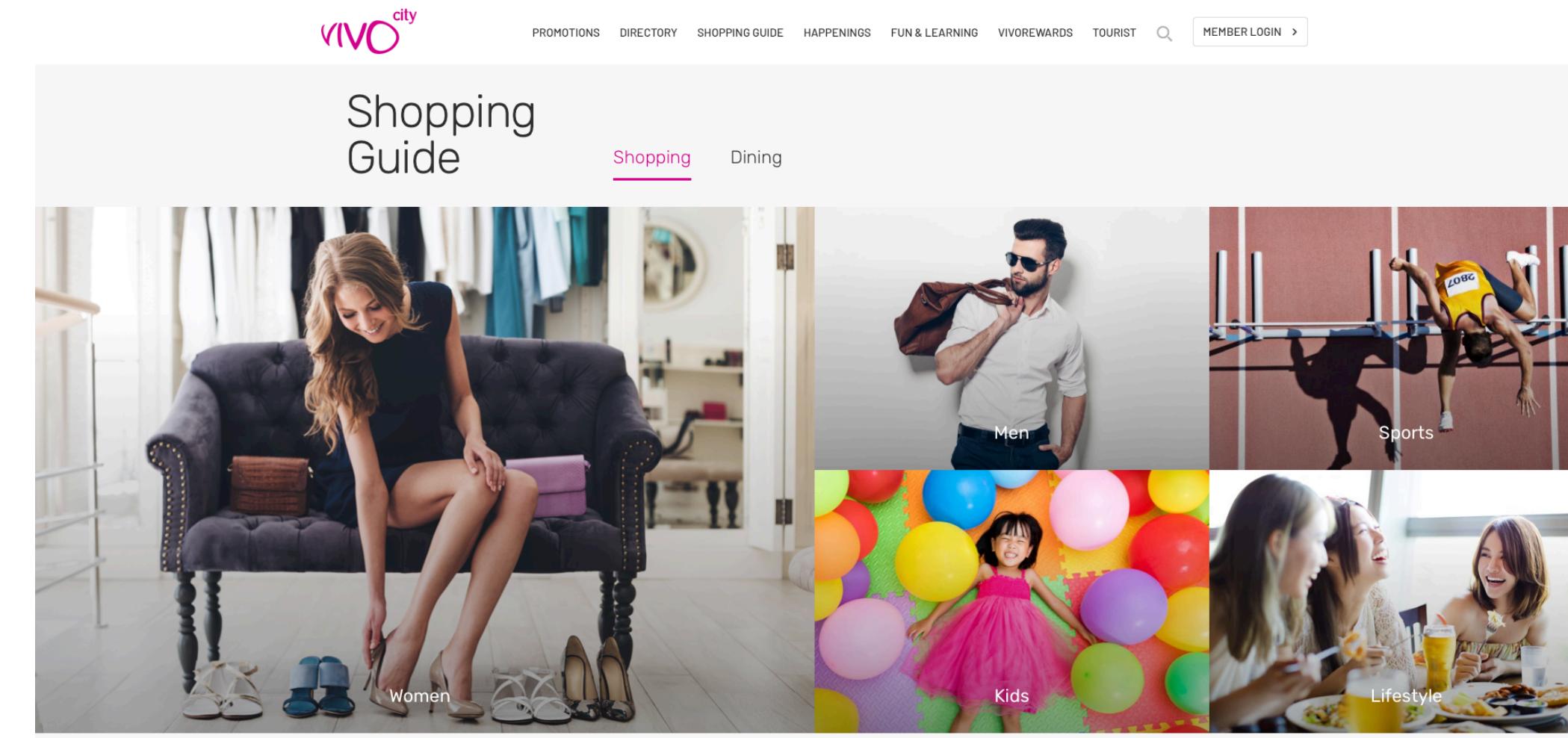
For example, assume that each of your tenants sends Excel sheets with regular updates on negotiated contract terms.

✖ Bringing together all this information without the use of programming would be a truly *daunting* task...

✓ In this Lecture, we run through a complete example of how computational thinking and programming can help us to deal with this issue in a rapid and elegant manner.



A DIVERSE MIX OF TENANTS



Question:

Which of the tenants have lease agreements that expire before 31 December 2022 and need to be revised monthly?

