



ASP4134 - Audit Sistem Informasi

(week 9)



AGENDA

- Materi Pertemuan #9: Menggunakan Teknik Audit Berbantuan Komputer dalam pengujian pengendalian dan pengujian substantif



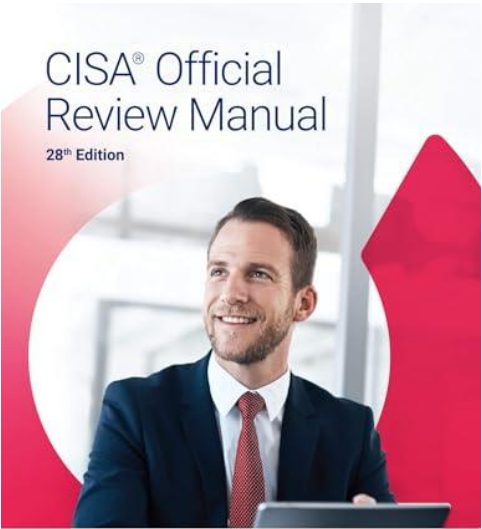
ASP4134 - Audit Sistem Informasi



Key objectives:

1. memahami kerangka **konsep audit tata kelola** teknologi informasi berdasarkan standar tata Kelola
2. menyusun **program audit tata kelola** sistem informasi
3. menyusun **laporan audit tata kelola** sistem informasi
4. melaksanakan **pengauditan atas pengoperasian dan pemeliharaan** atas sistem informasi
5. melakukan **audit atas perolehan, pengembangan, dan implementasi sistem informasi**
6. melakukan **pengauditan atas keamanan informasi**
7. menggunakan **Teknik Audit Berbantuan Komputer** dalam pengujian pengendalian dan pengujian substantif ➤ Here we are
8. menjelaskan dampak kelemahan **pengendalian umum dan pengendalian aplikasi** terhadap peluang terjadinya kecurangan dan kesalahan saji pada laporan keuangan

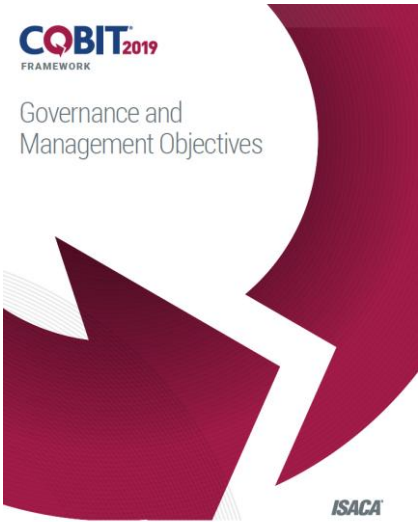
Referensi



CISA® Official
Review Manual
28th Edition



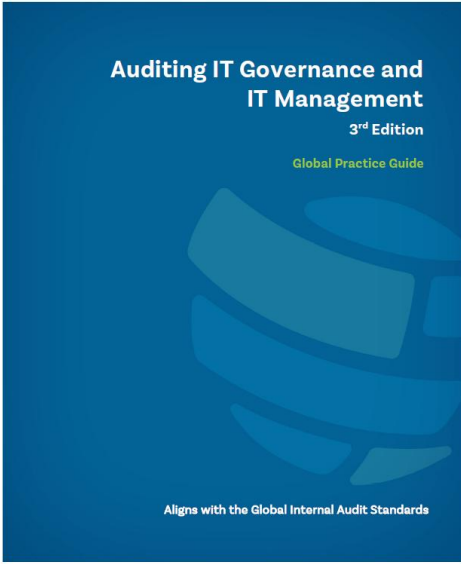
1



COBIT 2019
FRAMEWORK
Governance and
Management Objectives

ISACA

2



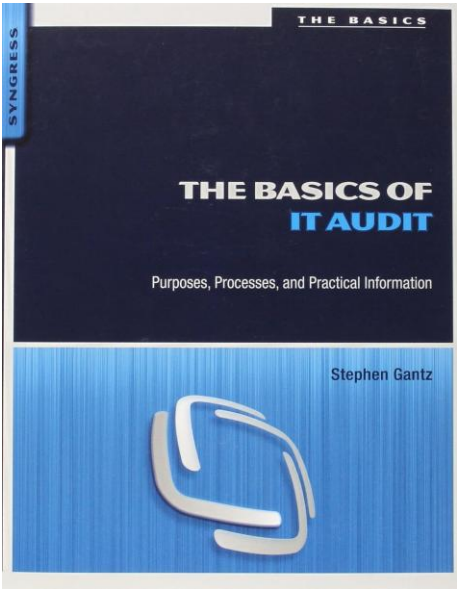
**Auditing IT Governance and
IT Management**
3rd Edition
Global Practice Guide

