Data Analysis with Spreadsheet Program

Faculty of DS & AI
Spring semester, 2026

Trong-Nghia Nguyen

Business AI Lab

Content

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- Basic Formulas
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- Lookup Functions
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About

Bio

Website

Trong-Nghia Nguyen (PhD)
(1996)

Present, Lecture at **National Economics University**

2021, Msc. at **Hanoi University of Science and Technology**
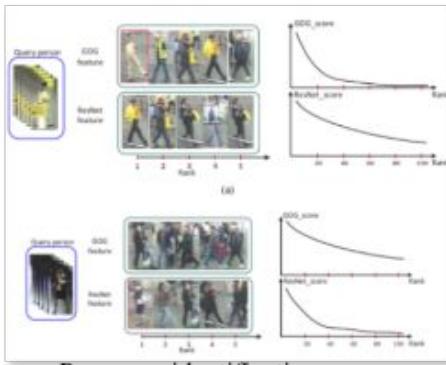
2025, PhD. at **Chonnam National University, South Korea**

2018, BS. at **University of Science, Hue University**

Disciplines: **Artificial Intelligence, Computer Science, Information Technology**
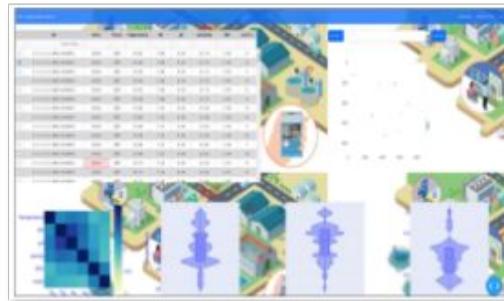
Research
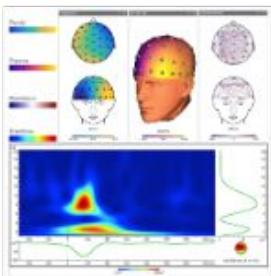
Smart technology

Person re-identification
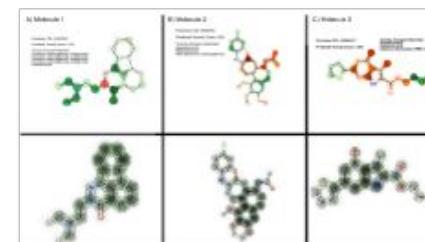
Smart Manufactoring

On going
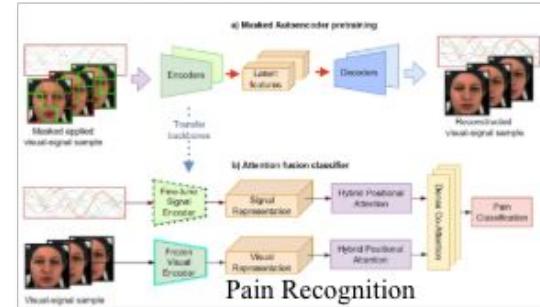
Brain EEG signal
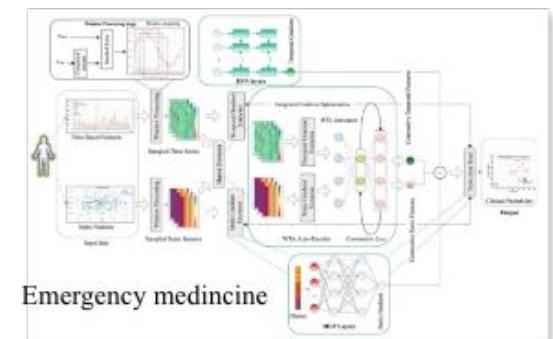
Drug's molecular structure
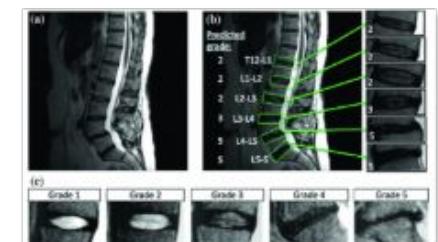
Smart Healthcare

Pain Recognition

Emergency medincine
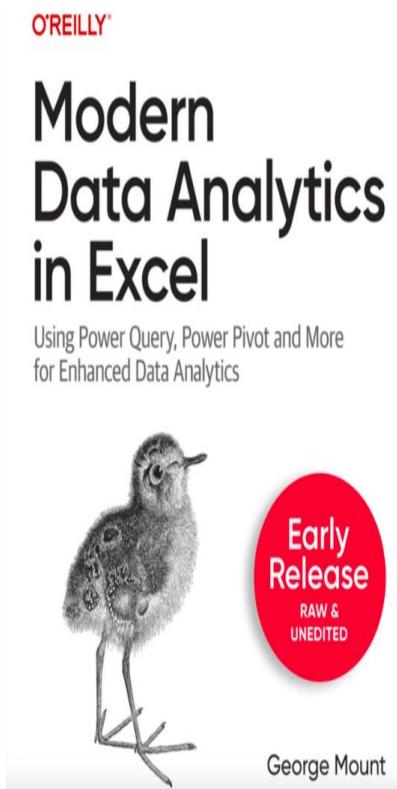
MRI - Pathology diagnostic

About

Course Overview

Course Website

- *Practical introduction to data analysis with Spreadsheet Program*
- *Real-world applications in finance, economics, and healthcare*
- *See List of Topics*
- Please note that the topics and corresponding data are for reference only; **students are welcome to suggest their own topics.**
- The difficulty level of the self-chosen topics will be assessed by the instructor.

