Week 3 - Lab 1: Analysis, Forecasting, Sorting and Filtering

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Overview

- In this tutorial, we will practice:
  - Analysis and Forecasting
  - Sorting
  - Filtering

Analysis and Forecasting

- In this section, we will use the Excel skills we learned in the previous tutorials to do some analysis on data and to forecast future changes of data.

- For Analysis: use Summary calculations and explain models.

Analysis and Forecasting – Example

- Goal1: perform a compound interest calculation.
- A compound interest is the amount of money earned on a deposit during a period of time.
- Equation: It can be calculated using the following formula: P= C (1 + r/n)^nt
  - P = future value
  - C = initial deposit
  - r = interest rate (expressed as a fraction e.g. 0.06 = 6%)
  - n = # of times per year interest is compounded
  - t = number of years invested.

Analysis and Forecasting – Example

- Design the Excel sheet such that it is easy to read and make modifications.
- Divide it into sections:
  - Equation/Formula
  - Legend
  - Parameters
  - Variables and Results

Analysis and Forecasting – Example

Compound Interest Equation
Formula: P = C(1 + r/n)^(nt)
Legend
P = Future value
C= initial deposit
r = interest rate (expressed as a fraction: eg. 0.06)
n = # of times per year interest in compounded
t = number of years invested

Years Invested (t):		1
Initial Deposit (C):	$	10,000.00
Interest Rate (r):		6%

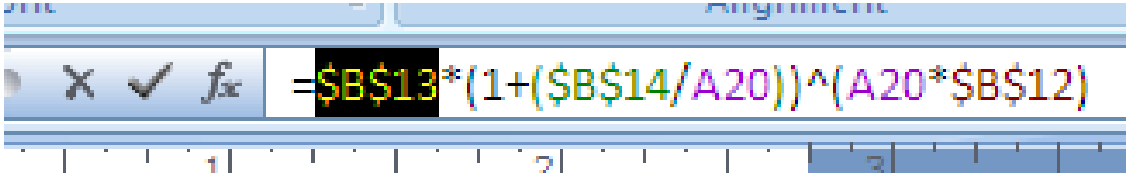
Note the cell formats depending on the type of data.

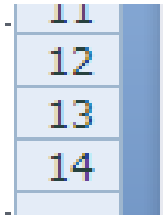
Analysis and Forecasting – Example

Demonstrations of Various Compounding

Compounded(n)		Final Principal (P)	
1	(Yearly)	$	10,600.00
2	(Semi-Annually)	$	10,609.00
4	(Quarterly)	$	10,613.64
12	(Monthly)	$	10,616.78
52	(Weekly)	$	10,618.00
365	(Daily)	$	10,618.31

Analysis and Forecasting – Example





Years Invested (t):	1
Initial Deposit (C):	$ 10,000.00
Interest Rate (r):	6%

Compounded(n)		Final Principal (P)	
1	(Yearly)	$	10,600.00
2	(Semi-Annually)	$	10,609.00
4	(Quarterly)	$	10,613.64
12	(Monthly)	$	10,616.78
52	(Weekly)	$	10,618.00
365	(Daily)	$	10,618.31

Analysis and Forecasting – Example

- Goal2: perform a Continuous Compounding Interest calculation.

- Equation: P = C e^(rt)
  - e = mathematical constant (EXP(1))
  - P = future value
  - C = initial deposit
  - r = interest rate (expressed as a fraction e.g. 0.06 = 6%)
  - t = number of years invested.