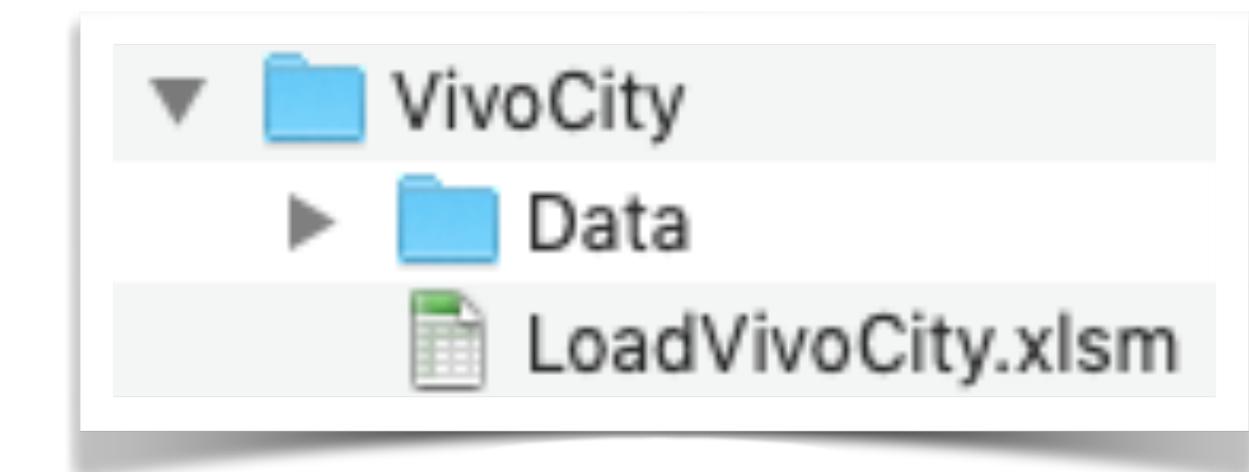




L E A S I N G

Let's start by downloading the **VivoCity.zip** file from Luminus.

Here is the folder structure that you should have:





L E A S I N G



▼	VivoCity
▼	Data
	7 Eleven.xlsx
	8 Tarts-n-Pastries.xlsx
	Aburi-En.xlsx
	Adidas.xlsx
	Artisan Boulangerie.xlsx
	Awfully Chocolate.xlsx
	Bata.xlsx
	Brotzeit.xlsx
	Burger King.xlsx
	Chanel.xlsx
	Chulove Cafe.xlsx
	Desigual.xlsx
	Foodrepublic.xlsx
	HSBC.xlsx
	Marche.xlsx
	Marks and Spencer.xlsx
	Mothercare.xlsx
	MyRepublic.xlsx
	Popular.xlsx
	RayBan.xlsx
	Sephora.xlsx
	Singtel.xlsx
	Starbucks.xlsx
	SushiTei.xlsx
	Swarovski.xlsx
	ToysRus.xlsx
	Uniqlo.xlsx
	Zara.xlsx
	LoadVivoCity.xlsm



L E A S I N G

10

... all of which have the same structure:



Singtel
Exclusive Retailer

These are the fields that we will need to collect:



- Class (**B**)
- Unit number (**#1-3**)
- Start (**1 Feb 2018**) and End (**31 Jul 2030**) of the lease agreement
- Total rent per month (**\$2,925**)
- Frequency of price revisions (**Fixed rent**)

B	#1-3
Start of the lease:	01 February 2018
End:	31 July 2030
Lot size	
Square meters:	45
Rental agreement:	
Total price (SGD per month):	2925
Frequency of revisions:	Fixed





L E A S I N G

... from each separate file:



<table border="1"> <thead> <tr> <th colspan="2" style="text-align: center;">Cafe</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">#3-8</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Start of the lease:</td> <td>01 February 2018</td> </tr> <tr> <td>End:</td> <td>30 December 2025</td> </tr> <tr> <td>Lot size</td> <td></td> </tr> <tr> <td>Square meters:</td> <td>40</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Total price (SGD per month):</td> <td>1240</td> </tr> <tr> <td>Frequency of revisions:</td> <td>Yearly</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2" style="text-align: center;">CHULOVE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">#B1-1</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Start of the lease:</td> <td>14 May 2021</td> </tr> <tr> <td>End:</td> <td>30 December 2022</td> </tr> <tr> <td>Lot size</td> <td></td> </tr> <tr> <td>Square meters:</td> <td>72</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Total price (SGD per month):</td> <td>3672</td> </tr> <tr> <td>Frequency of revisions:</td> <td>Monthly</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2" style="text-align: center;">marché</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">#2-4</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Start of the lease:</td> <td>01 February 2019</td> </tr> <tr> <td>End:</td> <td>31 October 2022</td> </tr> <tr> <td>Lot size</td> <td></td> </tr> <tr> <td>Square meters:</td> <td>980</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Total price (SGD per month):</td> <td>32340</td> </tr> <tr> <td>Frequency of revisions:</td> <td>Yearly</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2" style="text-align: center;">MARKS & SPENCER</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">LONDON</td> <td style="text-align: center;">#1-1</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Start of the lease:</td> <td>01 January 2017</td> </tr> <tr> <td>End:</td> <td>13 October 2022</td> </tr> <tr> <td>Lot size</td> <td></td> </tr> <tr> <td>Square meters:</td> <td>2740</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Total price (SGD per month):</td> <td>82200</td> </tr> <tr> <td>Frequency of revisions:</td> <td>Monthly</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2" style="text-align: center;">ZARA</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">#1-3</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Start of the lease:</td> <td>14 May 2019</td> </tr> <tr> <td>End:</td> <td>31 October 2022</td> </tr> <tr> <td>Lot size</td> <td></td> </tr> <tr> <td>Square meters:</td> <td>450</td> </tr> <tr> <td colspan="2">Rental agreement:</td> </tr> <tr> <td>Total price (SGD per month):</td> <td>21150</td> </tr> <tr> <td>Frequency of revisions:</td> <td>Fixed</td> </tr> </tbody> </table>	Cafe			#3-8	Rental agreement:		Start of the lease:	01 February 2018	End:	30 December 2025	Lot size		Square meters:	40	Rental agreement:		Total price (SGD per month):	1240	Frequency of revisions:	Yearly	CHULOVE			#B1-1	Rental agreement:		Start of the lease:	14 May 2021	End:	30 December 2022	Lot size		Square meters:	72	Rental agreement:		Total price (SGD per month):	3672	Frequency of revisions:	Monthly	marché			#2-4	Rental agreement:		Start of the lease:	01 February 2019	End:	31 October 2022	Lot size		Square meters:	980	Rental agreement:		Total price (SGD per month):	32340	Frequency of revisions:	Yearly	MARKS & SPENCER		LONDON	#1-1	Rental agreement:		Start of the lease:	01 January 2017	End:	13 October 2022	Lot size		Square meters:	2740	Rental agreement:		Total price (SGD per month):	82200	Frequency of revisions:	Monthly	ZARA			#1-3	Rental agreement:		Start of the lease:	14 May 2019	End:	31 October 2022	Lot size		Square meters:	450	Rental agreement:		Total price (SGD per month):	21150	Frequency of revisions:	Fixed
Cafe																																																																																																				
	#3-8																																																																																																			
Rental agreement:																																																																																																				
Start of the lease:	01 February 2018																																																																																																			
End:	30 December 2025																																																																																																			
Lot size																																																																																																				
Square meters:	40																																																																																																			
Rental agreement:																																																																																																				
Total price (SGD per month):	1240																																																																																																			
Frequency of revisions:	Yearly																																																																																																			
CHULOVE																																																																																																				
	#B1-1																																																																																																			
Rental agreement:																																																																																																				
Start of the lease:	14 May 2021																																																																																																			
End:	30 December 2022																																																																																																			
Lot size																																																																																																				
Square meters:	72																																																																																																			
Rental agreement:																																																																																																				
Total price (SGD per month):	3672																																																																																																			
Frequency of revisions:	Monthly																																																																																																			
marché																																																																																																				
	#2-4																																																																																																			
Rental agreement:																																																																																																				
Start of the lease:	01 February 2019																																																																																																			
End:	31 October 2022																																																																																																			
Lot size																																																																																																				
Square meters:	980																																																																																																			
Rental agreement:																																																																																																				
Total price (SGD per month):	32340																																																																																																			
Frequency of revisions:	Yearly																																																																																																			
MARKS & SPENCER																																																																																																				
LONDON	#1-1																																																																																																			
Rental agreement:																																																																																																				
Start of the lease:	01 January 2017																																																																																																			
End:	13 October 2022																																																																																																			
Lot size																																																																																																				
Square meters:	2740																																																																																																			
Rental agreement:																																																																																																				
Total price (SGD per month):	82200																																																																																																			
Frequency of revisions:	Monthly																																																																																																			
ZARA																																																																																																				
	#1-3																																																																																																			
Rental agreement:																																																																																																				
Start of the lease:	14 May 2019																																																																																																			
End:	31 October 2022																																																																																																			
Lot size																																																																																																				
Square meters:	450																																																																																																			
Rental agreement:																																																																																																				
Total price (SGD per month):	21150																																																																																																			
Frequency of revisions:	Fixed																																																																																																			