Aligns with the Global Internal Audit Standards



GLOBAL TECHNOLOGY AUDIT GUIDE

3

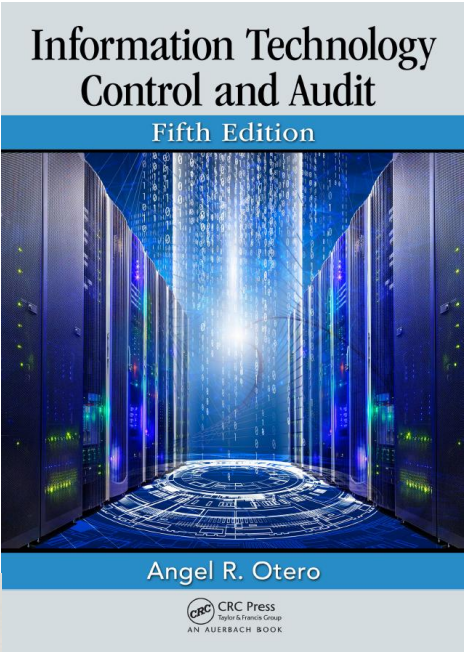


**THE BASICS
OF
IT AUDIT**

Purposes, Processes, and Practical Information

Stephen Gantz

4



**Information Technology
Control and Audit**
Fifth Edition

Angel R. Otero



5



4

Susunan Materi (Bagian 2)

Temu	Materi	Keterangan
9	TABK dalam pengujian pengendalian & pengujian substantif	Tugas 3
10	pengendalian umum dan pengendalian aplikasi	
11	TABK dalam pengujian pengendalian & pengujian substantif	Kuis 3
12		
13		Tugas 4
14		
15		Kuis 4
16	Ujian Akhir Semester	





Teknik Audit Berbantuan Komputer (CAATs)

ASP4134 - Audit Sistem Informasi



CAATs Definition

- **Computer-Assisted Audit Techniques (CAATs)** are the use of technology—ranging from basic spreadsheets to advanced data analytics software—to perform audit procedures more efficiently, accurately, and comprehensively than manual methods allow.



Manual vs. CAATs

Audit Activity	Manual Audit	CAATs
Data Selection	Sampling: Selecting 25–50 random vouchers to represent the whole.	Full Population: Testing 100% of the transactions in the database.
Mathematical Accuracy	Footing/Cross-footing: Adding up columns on a paper ledger by hand.	Automated Re-calculation: Instant verification via script.
Verification	Vouching: Manually matching an invoice to a shipping document.	Electronic Matching: Automated Matching using Computer.
Fraud Detection	Scanning: Looking for anomalies by flipping through pages.	Anomaly Detection: Using <i>Benford's Law</i> or <i>Gap Analysis</i> to find outliers.
Cut-off Testing	Inspection: Checking the last few dates in the physical ledger at year-end.	Time-Stamp Analysis: Analyzing transaction logs to find "backdated" entries.

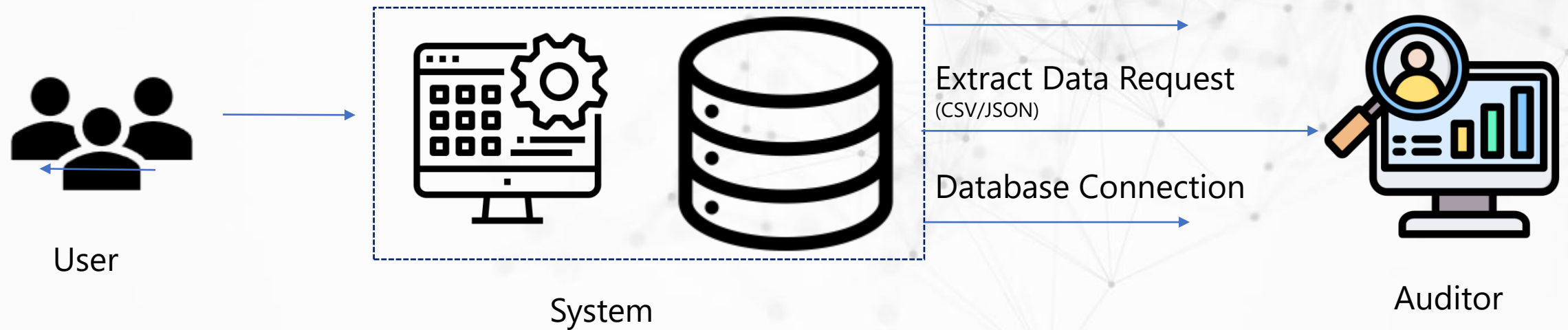


Sample use of CAATs

- A District Government has a policy that any procurement **above Rp.200 Million** must go through a **Public Open Tender**. Anything below that can be a "Direct Appointment." You suspect a Project Manager is splitting a Rp.600 Million project into five Rp.120 Million contracts to give them to a friend's company without a bid.
- Using CAATs, you discover that on the same day, Vendor A, Vendor B, and Vendor C each received a contract for **Rp.120 Million** for "Software Maintenance."
 - **Manual Audit would miss this** because they might only sample one of these invoices.
 - **CAATs flags this** immediately because it sees the **total pattern** across the entire database.