O'REILLY

Modern Data Analytics in Excel

Using Power Query, Power Pivot and More for Enhanced Data Analytics

Early Release
RAW & UNEDITED

George Mount

Modern Data Analytics in Excel: Using Power Query, Power Pivot, and Dynamic Arrays

- Author: George Mount
- Publisher: O'Reilly Media, Inc. | Year: 2023
- Access: O'Reilly Learning Platform

About

Syllabus

Course Website

- Slides and reports could be made by LaTeX or .docx (or any) but should follow the template. **Incorrect template = Zero**.
- Every template for slides, reports, and poster could be found at Student_desk

Attendance

10%
The team's member presentation

Midterm

30%
Presentation (Week 10) + Exam

Final Project
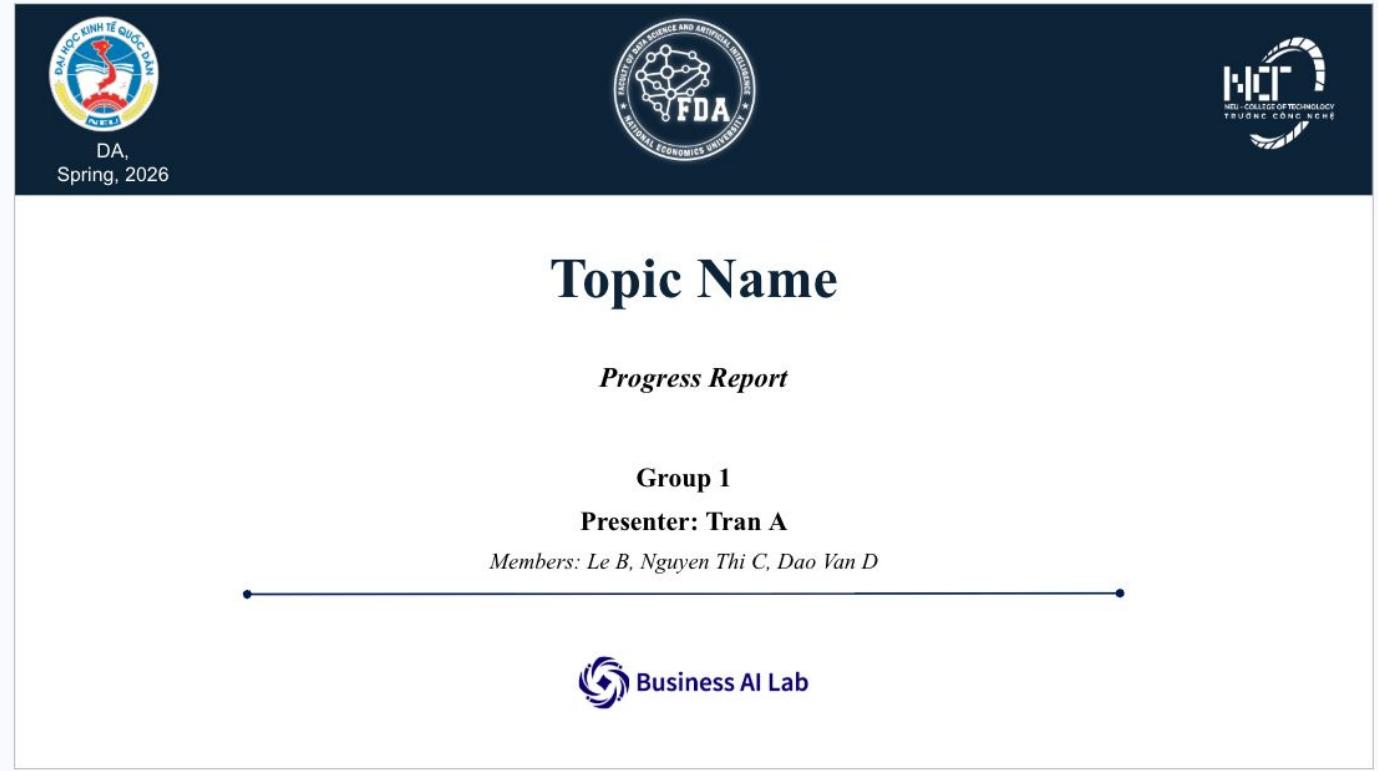
60%
Full project (paper) + poster + presentation (Week 15)