○-----○

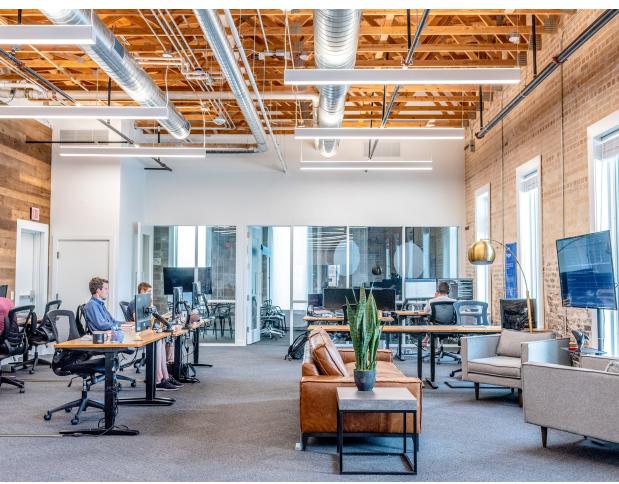
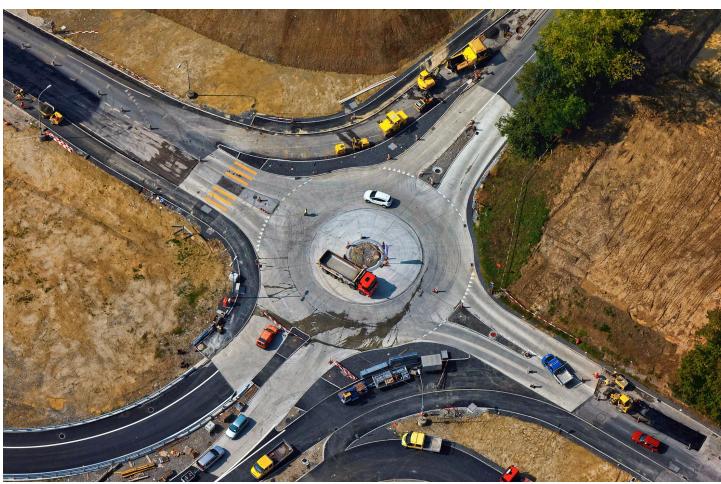
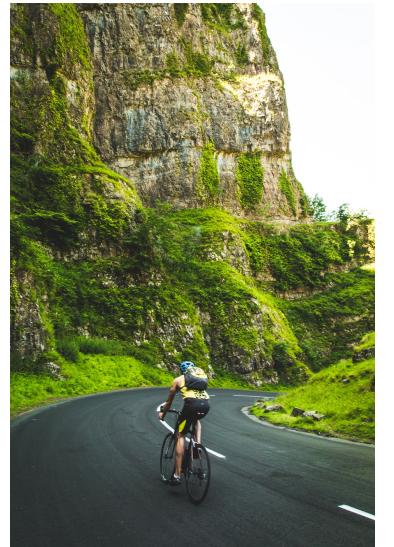
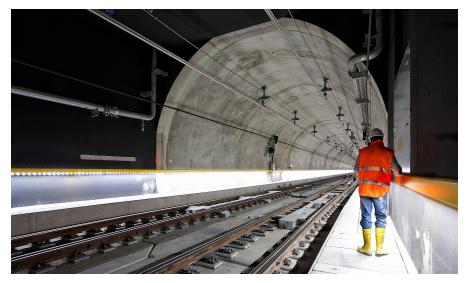


L E A S I N G

12

Other examples of similar problems:

- Pilot testing of building facilities.
- Building energy performance sheets.
- Sensor data (e.g. SDE4).
- Survey data (e.g. individual energy consumption).
- Data from sales agents.
- Transaction deeds and other contracts.
- Daily activity sheets.
- Question & answer sessions.
- Technical specification sheets.
- Consolidation of financial performance of sub-units.
- Automatic updates of data from different sources.
- Financial reporting.



2



PLAYGROUND

Consolidating tenant sheets with lease contract details

T E N A N T S
S H E E T S

Let's start by selecting a worksheet, which we clean and rename appropriately.

```
Sub CleanSheet()
```

```
    Worksheets(1).Select  
    Worksheets(1).Cells.Clear  
    Worksheets(1).Name = "Playground"
```

```
End Sub
```



Blank worksheet to start with

The screenshot shows a Microsoft Excel window with the title bar 'LoadVivoCity'. The ribbon is open, and the 'Data' tab is selected. The worksheet area is blank, with the first cell labeled 'K9'. The columns are labeled M through X, and the rows are numbered 1 through 47. The bottom of the screen shows the standard Excel ribbon tabs (Home, Insert, Page Layout, Formulas, Data, Review, View) and a status bar indicating 'Ready'.





T E N A N T
S H E E T S

To read files, we need to start by establishing whether we are working in the correct folder.