Analysis and Forecasting – Example

Demonstration of Continuous Compounding

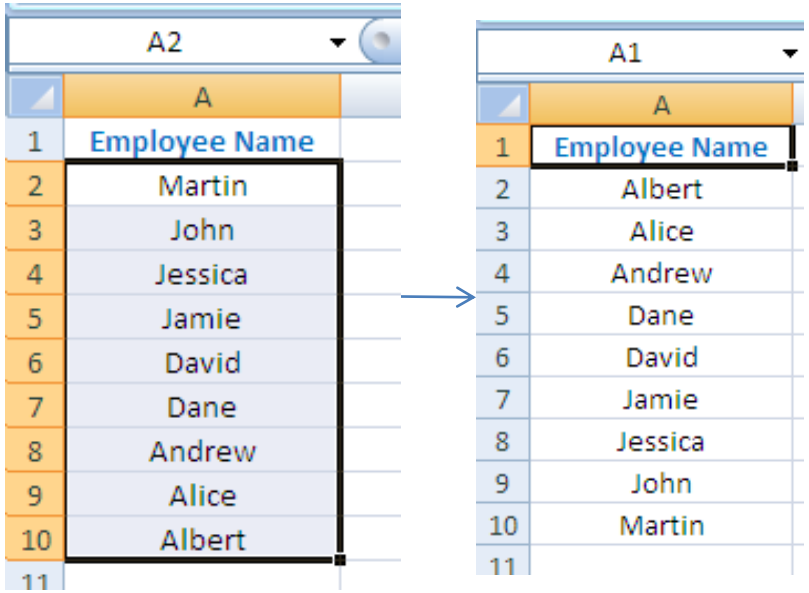
Formula: P = C e^(rt)

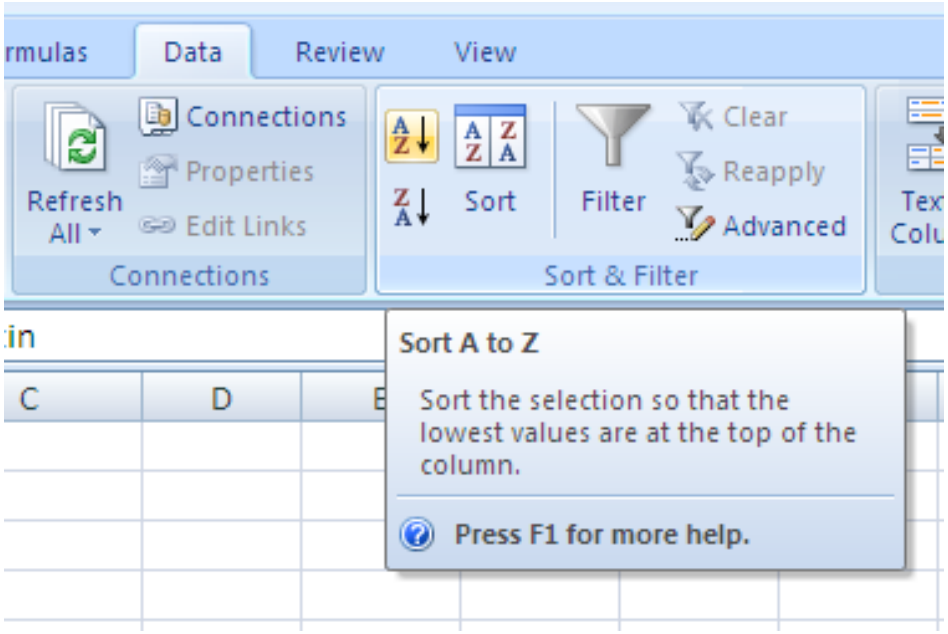
Legend
e = Mathematical Constant (e = 2.71828 18284 59045 23536...)

Compounded(n)	Final Principal (P)
Continuous	=B13*EXP(1)^($

Sorting

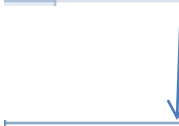
- In Excel you can sort textual and numerical data.