About

Syllabus

[Course Website](#)

- All submissions except for source code must be submitted as a **.pdf file**.
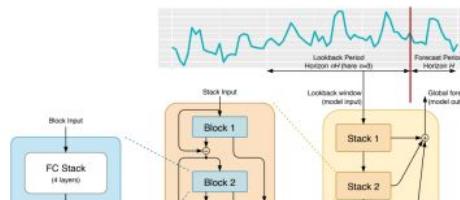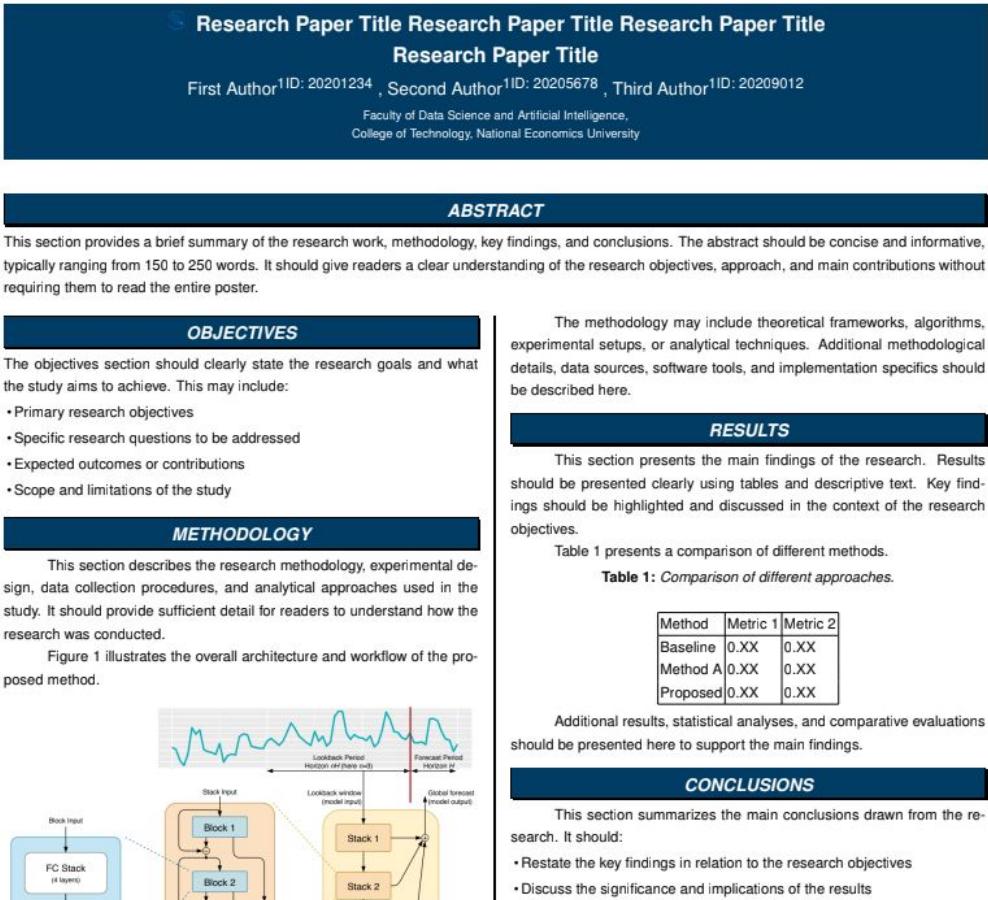
Slide template

About

Syllabus

Course Website

- All submissions except for source code must be submitted as a **.pdf file**.

Poster template

About

Syllabus

Course Website

- All submissions except for source code must be submitted as a **.pdf file**.
- Refer some Examples

Paper Title

First Author[1][20201234], Second Author[1][20205678], and Third Author[1][20209012]

Faculty of Data Science and Artificial Intelligence,
College of Technology, National Economics University
your.email@neu.edu.vn

Abstract. The abstract should briefly summarize the contents of the paper in 150–250 words.

Keywords: First keyword · Second keyword · Another keyword.

1 Introduction

This section introduces the research topic, provides necessary background information, and states the problem being addressed. The introduction should clearly articulate the research objectives and the main contributions of the paper. It typically ends with a brief outline of the paper structure.

Please note that the first paragraph of a section or subsection is not indented. The first paragraph that follows a table, figure, equation etc. does not need an indent, either.

Subsequent paragraphs, however, are indented.

2 Related Work

This section reviews relevant previous work in the field. It should comprehensively survey existing approaches, methods, and findings related to your research topic. The review should be organized thematically or chronologically, and should clearly identify how your work differs from or extends previous research.

2.1 Previous Approaches

Previous research in this area has addressed various aspects of the problem. For example, Author et al. [2] proposed a method that...