The Property **ActiveWorkbook.Path** contains this information.

```
Sub CurrentPath()
    fPath = ActiveWorkbook.Path
    Range("A1").Value = fPath
End Sub
```



	A	B	C	D
1	/Users/nus/Dropbox/Teaching/RE2708/VivoCity			
2				
3				
4				





T E N A N T
S H E E T S

The **Dir** function returns the file name of the first file encountered in a given folder:

```
Sub ReadFileName10
    fPath = ActiveWorkbook.Path + "/"
    fName = Dir(fPath)
    Range("A1").Value = fPath
    Range("A2").Value = fName
End Sub
```



	A	B	C	D
1	/Users/nus/Dropbox/Teaching/RE2708/VivoCity/			
2	LoadVivoCity.xlsm			
3				
4				

* Note that we need to add the "/" sign to the path, to make sure that **Dir** knows that we want it to look inside the directory.





T E N A N T
S H E E T S

How about reading directly inside
the “/data/“ directory?

Sub ReadFileName2()

```
fPath = ActiveWorkbook.Path + "/data/"  
fName = Dir(fPath)  
Range("A1").Value = fPath  
Range("A2").Value = fName
```

End Sub



	A	B	C	D	E
1	/Users/cbadarinza/Dropbox/Teaching/RE2708/VivoCity/Data/				
2	7 Eleven.xlsx				
3					
4					



W E ' R E G E T T I N G C L O S E R !



T E N A N T
S H E E T S

A special thing about the **Dir** function is that if we say **Dir()** it keeps reading file names from the same directory specified initially.

This is very convenient if we want to keep reading many files.

```
Sub ReadFileName30

    fPath = ActiveWorkbook.Path + "/data/"
    fName = Dir(fPath)
    Range("A1").Value = fPath
    Range("A2").Value = fName

    fName = Dir()
    Range("A3").Value = fName

    fName = Dir()
    Range("A4").Value = fName

End Sub
```



	A	B	C	D	E
1	/Users/cbadarinza/Dropbox/Teaching/RE2708/VivoCity/Data/				
2	7 Eleven.xlsx				
3	8 Tarts-n-Pastries.xlsx				
4	Aburi-En.xlsx				
5					



T E N A N T S
S H E E T S

... which is of course much more convenient to do with a **For-Next** repeated iteration:

```
Sub ReadFileName40

    fPath = ActiveWorkbook.Path + "/data/"
    fName = Dir(fPath)
    Range("A1").Value = fPath
    Range("A2").Value = fName

    For i = 1 To 27
        fName = Dir()
        Range("A2").Offset(i, 0).Value = fName
    Next

End Sub
```



A L M O S T T H E R E !



	A	B	C	D	E
1	/Users/cbadarinza/Dropbox/Teaching/RE2708/VivoCity/Data/				
2	7 Eleven.xlsx				
3	8 Tarts-n-Pastries.xlsx				
4	Aburi-En.xlsx				
5	Adidas.xlsx				
6	Artisan Boulangerie.xlsx				
7	Awfully Chocolate.xlsx				
8	Bata.xlsx				
9	Brotzeit.xlsx				
10	Burger King.xlsx				
11	Chanel.xlsx				
12	Chulove Cafe.xlsx				
13	Desigual.xlsx				
14	Foodrepublic.xlsx				
15	HSBC.xlsx				
16	Marche.xlsx				
17	Marks and Spencer.xlsx				
18	Mothercare.xlsx				
19	MyRepublic.xlsx				
20	Popular.xlsx				
21	RayBan.xlsx				
22	Sephora.xlsx				
23	Singtel.xlsx				
24	Starbucks.xlsx				
25	SushiTei.xlsx				
26	Swarovski.xlsx				
27	ToysRus.xlsx				
28	Uniqlo.xlsx				
29	Zara.xlsx				
30					



TENANT SHEETS

Let's now take a moment to store the company names.

The function **Replace** allows us to remove the “.xlsx” endings from the file names.

```
Sub GetCompanyNames()
    For i = 1 To 28
        cName = Range("A1").Offset(i, 0).Value
        Range("D1").Offset(i, 0).Value = Replace(cName, ".xlsx", " ")
    Next
End Sub
```

We now have a list of tenants!

	A	B	C	D	E
1	/Users/cbadarinza/Dropbox/Teaching/RE2708/VivoCity/Data/				
2	7 Eleven.xlsx		7 Eleven		
3	8 Tarts-n-Pastries.xlsx		8 Tarts-n-Pastries		
4	Aburi-En.xlsx		Aburi-En		
5	Adidas.xlsx		Adidas		
6	Artisan Boulangerie.xlsx		Artisan Boulangerie		
7	Awfully Chocolate.xlsx		Awfully Chocolate		
8	Bata.xlsx		Bata		
9	Brotzeit.xlsx		Brotzeit		
10	Burger King.xlsx		Burger King		
11	Chanel.xlsx		Chanel		
12	Chulove Cafe.xlsx		Chulove Cafe		
13	Desigual.xlsx		Desigual		
14	Foodrepublic.xlsx		Foodrepublic		
15	HSBC.xlsx		HSBC		
16	Marche.xlsx		Marche		
17	Marks and Spencer.xlsx		Marks and Spencer		
18	Mothercare.xlsx		Mothercare		
19	MyRepublic.xlsx		MyRepublic		
20	Popular.xlsx		Popular		
21	RayBan.xlsx		RayBan		
22	Sephora.xlsx		Sephora		
23	Singtel.xlsx		Singtel		
24	Starbucks.xlsx		Starbucks		
25	SushiTei.xlsx		SushiTei		
26	Swarovski.xlsx		Swarovski		
27	ToysRus.xlsx		ToysRus		
28	Uniqlo.xlsx		Uniqlo		
29	Zara.xlsx		Zara		
30					