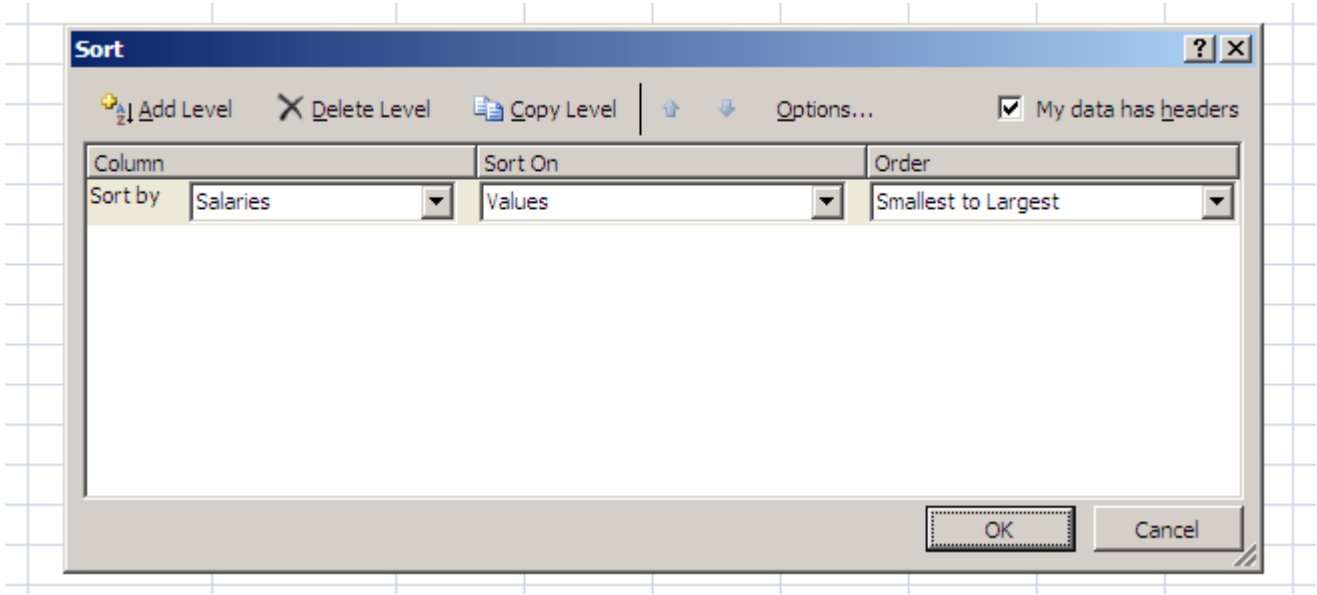


Sorting

	A
1	Salaries
2	300
3	200
4	400
5	120
6	600
7	430
8	80
9	60
10	90
11	

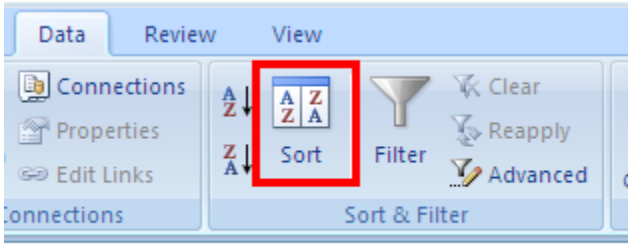


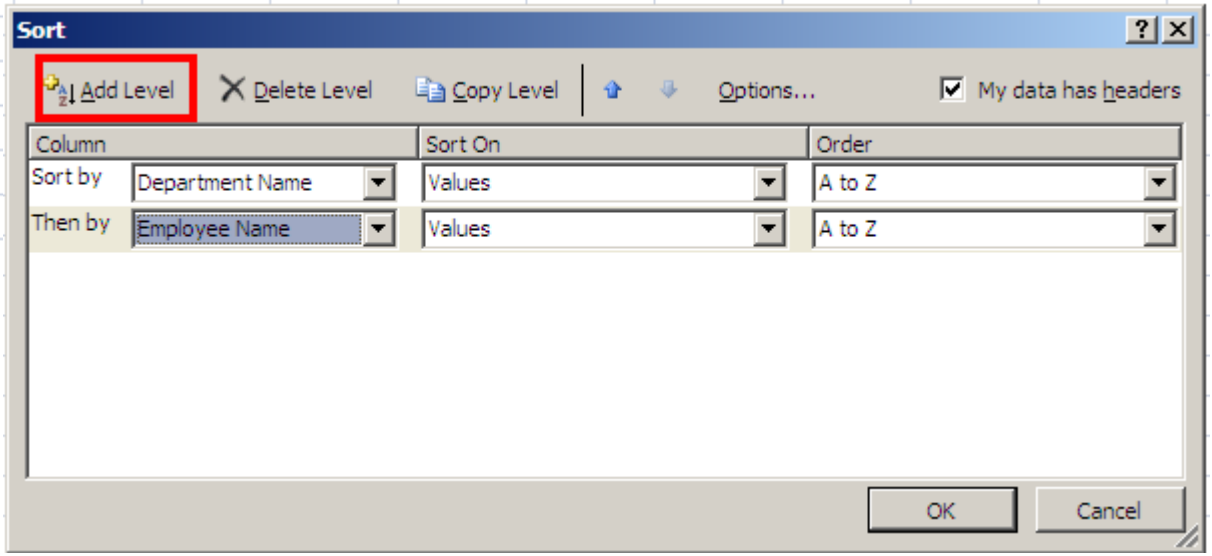
	A
1	Salaries
2	60
3	80
4	90
5	120
6	200
7	300
8	400
9	430
10	600
11	



Sorting

	A	B
1	Department Name	Employee Name
2	Finance	Mark
3	Sales	Jessica
4	Human Resources	Martin
5	Finance	Albert
6	Customer Services	Dane
7	Finance	David
8	Customer Services	Andrew
9	Sales	Jamie
10	Finance	John
11	Customer Services	Jonathan
12		