2.2 Research Gaps

Despite the progress made, several limitations remain in existing approaches...

Paper/report template

Group Requirements

Group working on weekly report

- Team formation: Groups of 1–4 students
- Dataset selection: 11 topics
- All labs are project progress presentations.

Group Requirements

Group working on weekly report

- Weekly report: Just **update the slides** from last week; there's no need to create new slides.
- Midterm: **Presentation** & **exam**.
- Final: Complete proposed method with **full report** & **complete slide/poster**.

Basic fomulas

SUM Function

Purpose: Adds all numbers in a specified range or set of cells.

Syntax:

```
=SUM(number1, [number2], [number3], ...)
=SUM(range)
=SUM(range1, range2, ...)
```

Parameters:

- `number1, number2, ...` : Individual numbers or cell references to add
- `range` : A range of cells (e.g., E2:E51)

Examples:

- `=SUM(E2:E51)` - Sums all values in cells E2 through E51
- `=SUM(10, 20, 30)` - Returns 60
- `=SUM(E2:E51, F2:F51)` - Sums values from two different ranges

Notes:

- SUM ignores text and empty cells
- Can sum up to 255 individual arguments
- Works with arrays: `=SUM(E2:E51*F2:F51)` multiplies corresponding cells then sums results

AVERAGE Function

Purpose: Calculates the arithmetic mean (average) of a set of numbers.

Syntax:

```
=AVERAGE(number1, [number2], [number3], ...)
=AVERAGE(range)
```

Parameters:

- `number1, number2, ...` : Individual numbers or cell references
- `range` : A range of cells containing numbers

Examples:

- `=AVERAGE(E2:E51)` - Calculates average of all values in E2:E51
- `=AVERAGE(10, 20, 30, 40)` - Returns 25 (100/4)

Notes:

- Ignores empty cells and text values
- AVERAGE = SUM of values / COUNT of numeric values
- Returns #DIV/0! if no numeric values found

Basic fomulas

COUNT Function

Purpose: Counts the number of cells in a range that contain numbers.

Syntax:

```
=COUNT(value1, [value2], ...)
=COUNT(range)
```

Parameters:

- `value1, value2, ...` : Individual values or cell references
- `range` : A range of cells to count

Examples:

- `=COUNT(E2:E51)` - Counts how many cells in E2:E51 contain numbers
- `=COUNT(A1:A10)` - If A1:A10 has 7 numbers and 3 text values, returns 7

Notes:

- Only counts numeric values (numbers, dates, times)
- Ignores text, logical values (TRUE/FALSE), and empty cells
- Use COUNTA if you want to count all non-empty cells including text

COUNTA Function

Purpose: Counts the number of cells in a range that are not empty (counts numbers, text, dates, logical values, and errors).

Syntax:

```
=COUNTA(value1, [value2], ...)
=COUNTA(range)
```

Parameters:

- `value1, value2, ...` : Individual values or cell references
- `range` : A range of cells to count

Examples:

- `=COUNTA(A2:A51)` - Counts all non-empty cells in A2:A51 (including text like Product IDs)
- `=COUNTA(A1:B10)` - Counts all non-empty cells in the range A1:B10

Notes:

- Counts any non-empty cell: numbers, text, dates, TRUE/FALSE, error values
- Only ignores truly empty cells
- Use this when you need total count including text values

Basic fomulas

MAX Function

Purpose: Returns the largest (maximum) value from a set of numbers.

Syntax:

```
=MAX(number1, [number2], ...)
=MAX(range)
```

Parameters:

- `number1, number2, ...` : Individual numbers or cell references
- `range` : A range of cells containing numbers

Examples:

- `=MAX(E2:E51)` - Returns the highest value in range E2:E51
- `=MAX(10, 25, 5, 30)` - Returns 30

Notes:

- Ignores text and empty cells
- Works with dates and times (returns most recent date/time)
- Returns 0 if no numbers found (not an error)

MIN Function

Purpose: Returns the smallest (minimum) value from a set of numbers.

Syntax:

```
=MIN(number1, [number2], ...)
=MIN(range)
```

Parameters:

- `number1, number2, ...` : Individual numbers or cell references
- `range` : A range of cells containing numbers

Examples:

- `=MIN(E2:E51)` - Returns the lowest value in range E2:E51
- `=MIN(10, 25, 5, 30)` - Returns 5

Notes:

- Ignores text and empty cells
- Works with dates and times (returns earliest date/time)
- Returns 0 if no numbers found (not an error)

Conditional Functions

IF Function

Purpose: Performs a logical test and returns one value if TRUE, another if FALSE.