Data Aquisition



CAATs Software

1. **Spreadsheet** (Microsoft Excel, Lotus 123)
2. **Query & Reporting Application** (Power Query, Crystal Reports)
3. **Database Management System / DBMS** (Microsoft Access, MySQL)
4. **Generalized Audit Software / GAS** (ACL, IDEA, Arbutus)



Mengimpor Data ke MS Excel



Common File Formats

- **Delimited Text (.csv, .txt):** Data separated by specific characters (comma, semicolon, or tab).
- **Database Files (.dbf, .mdb, .accdb):** Structured data files from legacy systems (DBF) or Microsoft Access (MDB/ACCDB).
- **JSON (.json):** A modern, lightweight format used for web-based applications and APIs.



Kesalahan Ketika Import Data

Kesalahan saat impor data bisa menyebabkan **kesalahan pengambilan kesimpulan**.

1. Data Type Mismatch

Angka akun (00123) terbaca sebagai angka (123), sehingga angka nol di depan hilang. Ini fatal untuk pencocokan (*vlookup*).

2. Date Format

Perbedaan format MM/DD/YYYY dan DD/MM/YYYY yang menyebabkan kesalahan perhitungan umur piutang (*aging*).

3. Truncation

Data terpotong karena panjang karakter melampaui limit kolom.