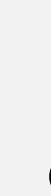
TENANT SHEETS

OK, it is time to start peeking into the set of Excel sheets that are stored in the “/data/“ folder.

To open an Excel workbook, the appropriate method is, unsurprisingly:

Workbooks.Open

```
Sub OpenLeaseFile()
    fPath = ActiveWorkbook.Path + "/data/"
    fName = Range("A2").Value
    Workbooks.Open(fPath + fName).Activate
End Sub
```



Which file are we opening?
7 Eleven.xlsx
 (It is the file name in cell “A2”)



B	#B1-5
Start of the lease:	01 February 2018
End:	28 October 2023
Lot size	
Square meters:	75
Rental agreement:	
Total price (SGD per month):	3300
Frequency of revisions:	Monthly



Having opened the “7 Eleven.xlsx” workbook, we can now easily extract the relevant information.

To make the code easier to read, we use the

With - End With

command. It means that we refer to a given object and apply all properties and method to this object.

For example:

.Range

is the same as:

ActiveWorkbook.Worksheets(1).Range

Sub ReadLeaseFile1()

```
fPath = ActiveWorkbook.Path + "/Data/"  
fName = Range("A2").Value
```

```
Workbooks.Open(fPath + fName).Activate
```

```
With ActiveWorkbook.Worksheets(1)  
    lease_class = .Range("B7").Value  
    lease_unit = .Range("C7").Value  
    lease_start = .Range("C9").Value  
    lease_end = .Range("C10").Value  
    lease_area = .Range("C13").Value  
    lease_rent = .Range("C16").Value  
    lease_revision = .Range("C17").Value  
End With
```

```
ActiveWorkbook.Close
```

```
End Sub
```



We read the information from “7 Eleven.xlsx” and store it in our current workbook:

```
Sub ReadLeaseFile2()

fPath = ActiveWorkbook.Path + "/Data/"
fName = Range("A2").Value

Workbooks.Open(fPath + fName).Activate

With ActiveWorkbook.Worksheets(1)
    lease_class = .Range("B7").Value
    lease_unit = .Range("C7").Value
    lease_start = .Range("C9").Value
    lease_end = .Range("C10").Value
    lease_area = .Range("C13").Value
    lease_rent = .Range("C16").Value
    lease_revision = .Range("C17").Value
End With
ActiveWorkbook.Close

With Range("G2")
    .Offset(i, 1).Value = lease_class
    .Offset(i, 2).Value = lease_unit
    .Offset(i, 3).Value = lease_start
    .Offset(i, 4).Value = lease_end
    .Offset(i, 5).Value = lease_area
    .Offset(i, 6).Value = lease_rent
    .Offset(i, 7).Value = lease_revision
End With

With Range("G1")
    .Offset(0, 1).Value = "Class"
    .Offset(0, 2).Value = "Unit"
    .Offset(0, 3).Value = "Start of contract"
    .Offset(0, 4).Value = "End of contract"
    .Offset(0, 5).Value = "Floor area"
    .Offset(0, 6).Value = "Rent (SGD)"
    .Offset(0, 7).Value = "Revision period"
End With

End Sub
```



H	I	J	K	L	M	N
Class	Unit	Start of contract	End of contract	Floor area	Rent (SGD)	Revision period
B	#B1-5		1/2/18		75	3300 Monthly



J O B D O N E !

T E N A N T
S H E E T S

Just a minor remaining thing:

```
Sub FormatFields()  
  
    Range("L2").Cells.NumberFormat = "# ""sqm"""  
    Range("M2").Cells.NumberFormat = "$#,##0.00"  
    Range("J2:K2").Cells.NumberFormat = "yyyy-mm-dd"  
  
End Sub
```

Formatting the information as appropriate:

- Dates (2023-10-28)
- Area as square meters (75 sqm)
- Rent (SGD \$3,300)

H	I	J	K	L	M	N
Class	Unit	Start of contract	End of contract	Floor area	Rent (SGD)	Revision period
B	#B1-5	2018-02-01	2023-10-28	75 sqm	\$3,300.00	Monthly