Syntax:

```
=IF(logical_test, value_if_true, value_if_false)
```

Parameters:

- `logical_test` : A condition that evaluates to TRUE or FALSE (e.g., F2<G2, A1>100)
- `value_if_true` : Value returned if condition is TRUE
- `value_if_false` : Value returned if condition is FALSE

Examples:

- `=IF(F2<G2, "Reorder", "OK")` - Returns "Reorder" if F2 is less than G2, otherwise "OK"
- `=IF(E2>100, "Expensive", "Affordable")` - Returns "Expensive" if price > 100
- `=IF(A1="Yes", 1, 0)` - Returns 1 if A1 contains "Yes", otherwise 0

Nested IF Examples:

- `=IF(J2>5000, "High", IF(J2>2000, "Medium", "Low"))` - Three-level classification
  - If J2 > 5000, returns "High"
  - Else if J2 > 2000, returns "Medium"
  - Else returns "Low"

COUNTIF Function

Purpose: Counts the number of cells within a range that meet a single criterion.

Syntax:

```
=COUNTIF(range, criteria)
```

Parameters:

- `range` : The range of cells to evaluate
- `criteria` : The condition that defines which cells to count (can be number, expression, text, or cell reference)

Examples:

- `=COUNTIF(C2:C51, "Electronics")` - Counts cells containing exactly "Electronics"
- `=COUNTIF(E2:E51, ">100")` - Counts cells greater than 100
- `=COUNTIF(I2:I51, "Reorder")` - Counts cells containing "Reorder"
- `=COUNTIF(C2:C51, A10)` - Counts cells matching value in cell A10

Criteria Examples:

- Text: `"Electronics"` , `"High"`
- Number: `100`
- Comparison: `">100"` , `"<50"` , `">=200"`
- Wildcards: `"*Electronics*"` (contains Electronics), `"E*"` (starts with E)
- Cell reference: `A10` (uses value in A10)

Conditional Functions

COUNTIFS Function

Purpose: Counts the number of cells that meet multiple criteria across different ranges.

Syntax:

```
=COUNTIFS(criteria_range1, criteria1, [criteria_range2, criteria2], ...)
```

Parameters:

- `criteria_range1` : First range to evaluate
- `criteria1` : First condition
- `criteria_range2, criteria2, ...` : Additional range/criteria pairs (up to 127 pairs)

Examples:

- `=COUNTIFS(C2:C51, "Electronics", I2:I51, "Reorder")` - Counts products that are Electronics AND need Reorder
- `=COUNTIFS(E2:E51, ">100", F2:F51, "<50")` - Counts where price > 100 AND quantity < 50

Notes:

- All criteria must be TRUE (AND logic)
- Each criteria_range must have the same number of rows/columns
- Can combine different types of criteria (text, numbers, comparisons)

SUMIF Function

Purpose: Sums the values in a range that meet a single criterion.

Syntax:

```
=SUMIF(range, criteria, [sum_range])
```

Parameters:

- `range` : Range of cells to evaluate against criteria
- `criteria` : Condition that defines which cells to sum
- `sum_range` : (Optional) Range of cells to sum. If omitted, sums the cells in range

Examples:

- `=SUMIF(C2:C51, "Electronics", I2:I51)` - Sums values in I2:I51 where C2:C51 equals "Electronics"
- `=SUMIF(E2:E51, ">100")` - Sums all values in E2:E51 that are greater than 100
- `=SUMIF(C2:C51, A10, E2:E51)` - Sums E2:E51 where C2:C51 matches cell A10

Notes:

- sum_range must be the same size as range
- If sum_range is omitted, sums the cells in range itself
- Criteria follow same rules as COUNTIF (quotes for text/operators)

Conditional Functions

AVERAGEIF Function

Purpose: Calculates the average of values in a range that meet a single criterion.

Syntax:

```
=AVERAGEIF(range, criteria, [average_range])
```

Parameters:

- `range` : Range of cells to evaluate against criteria
- `criteria` : Condition that defines which cells to average
- `average_range` : (Optional) Range to average. If omitted, averages the cells in range

Examples:

- `=AVERAGEIF(C2:C51, "Electronics", E2:E51)` - Averages E2:E51 where C2:C51 equals "Electronics"
- `=AVERAGEIF(C2:C51, A10, E2:E51)` - Averages prices where category matches A10
- `=AVERAGEIF(E2:E51, ">100")` - Averages all values in E2:E51 greater than 100

Notes:

- average_range must be the same size as range
- Returns #DIV/0! if no cells match criteria
- Criteria follow same rules as COUNTIF

SUMPRODUCT Function

Purpose: Multiplies corresponding components in arrays and returns the sum of those products.