Praktik Mengimpor Data ke MS Excel



Lingkup Impor Data

Flat File/Text

- Delimited
- Fixed Width

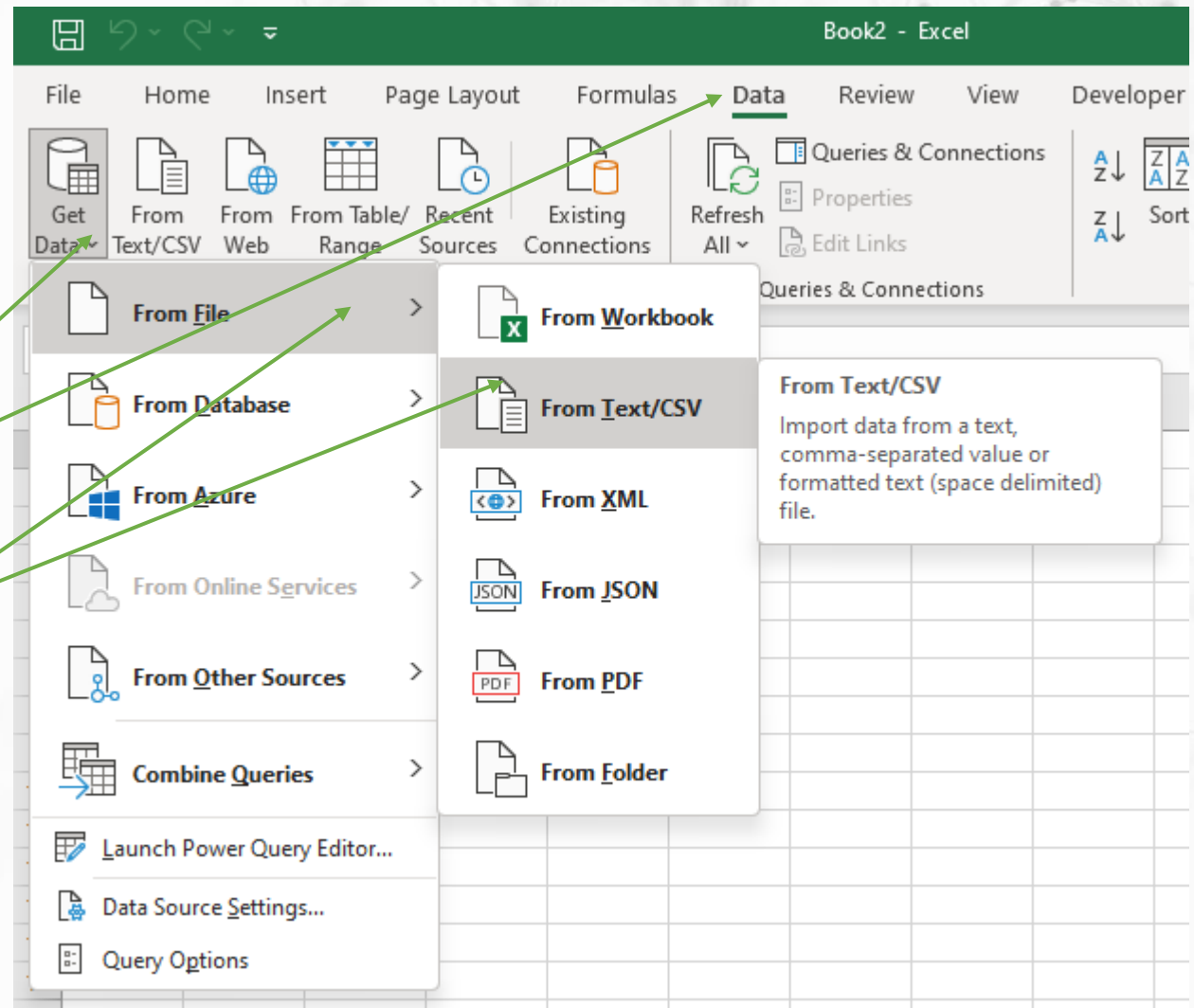
Butuh
pendefinisian
saat impor

Non-Text

- Mdb (Access)
- Dbf
- XBRL
- json

Import Text File

1. Siapkan **Data** yang akan diimpor
2. Letakkan kursor pada salah satu sel
3. Klik menu **Data → Get Data**
4. Pilih **From File → From Text/CSV**
5. Pilih **File** yang akan di impor



Import Text File (Lanjutan)

1. Pilih beberapa parameter seperti **File Origin, Delimiter, Data Type Detection**
2. Jika ingin melakukan perubahan pada data pilih **Transform Data**
3. Jika data telah sesuai terbaca pilih **Load**

Penjualan-DOS.txt

File Origin: 1252: Western European (Windows) | Delimiter: Tab | Data Type Detection: Based on entire dataset

NoBukti	Tgl	Customer	Penjualan	COGS
FA-0205	1/1/1999	PT AAA	24,170,427	22,802,289
FA-0206	1/1/1999	PT XYZ	33,792,944	29,385,168
FA-0207	1/3/1999	PT AAA	8,541,026	7,625,916
FA-0208	1/3/1999	PT ZZZ	24,456,014	22,436,710
FA-0209	1/3/1999	PT BBB	12,254,253	11,140,230
FA-0210	1/3/1999	PT ABC	28,150,988	24,693,849
FA-0211	1/5/1999	PT XYZ	25,166,473	23,741,955
FA-0212	1/7/1999	PT XYZ	12,860,740	11,908,092
FA-0213	1/7/1999	PT ZZZ	29,277,591	27,620,368
FA-0214	1/7/1999	PT XYZ	14,494,497	12,603,910
FA-0215	1/7/1999	PT ZZZ	13,803,737	12,215,696
FA-0216	1/9/1999	PT AAA	18,683,471	16,681,670
FA-0217	1/11/1999	PT BBB	10,941,574	10,420,546
FA-0218	1/11/1999	PT ABC	31,151,701	28,319,728
FA-0219	1/13/1999	PT DEF	29,869,367	26,669,077
FA-0220	1/15/1999	PT ZZZ	37,245,531	33,859,573
FA-0221	1/16/1999	PT BBB	21,254,886	19,680,450
FA-0222	1/18/1999	PT BBB	30,898,332	27,103,800
FA-0223	1/20/1999	PT BBB	6,545,455	6,174,957
FA-0224	1/20/1999	PT DEF	27,003,026	23,480,892
FA-0225	1/20/1999	PT ABC	24,588,832	21,760,028
FA-0226	1/22/1999	PT XYZ	20,353,013	25,583,647

Load | Transform Data | Cancel

Beberapa Parameter yang perlu diperhatikan

- Delimiter => Fix Width, Jenis Delimiter
- Header => Ada di Baris beberapa
- Jenis Data => Text, Date, Numeric



DISCLAIMER

- File Access versi lama yang dihasilkan dari Microsoft Access 2003 tidak dapat dibuka di versi Access terbaru kecuali jika telah diinstall mesin database yang sama (Microsoft Jet 4 OLE DB Provider).

Solusi:

- dibuka dengan Access 2003 atau Excel 2003
- Menggunakan aplikasi **MDB Viewer Plus**
www.alexnolan.net/software/mdb_viewer_plus.htm

dbf



DBF: dBase database file (dari database management system dBASE)

Cara Membuka:

1. Drag & Drop ke salah satu sheet
2. atau DBF Viewer Plus
(www.alexnolan.net/software/dbf.htm)

Pada tahun 1998, Charles Hoffman, seorang CPA di Washington menginvestigasi pemanfaatan XML (eXtensible Markup Language) sebagai laporan keuangan elektronik.