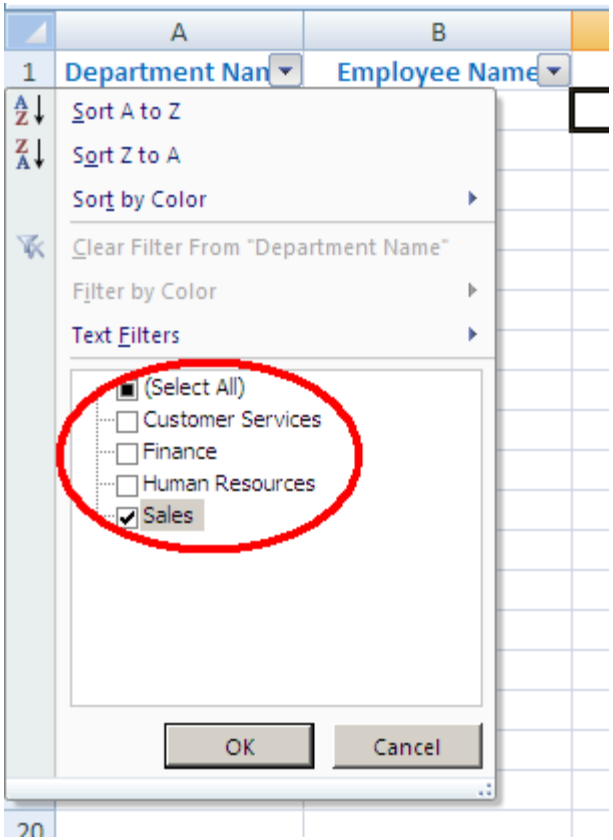


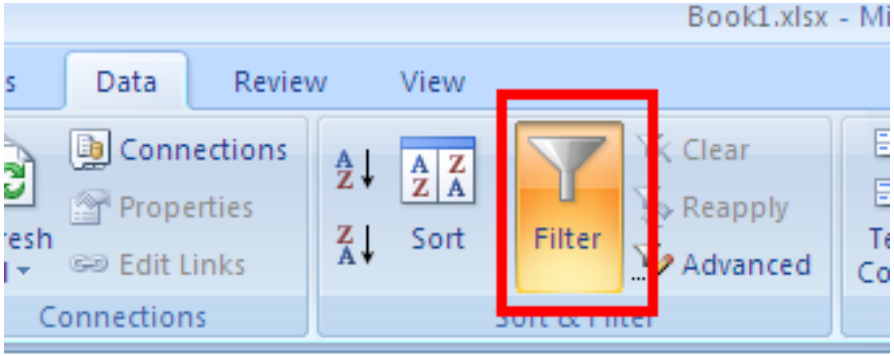


	A	B
1	Department Name	Employee Name
2	Customer Services	Andrew
3	Customer Services	Dane
4	Customer Services	Jonathan
5	Finance	Albert
6	Finance	David
7	Finance	John
8	Finance	Mark
9	Human Resources	Martin
10	Sales	Jamie
11	Sales	Jessica

Filtering

- Used to display part of the data according to some criteria.