Syntax:

```
=SUMPRODUCT(array1, [array2], [array3], ...)
```

Parameters:

- `array1, array2, ...` : Arrays (ranges) of equal size to multiply and sum

Examples:

- `=SUMPRODUCT(E2:E51, F2:E51)` - Multiplies each price by quantity, then sums all results
- `=SUMPRODUCT((C2:C51="Electronics")*(E2:E51)*(F2:F51))` - Multiplies E*F where C="Electronics", then sums
- `=SUMPRODUCT((A2:A10>50)*(B2:B10))` - Sums B2:B10 where A2:A10 > 50

Notes:

- Arrays must be the same size
- Can use boolean logic: `(condition)*array` converts TRUE/FALSE to 1/0
- More powerful than SUMIF for complex conditions
- Works great for conditional multiplication and summing

Lookup Functions

VLOOKUP Function

Purpose: Searches for a value in the first column of a table and returns a value in the same row from a specified column.

Syntax:

```
=VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])
```

Parameters:

- `lookup_value` : The value to search for (must be in first column of table_array)
- `table_array` : The table of data to search (must include lookup column and return column)
- `col_index_num` : Column number in table_array to return (1 = first column, 2 = second column, etc.)
- `range_lookup` : (Optional) TRUE for approximate match, FALSE for exact match. Default is TRUE.

Examples:

- `=VLOOKUP(B26, Inventory!A2:H51, 8, FALSE)` - Finds B26 in column A, returns value from column H (8th column)
- `=VLOOKUP("PRD-015", Inventory!A2:H51, 5, FALSE)` - Finds "PRD-015", returns Unit Price (5th column)
- `=VLOOKUP(D2, Suppliers!A2:B5, 2, FALSE)` - Looks up D2 in Suppliers sheet, returns Supplier Name

Important Rules:

1. **Lookup value must be in the first column** of table_array
2. **Column index counts from the left** of table_array, not the worksheet
3. **Use FALSE for exact match** with text lookups
4. **Use TRUE (or omit) for approximate match** with sorted numeric data

How VLOOKUP Works:

1. Searches for lookup_value in the first column of table_array
2. Finds matching row (exact or approximate depending on range_lookup)
3. Moves to the column specified by col_index_num
4. Returns the value at that intersection

Column Index Explanation: If table_array is `A2:H51` :

- Column 1 = Column A (Product ID)
- Column 2 = Column B (Product Name)
- Column 3 = Column C (Category)
- Column 5 = Column E (Unit Price)
- Column 8 = Column H (Supplier Name)

Common Errors:

- **#N/A**: Lookup value not found (check spelling, ensure value exists)
- **#REF!**: Column index number exceeds table columns (e.g., col_index_num = 10 but only 8 columns)
- **Wrong value**: Using approximate match (TRUE) when exact match (FALSE) needed

Use Cases:

- Look up product information by ID
- Retrieve related data from lookup tables
- Join data from different sheets
- Create reference tables and reports

Exercises

Example dataset

See example dataset

1. What is the **total value** of all inventory? (Total value = Unit Price × Quantity for each product, then sum all)
2. What is the **average unit price** across all **products**?
3. **How many** products are in the inventory?
4. What is the **highest and lowest** unit price in the inventory?
5. What is the **total** inventory value for Electronics category?
6. What is the **average** unit price for each **category**