Juli 1999, AICPA menyetujui pendanaan pengembangan XML tersebut. Proyek pengembangan tersebut dinamai XFRML (eXtensible Financial Report Markup Language)

Juli 2000, spesifikasi laporan keuangan elektronik pertama dari proyek tersebut di-release dengan nama XBRL (eXtensible Business Reporting Language)

xBRL

xBRL : e**X**tensible **B**usiness **R**eporting **L**anguage merupakan bahasa berbasis XML yang menyediakan solusi yang efektif untuk persiapan, presentasi dan pertukaran Standar Pelaporan Keuangan Internasional.

Cara Membuka:

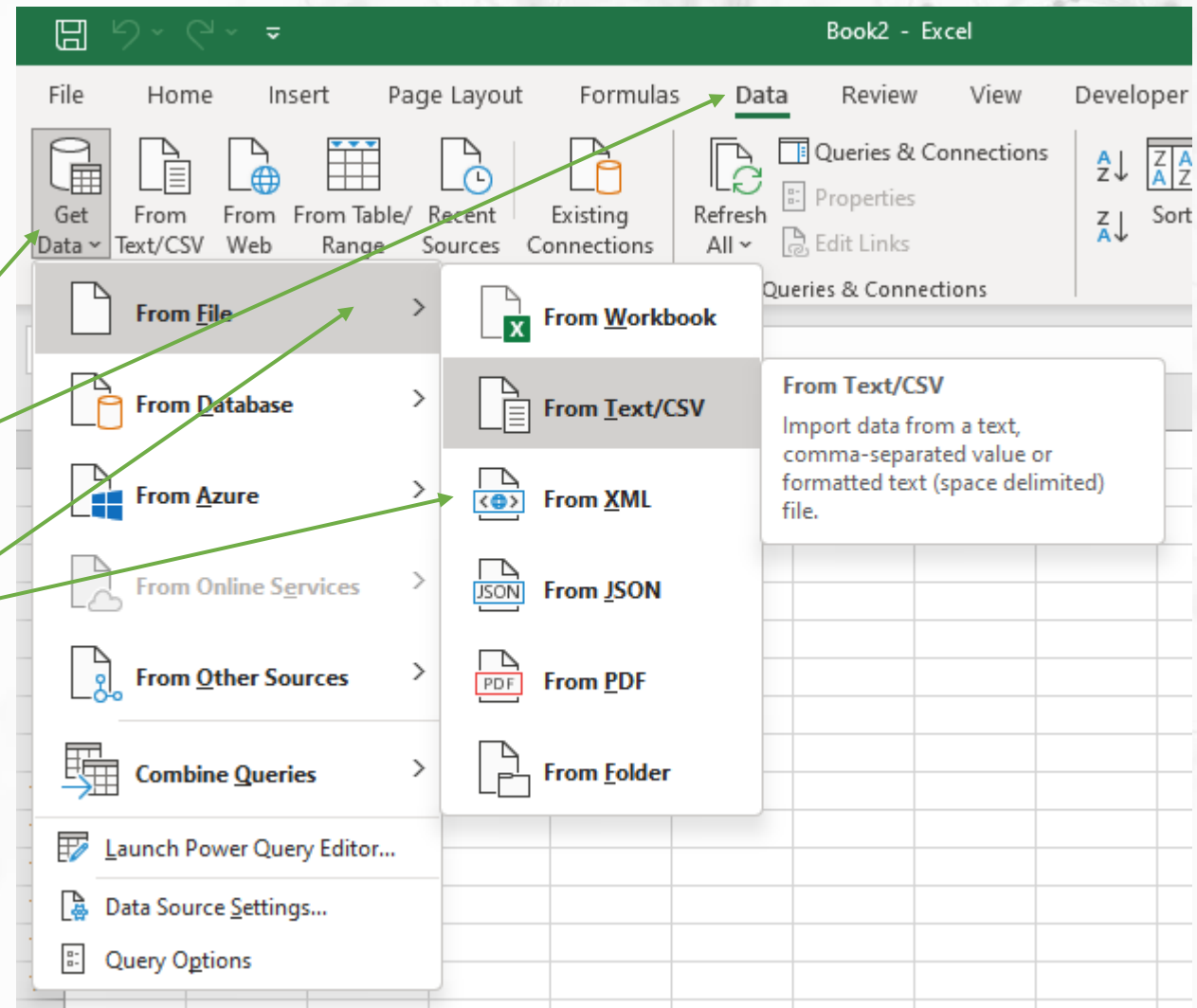
1. Drag & Drop ke salah satu sheet
2. Data -> Get Data -> From File -> XML

Contoh data:

<https://www.idx.co.id/perusahaan-tercatat/laporan-keuangan-dan-tahunan>

Import XML

1. Siapkan **Data** yang akan diimpor
2. Letakkan kursor pada salah satu sel
3. Klik menu **Data → Get Data**
4. Pilih **From File → From XML**
5. Pilih **File** yang akan di impor