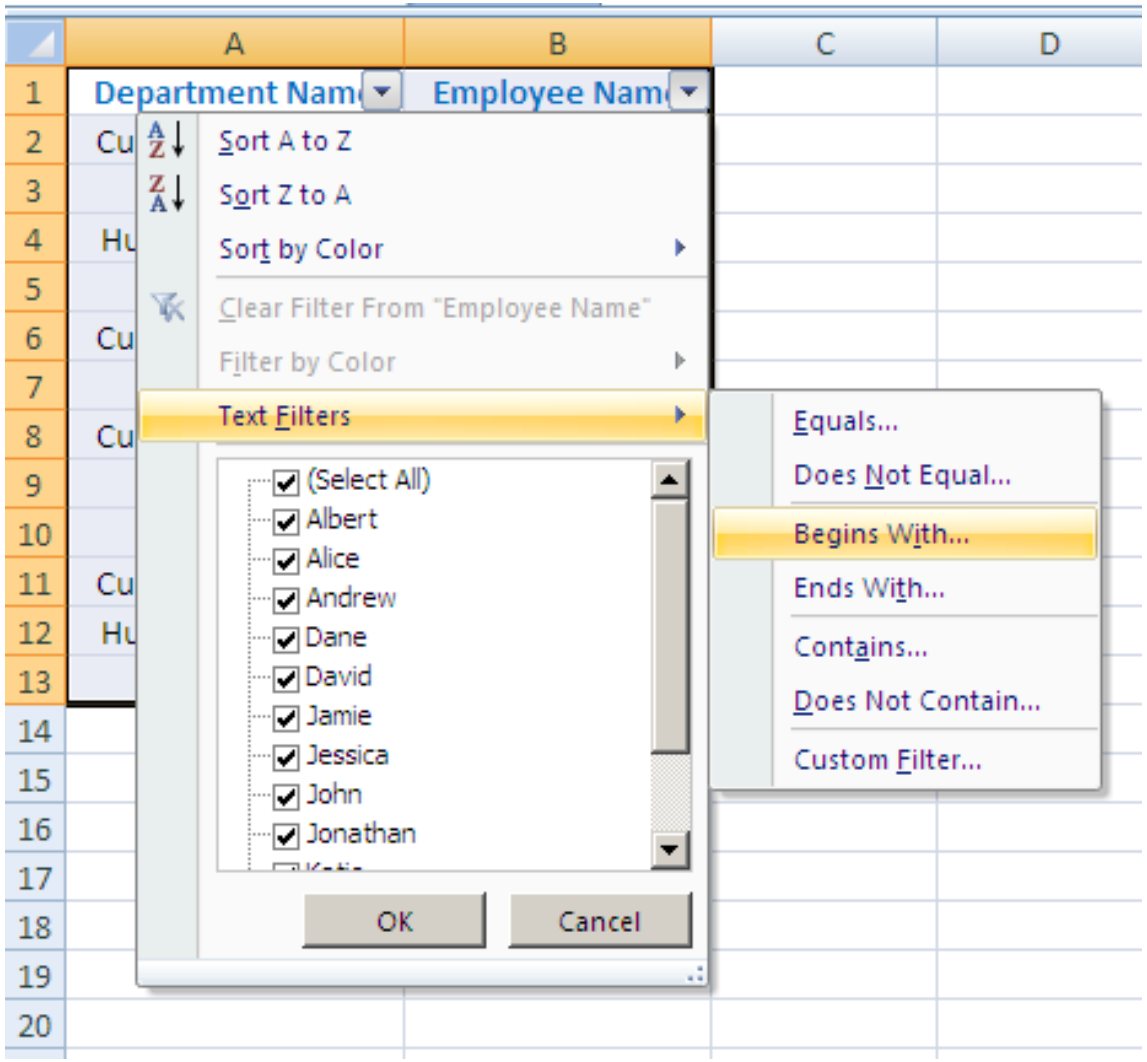




	A	B
1	Department Nam	Employee Name
10	Sales	Jamie
11	Sales	Jessica
12		

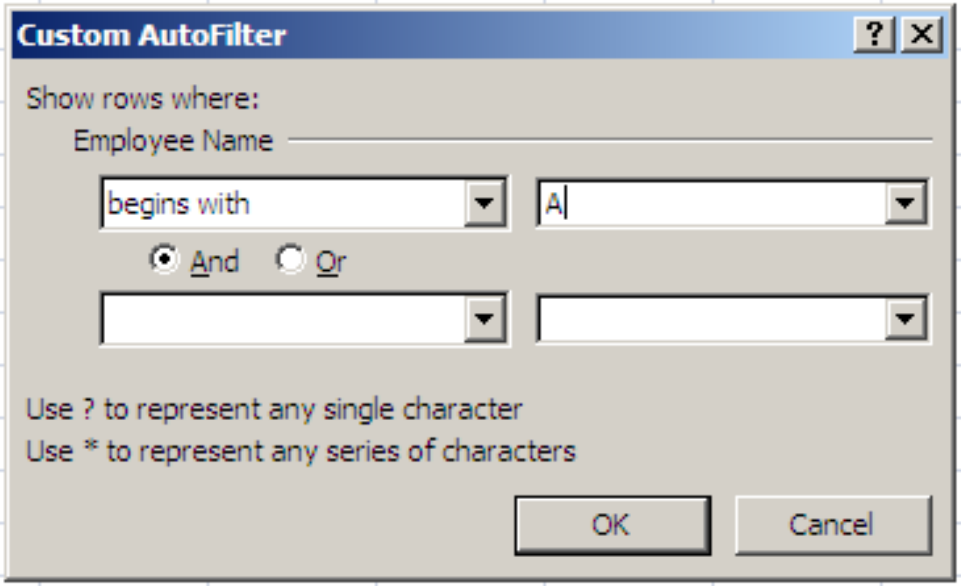
Customized Filters

- To display only the names of employees that start with an "A“



Customized Filters

	A	B
1	Department Nan	Employee Name
2	Customer Services	Andrew
3	Customer Services	Dane
4	Customer Services	Jonathan
5	Finance	Albert
6	Finance	David
7	Finance	John
8	Finance	Mark
9	Human Resources	Martin
10	Sales	Jamie
11	Sales	Jessica
12		