	A	B	C	D	E	F	G	H
	Product ID	Product Name	Category	Supplier Code	Unit Price	Quantity in Stock	Reorder Level	Supplier Name
	PRD-001	Laptop (Electronics)	Electronics	SUP-A	$148.83	8	10	Alpha Suppliers Inc.
	PRD-002	Smartphone (Electronics)	Electronics	SUP-B	$341.88	146	20	Beta Trading Co.
	PRD-003	Tablet (Electronics)	Electronics	SUP-B	$288.72	111	16	Beta Trading Co.
	PRD-004	Headphones (Electronics)	Electronics	SUP-B	$352.72	62	15	Beta Trading Co.
	PRD-005	Mouse (Electronics)	Electronics	SUP-B	$243.40	49	27	Beta Trading Co.
	PRD-006	Keyboard (Electronics)	Electronics	SUP-B	$320.04	67	30	Beta Trading Co.
	PRD-007	Monitor (Electronics)	Electronics	SUP-B	$106.69	58	22	Beta Trading Co.
	PRD-008	Webcam (Electronics)	Electronics	SUP-B	$184.92	75	11	Beta Trading Co.
	PRD-009	Speaker (Electronics)	Electronics	SUP-A	$198.71	149	12	Alpha Suppliers Inc.
	PRD-010	Charger (Electronics)	Electronics	SUP-A	$265.02	38	25	Alpha Suppliers Inc.
	PRD-011	T-Shirt	Clothing	SUP-C	$51.02	5	19	Gamma Distributors Ltd.
	PRD-012	Jeans	Clothing	SUP-B	$25.15	96	15	Beta Trading Co.
	PRD-013	Jacket	Clothing	SUP-B	$114.49	57	22	Beta Trading Co.
	PRD-014	Sneakers	Clothing	SUP-B	$39.68	65	19	Beta Trading Co.
	PRD-015	Hat	Clothing	SUP-C	$96.97	45	31	Gamma Distributors Ltd.
	PRD-016	Socks	Clothing	SUP-C	$69.84	184	24	Gamma Distributors Ltd.
	PRD-017	Shorts	Clothing	SUP-B	$98.82	178	34	Beta Trading Co.
	PRD-018	Dress	Clothing	SUP-B	$102.62	21	21	Beta Trading Co.
	PRD-019	Sweater	Clothing	SUP-B	$55.96	24	27	Beta Trading Co.
	PRD-020	Belt	Clothing	SUP-B	$110.51	82	30	Beta Trading Co.
	PRD-021	Cereal	Food	SUP-C	$14.09	398	36	Gamma Distributors Ltd.
	PRD-022	Milk	Food	SUP-C	$16.81	424	48	Gamma Distributors Ltd.
	PRD-023	Bread	Food	SUP-D	$6.30	64	58	Delta Wholesale Corp.
	PRD-024	Eggs	Food	SUP-D	$17.61	22	31	Delta Wholesale Corp.
	PRD-025	Yogurt	Food	SUP-C	$16.57	161	92	Gamma Distributors Ltd.
	PRD-026	Cheese	Food	SUP-C	$7.74	100	88	Gamma Distributors Ltd.
	PRD-027	Apples	Food	SUP-C	$19.41	304	98	Gamma Distributors Ltd.
	PRD-028	Bananas	Food	SUP-D	$14.21	342	38	Delta Wholesale Corp.
	PRD-029	Rice	Food	SUP-D	$13.61	433	82	Delta Wholesale Corp.
	PRD-030	Pasta	Food	SUP-C	$16.02	362	57	Gamma Distributors Ltd.
	PRD-031	Novel	Books	SUP-A	$41.74	74	16	Alpha Suppliers Inc.
	PRD-032	Textbook	Books	SUP-A	$46.73	22	25	Alpha Suppliers Inc.
	PRD-033	Dictionary	Books	SUP-A	$11.69	28	24	Alpha Suppliers Inc.
	PRD-034	Cookbook	Books	SUP-A	$36.60	100	14	Alpha Suppliers Inc.

Exercises

Example dataset

See example dataset

7. Which products need to be reordered? (Products where Quantity in Stock < Reorder Level)
8. Categorize products as High/Medium/Low priority based on inventory value (Unit Price × Quantity)
9. How many products are below reorder level?
10. How many products are in each category?
11. How many Electronics products need reordering?

Product ID	Product Name	Category	Supplier Code	Unit Price	Quantity in Stock	Reorder Level	Supplier Name
PRD-001	Laptop (Electronics)	Electronics	SUP-A	$148.83	8	10	Alpha Suppliers Inc.
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PRD-029	Rice	Food	SUP-D	$13.61	433	82	Delta Wholesale Corp.
PRD-030	Pasta	Food	SUP-C	$16.02	362	57	Gamma Distributors Ltd.
PRD-031	Novel	Books	SUP-A	$41.74	74	16	Alpha Suppliers Inc.
PRD-032	Textbook	Books	SUP-A	$46.73	22	25	Alpha Suppliers Inc.
PRD-033	Dictionary	Books	SUP-A	$11.69	28	24	Alpha Suppliers Inc.
PRD-034	Cookbook	Books	SUP-A	$36.60	100	14	Alpha Suppliers Inc.

Exercises

Example dataset

See example dataset

12. What is the supplier name for Product ID PRD-015?
13. Look up supplier names from the Suppliers sheet using Supplier Code from Inventory sheet.
14. Find the unit price for a specific product name
15. Create a lookup table showing Product ID, Name, Category, and Price for specific products.