JSON



Contoh format data:

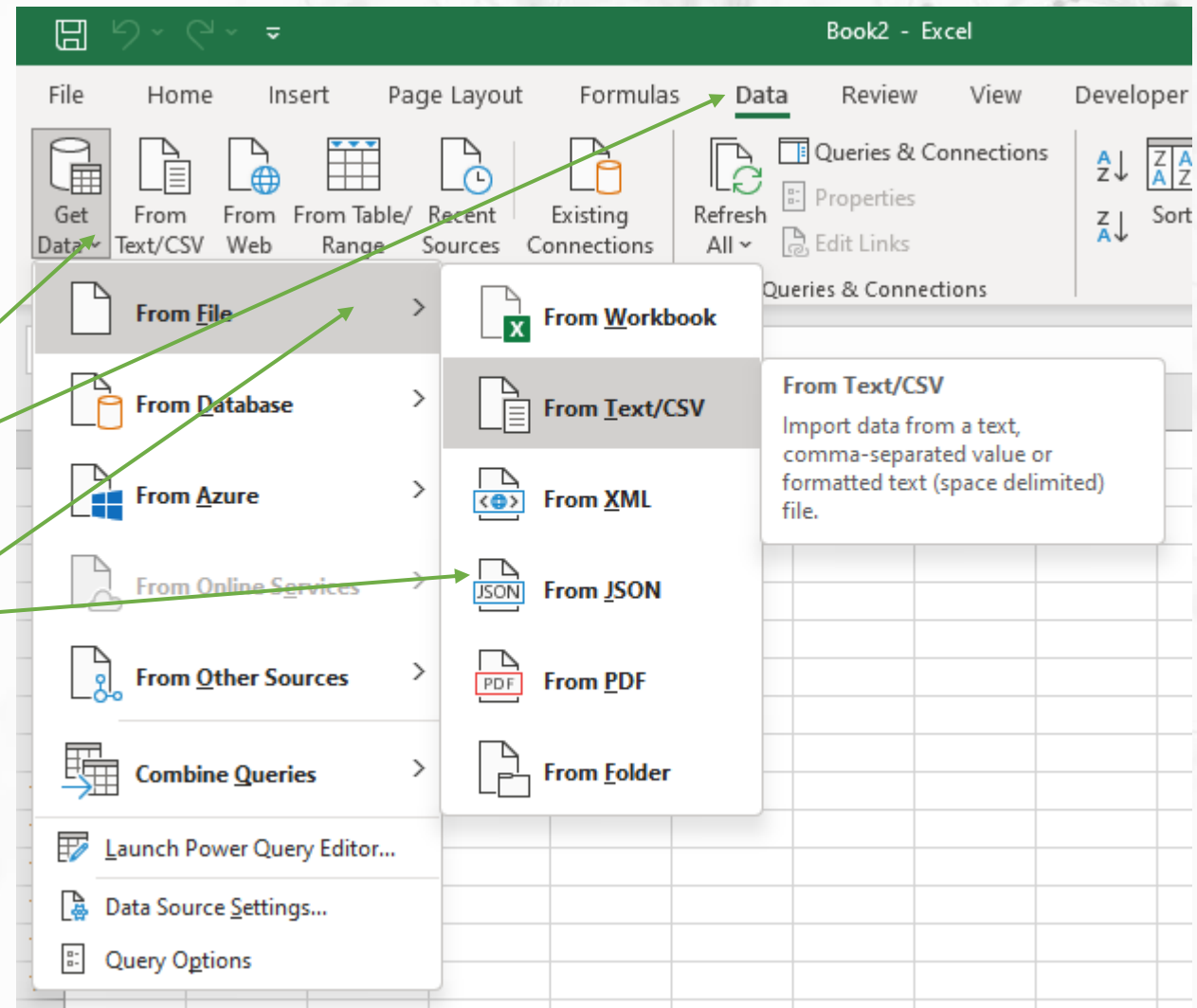
```
{name: "John", age: 31, city: "New York"}
```

Disclaimer:

- Dapat dibuka dengan Ms. Excel versi 2016 ke atas
- Untuk Ms. Excel 2010 dan 2013 harus mengunduh Power Query melalui web Microsoft (bit.ly/PQUERY2010)
- Cara lain bagi selain mengunduh Power Query, atau bagi yang menggunakan Ms. Excel selain yg disebutkan di atas dapat menggunakan converter:
 - Offline. Misalnya SaveJson2CSV
<https://www.gunamoi.com.au/soft/savejson2csv/index.html>
 - Online. Misalnya <https://www.convertcsv.com/json-to-csv.htm>

Import JSON

1. Siapkan **Data** yang akan diimpor
2. Letakkan kursor pada salah satu sel
3. Klik menu **Data → Get Data**
4. Pilih **From File → From JSON**
5. Pilih **File** yang akan di impor