3



THE APPLICATION

Bringing it all together

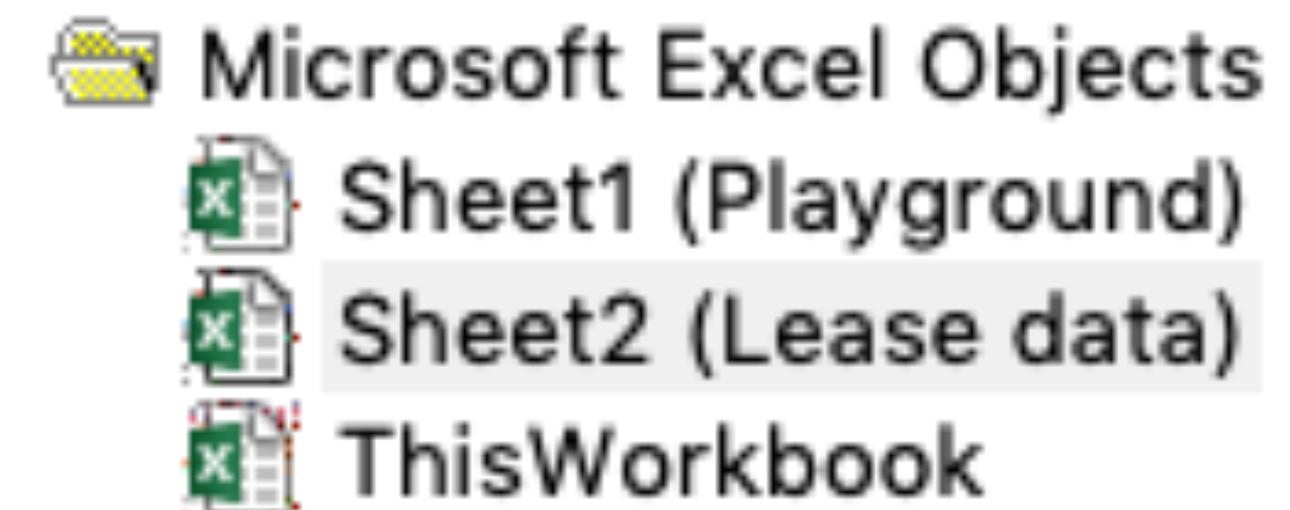


A P P L I C A T I O N

Finally, let's run the complete application:

LoadLeaseContracts()

from the "Sheet 2" worksheet.



Sub LoadLeaseContracts()

...

End Sub



FINAL RESULT: OVERVIEW OF LEASE CONTRACT DETAILS

	A	B	C	D	E	F	G	H
1	Tenant	Class	Unit	Start of contract	End of contract	Floor area	Rent (SGD)	Revision period
2	7 Eleven	B	#B1-5	2018-02-01	2023-10-28	75 sqm	\$3,300.00	Monthly
3	8 Tarts-n-Pastries	A	#2-4	2016-01-01	2022-08-30	32 sqm	\$1,184.00	Monthly
4	Aburi-En	A	#B1-102	2018-05-05	2026-12-30	145 sqm	\$6,525.00	Yearly
5	Adidas	D	#B1-19	2018-02-01	2022-12-31	172 sqm	\$10,320.00	Monthly
6	Artisan Boulangerie	A	#1-2	2017-04-03	2022-12-31	20 sqm	\$1,100.00	Fixed
7	Awfully Chocolate	B	#1-12	2021-05-15	2022-10-22	75 sqm	\$4,500.00	Yearly
8	Bata	D	#1-22	2018-05-05	2022-11-29	90 sqm	\$4,500.00	Yearly
9	Brotzeit	A	#2-6	2017-04-03	2022-12-31	119 sqm	\$5,355.00	Monthly
10	Burger King	B	#B1-7	2017-04-03	2022-12-30	195 sqm	\$6,435.00	Fixed
11	Chanel	A	#3-3	2017-04-03	2024-10-15	55 sqm	\$2,585.00	Monthly
12	Chulove Cafe	D	#B1-1	2021-05-14	2022-12-30	72 sqm	\$3,672.00	Monthly
13	Desigual	B	#2-33	2018-03-17	2028-12-31	140 sqm	\$4,620.00	Monthly
14	Foodrepublic	A	#1-12	2019-01-01	2022-12-31	1250 sqm	\$56,250.00	Monthly
15	HSBC	C	#B1-7	2019-05-14	2022-08-31	28 sqm	\$1,708.00	Fixed
16	Marche	A	#2-4	2019-02-01	2022-10-31	980 sqm	\$32,340.00	Yearly
17	Marks and Spencer	B	#1-1	2017-01-01	2022-10-13	2740 sqm	\$82,200.00	Monthly
18	Mothercare	D	#1-41	2018-02-01	2023-12-30	1250 sqm	\$60,000.00	Fixed
19	MyRepublic	B	#3-21	2017-01-01	2023-10-01	20 sqm	\$1,360.00	Monthly
20	Popular	D	#B1-32	2019-05-14	2022-10-04	310 sqm	\$17,360.00	Fixed
21	RayBan	D	#B1-2	2018-02-01	2025-12-31	80 sqm	\$5,200.00	Yearly
22	Sephora	D	#2-21	2018-05-05	2023-12-31	105 sqm	\$3,990.00	Monthly
23	Singtel	B	#1-3	2018-02-01	2030-07-31	45 sqm	\$2,925.00	Fixed
24	Starbucks	C	#3-8	2018-02-01	2025-12-30	40 sqm	\$1,240.00	Yearly
25	SushiTei	C	#B1-4	2017-04-03	2022-10-08	125 sqm	\$5,250.00	Monthly
26	Swarovski	A	#1-31	2017-01-01	2022-08-31	40 sqm	\$2,000.00	Fixed
27	ToysRus	B	#2-41	2019-05-14	2028-10-31	1400 sqm	\$85,400.00	Fixed
28	Uniqlo	B	#1-9	2017-04-03	2022-12-31	350 sqm	\$21,350.00	Yearly
29	Zara	C	#1-3	2019-05-14	2022-10-31	450 sqm	\$21,150.00	Fixed
30								