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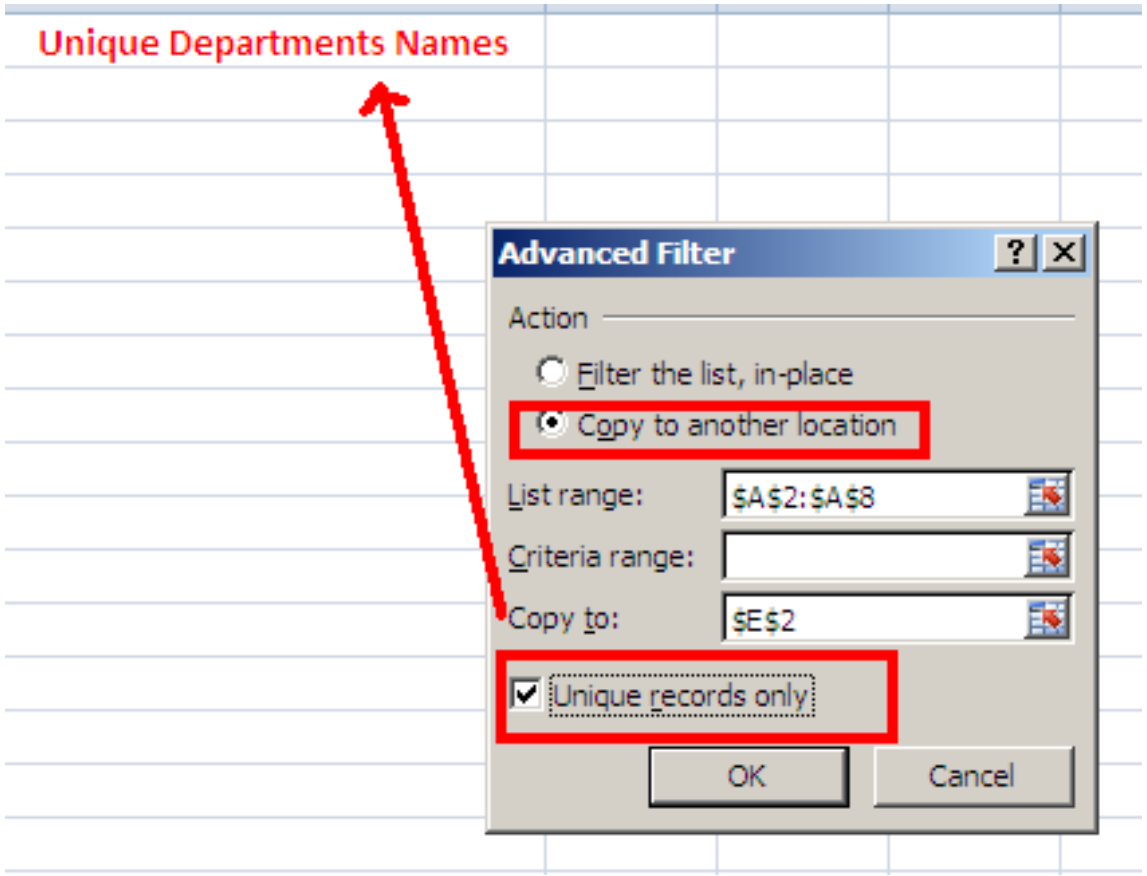
	A	B
1	Department Nan	Employee Name
2	Customer Services	Andrew
5	Finance	Albert
12		

Filtering for Unique Values

	A	B
1	Department Name	Employee Name
2	Finance	Mark
3	Sales	Jessica
4	Human Resources	Martin
5	Customer Services	Dane
6	Customer Services	Andrew
7	Sales	Jamie
8	Customer Services	Jonathan



Filtering for Unique Values

	A	B	C	D	E
1	Department Name	Employee Name			Unique Departments Names
2	Finance	Mark			Finance
3	Sales	Jessica			Sales
4	Human Resources	Martin			Human Resources
5	Customer Services	Dane			Customer Services
6	Customer Services	Andrew			
7	Sales	Jamie			
8	Customer Services	Jonathan			
9					

Next: Review

- Next Tutorial is a review session
- Practice and be prepared to ask questions.