JSON



TLK - Power Query Editor

File Home Transform Add Column View Convert

Record Tools

Into Table Convert

Queries

symbol	TLK
financials	List

Query Settings

PROPERTIES

Name

TLK

All Properties

APPLIED STEPS

Source

2 FIELDS

PREVIEW DOWNLOA

Klik
List

Hasil setelah
klik list

	List
1	Record
2	Record
3	Record
4	Record
5	Record
6	Record
7	Record
8	Record
9	Record
10	Record

Query Settings

PROPERTIES

Name

TLK

All Properties

APPLIED STEPS

Source

X Navigation



JSON



Klik
To Table

The screenshot shows the 'TLK - Power Query Editor' window. The 'Transform' tab is active, and the 'List Tools' group is expanded. The 'To Table' button is highlighted. A tooltip for 'To Table' is visible, stating 'Convert this list into a table.' The main area displays a list of 10 items, each labeled 'Record'. The 'Query Settings' pane on the right shows the query name 'TLK' and a list of applied steps: 'Source' and 'Navigation'.

TLK - Power Query Editor

File Home Transform Add Column View Transform

To Table Keep Items Remove Items Remove Duplicates Reverse Items Sort Numeric List Statistics

To Table
Convert this list into a table.

2 Record
3 Record
4 Record
5 Record
6 Record
7 Record
8 Record
9 Record
10 Record

Query Settings

PROPERTIES
Name
TLK
All Properties

APPLIED STEPS
Source
X Navigation

10 ITEMS PREVIEW DOWNLOADED AT 16.00

JSON



To Table

Create a table from a list of values.

Select or enter delimiter

None

How to handle extra columns

Show as errors

OKCancel

Close & Load

Close

Refresh Preview

Query

Properties

Advanced Editor

Manage

Manage Columns

Reduce Rows

ABC 123 Column1

1 Record

2 Record

3 Record

4 Record

5 Record

Audit Sistem Informasi

29

JSON



TLK - Power Query Editor

File Home Transform Add Column View

Close & Load Refresh Preview Properties Advanced Editor Manage

Query

Manage Columns Reduce Rows Sort

Split Column Group By Data Type: Any Use First Row as Headers Replace Values

Transform

Queries

ABC 123 Column1
Record
Record
Record
Record
Record
Record
Record
Record
Record
Record

1 COLUMN, 10 ROWS

(Select All Columns)
date
Revenue
Revenue Growth
Cost of Revenue
Gross Profit
R&D Expenses
SG&A Expense
Operating Expenses

Use original column name as prefix

List may be incomplete. Load more

OK Cancel



JSON



Klik
Close &
Load

TLK - Power Query Editor

File Home Transform Add Column View

Close & Load Refresh Preview Properties Advanced Editor Manage Columns Reduce Rows Sort Split Column Group By Data Type: Any Use First Row as Headers Replace Values Combine Manage Parameters Data source settings

	ABC 123 Column1.date	ABC 123 Column1.Revenue	ABC 123 Column1.Revenue Growth	ABC 123 Column1.Cost
1	2018-12-31	8982137093.1742	-0.0495204719982	3014442788.5639
2	2017-12-31	9450111052.9517	0.098680099294	2696968678.8235
3	2016-12-31	8601330868.7616	0.161309774269	2311497227.3567
4	2015-12-31	7406577520.7806	0.0263975939095	2032237079.8699
5	2014-12-31	7216090104.5857	0.0654489589979	1793081255.0282
6	2013-12-31	6772816326.5306	-0.153299168639	1578122448.9796
7	2012-12-31	7999066583.6963	0.0184386691671	1741962248.4962
8	2011-12-31	7854244762.9548	0.0320809305609	1814002205.0717
9	2010-12-31	7610105496.9461	0.0553111609211	1781898945.0305
10	2009-12-31	7211243260.5221	0.2439	1862405221.0975

Query Settings

PROPERTIES

Name

TLK

APPLIED STEPS

Source

Navigation

Converted to Table

Expanded Column1

32 COLUMNS, 10 ROWS

PREVIEW DOWNLOADED AT 16.14



JSON



Excel interface showing a table named 'TLK' with columns: Column1.date, Column1.Revenue, Column1.Revenue Growth, Column1.Cost of Revenue, Column1.Gross Profit, Column1.R&D Expenses, and Column1.SG. The 'Convert to Range' button in the 'Table Tools' ribbon is highlighted with an orange arrow. A callout bubble contains the text: 'Jika ingin mengolah seperti file tabel Excel, klik Convert to Range'.

Workbook Queries panel shows 1 query: TLK, 10 rows loaded.