A P P L I C A T I O N

**Question:**

Which of the tenants have lease agreements that expire **before 31 December 2022** and need to be **revised monthly**?

' Step 6: Filtering out the lease contracts that we are interested in

Sub Filter()

```
With Range("A:H")
    .AutoFilter 5, "<2022-12-31"
    .AutoFilter 8, "Monthly"
End With
```

End Sub

	A	B	C	D	E	F	G	H
1	Tenant	Class	Unit	Start of contract	End of contract	Floor area	Rent (\$G)	Revision period
3	8 Tarts-n-Pastries	A	#2-4	2016-01-01	2022-08-30	32 sqm	\$1,184.00	Monthly
12	Chulove Cafe	D	#B1-1	2021-05-14	2022-12-30	72 sqm	\$3,672.00	Monthly
17	Marks and Spencer	B	#1-1	2017-01-01	2022-10-13	2740 sqm	\$82,200.00	Monthly
25	SushiTei	C	#B1-4	2017-04-03	2022-10-08	125 sqm	\$5,250.00	Monthly
30								



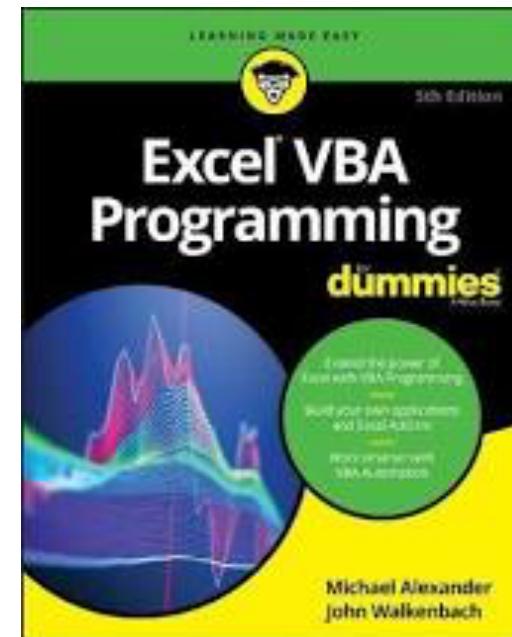
4



REFERENCES

FURTHER READING

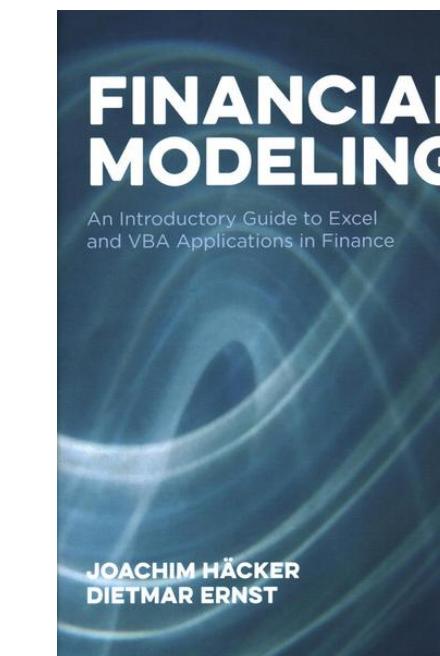
Introductory Book



Download

NUS LIBRARY

Applications



Download

LEARN MORE

Official Reference Guide



LEARN MORE