Product ID	Product Name	Category	Supplier Code	Unit Price	Quantity in Stock	Reorder Level	Supplier Name
PRD-001	Laptop (Electronics)	Electronics	SUP-A	$148.83	8	10	Alpha Suppliers Inc.
PRD-002	Smartphone (Electronics)	Electronics	SUP-B	$341.88	146	20	Beta Trading Co.
PRD-003	Tablet (Electronics)	Electronics	SUP-B	$288.72	111	16	Beta Trading Co.
PRD-004	Headphones (Electronics)	Electronics	SUP-B	$352.72	62	15	Beta Trading Co.
PRD-005	Mouse (Electronics)	Electronics	SUP-B	$243.40	49	27	Beta Trading Co.
PRD-006	Keyboard (Electronics)	Electronics	SUP-B	$320.04	67	30	Beta Trading Co.
PRD-007	Monitor (Electronics)	Electronics	SUP-B	$106.69	58	22	Beta Trading Co.
PRD-008	Webcam (Electronics)	Electronics	SUP-B	$184.92	75	11	Beta Trading Co.
PRD-009	Speaker (Electronics)	Electronics	SUP-A	$198.71	149	12	Alpha Suppliers Inc.
PRD-010	Charger (Electronics)	Electronics	SUP-A	$265.02	38	25	Alpha Suppliers Inc.
PRD-011	T-Shirt	Clothing	SUP-C	$51.02	5	19	Gamma Distributors Ltd.
PRD-012	Jeans	Clothing	SUP-B	$25.15	96	15	Beta Trading Co.
PRD-013	Jacket	Clothing	SUP-B	$114.49	57	22	Beta Trading Co.
PRD-014	Sneakers	Clothing	SUP-B	$39.68	65	19	Beta Trading Co.
PRD-015	Hat	Clothing	SUP-C	$96.97	45	31	Gamma Distributors Ltd.
PRD-016	Socks	Clothing	SUP-C	$69.84	184	24	Gamma Distributors Ltd.
PRD-017	Shorts	Clothing	SUP-B	$98.82	178	34	Beta Trading Co.
PRD-018	Dress	Clothing	SUP-B	$102.62	21	21	Beta Trading Co.
PRD-019	Sweater	Clothing	SUP-B	$55.96	24	27	Beta Trading Co.
PRD-020	Belt	Clothing	SUP-B	$110.51	82	30	Beta Trading Co.
PRD-021	Cereal	Food	SUP-C	$14.09	398	36	Gamma Distributors Ltd.
PRD-022	Milk	Food	SUP-C	$16.81	424	48	Gamma Distributors Ltd.
PRD-023	Bread	Food	SUP-D	$6.30	64	58	Delta Wholesale Corp.
PRD-024	Eggs	Food	SUP-D	$17.61	22	31	Delta Wholesale Corp.
PRD-025	Yogurt	Food	SUP-C	$16.57	161	92	Gamma Distributors Ltd.
PRD-026	Cheese	Food	SUP-C	$7.74	100	88	Gamma Distributors Ltd.
PRD-027	Apples	Food	SUP-C	$19.41	304	98	Gamma Distributors Ltd.
PRD-028	Bananas	Food	SUP-D	$14.21	342	38	Delta Wholesale Corp.
PRD-029	Rice	Food	SUP-D	$13.61	433	82	Delta Wholesale Corp.
PRD-030	Pasta	Food	SUP-C	$16.02	362	57	Gamma Distributors Ltd.
PRD-031	Novel	Books	SUP-A	$41.74	74	16	Alpha Suppliers Inc.
PRD-032	Textbook	Books	SUP-A	$46.73	22	25	Alpha Suppliers Inc.
PRD-033	Dictionary	Books	SUP-A	$11.69	28	24	Alpha Suppliers Inc.
PRD-034	Cookbook	Books	SUP-A	$36.60	100	14	Alpha Suppliers Inc.

Exercises

Example dataset

See example dataset

Create a summary table showing for each category: total inventory value, average price, product count, and number of products needing reorder.

Product ID	Product Name	Category	Supplier Code	Unit Price	Quantity in Stock	Reorder Level	Supplier Name
PRD-001	Laptop (Electronics)	Electronics	SUP-A	$148.83	8	10	Alpha Suppliers Inc.
PRD-002	Smartphone (Electronics)	Electronics	SUP-B	$341.88	146	20	Beta Trading Co.
PRD-003	Tablet (Electronics)	Electronics	SUP-B	$288.72	111	16	Beta Trading Co.
PRD-004	Headphones (Electronics)	Electronics	SUP-B	$352.72	62	15	Beta Trading Co.
PRD-005	Mouse (Electronics)	Electronics	SUP-B	$243.40	49	27	Beta Trading Co.
PRD-006	Keyboard (Electronics)	Electronics	SUP-B	$320.04	67	30	Beta Trading Co.
PRD-007	Monitor (Electronics)	Electronics	SUP-B	$106.69	58	22	Beta Trading Co.
PRD-008	Webcam (Electronics)	Electronics	SUP-B	$184.92	75	11	Beta Trading Co.
PRD-009	Speaker (Electronics)	Electronics	SUP-A	$198.71	149	12	Alpha Suppliers Inc.
PRD-010	Charger (Electronics)	Electronics	SUP-A	$265.02	38	25	Alpha Suppliers Inc.
PRD-011	T-Shirt	Clothing	SUP-C	$51.02	5	19	Gamma Distributors Ltd.
PRD-012	Jeans	Clothing	SUP-B	$25.15	96	15	Beta Trading Co.
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PRD-026	Cheese	Food	SUP-C	$7.74	100	88	Gamma Distributors Ltd.
PRD-027	Apples	Food	SUP-C	$19.41	304	98	Gamma Distributors Ltd.
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PRD-033	Dictionary	Books	SUP-A	$11.69	28	24	Alpha Suppliers Inc.
PRD-034	Cookbook	Books	SUP-A	$36.60	100	14	Alpha Suppliers Inc.

Summarize

Select your topic

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Thank you!