Column1.date	Column1.Revenue	Column1.Revenue Growth	Column1.Cost of Revenue	Column1.Gross Profit	Column1.R&D Expenses	Column1.SG
2018-12-31	898213	93.1742	-0.0495204719982	3014442788.5639	5967694304.6103	0.0
2017-12-31	945011	52.9517	0.098680099294	2696968678.8235	6753142374.1282	0.0
2016-12-31	860133	68.7616	0.161309774269	2311497227.3567	6289833641.4048	0.0
2015-12-31	740657	0.7806	0.0263975939095	2032237079.8699	5374340440.9107	0.0
2014-12-31	721609	4.5857	0.0654489589979	1793081255.0282	5423008849.5575	0.0
2013-12-31	677281	5.5306	-0.153299168639	1578122448.9796	5194693877.551	0.0
2012-12-31	799906	6.6963	0.0184386691671	1741962248.4962	6257104335.2002	0.0
2011-12-31	785424	9.9548	0.0320809305609	1814002205.0717	6040242557.8831	0.0
2010-12-31	761010	4.9461	0.0553111609211	1781898945.0305	5828206551.9156	0.0
2009-12-31	721124	3.5221	0.2439	1862405221.0975	5348838039.4246	0.0

Testing Data Import Results

A. Filter

You use filters to narrow down the population. You would filter for specific **Object Codes** or transactions above a certain materiality threshold.

B. Data Validation

Data validation in Excel allows you to set rules for what data is "allowed" in a cell. During the cleaning phase, you use validation to find **anomalies**.

C. Conditional Formatting

This is a visual technique to automate the discovery of outliers. It helps the auditor see patterns that a simple list of numbers cannot show.

Formula

Fungsi	Tujuan Audit
ISTEXT / ISNUMBER	Memastikan kolom saldo berisi angka, bukan teks tersembunyi.
COUNTBLANK	Mengidentifikasi data yang hilang (misal: nomor faktur yang kosong).
VLOOKUP	Mencocokkan data transaksi dengan master data (misal: mencari harga fiktif).
ISNA / ISERR	Menemukan anomali dalam relasi antar tabel.

Filtering



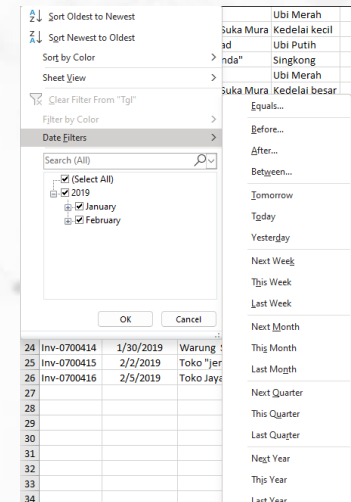
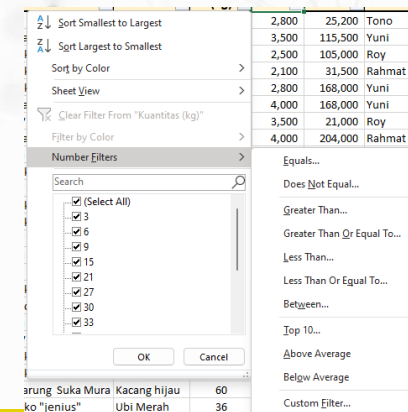
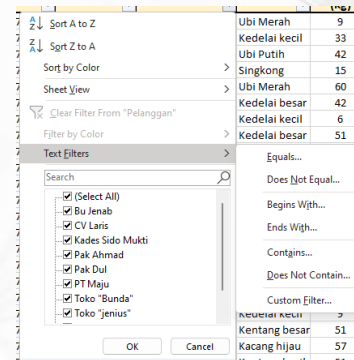
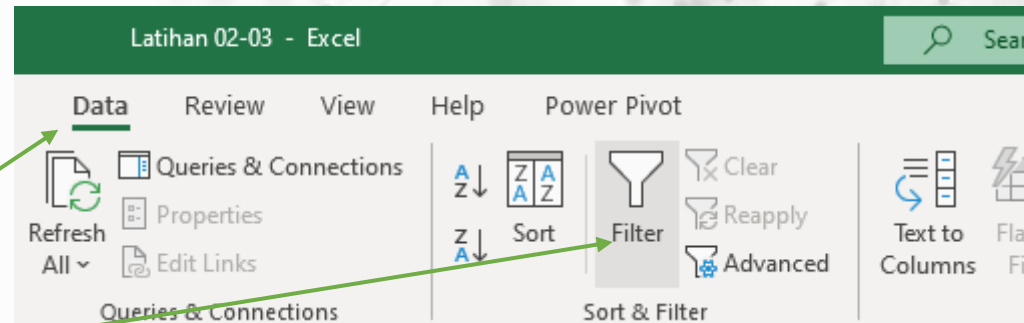
1. Blok range data atau letakkan kursor pada salah satu sel data

2. Klik menu Data → Filter

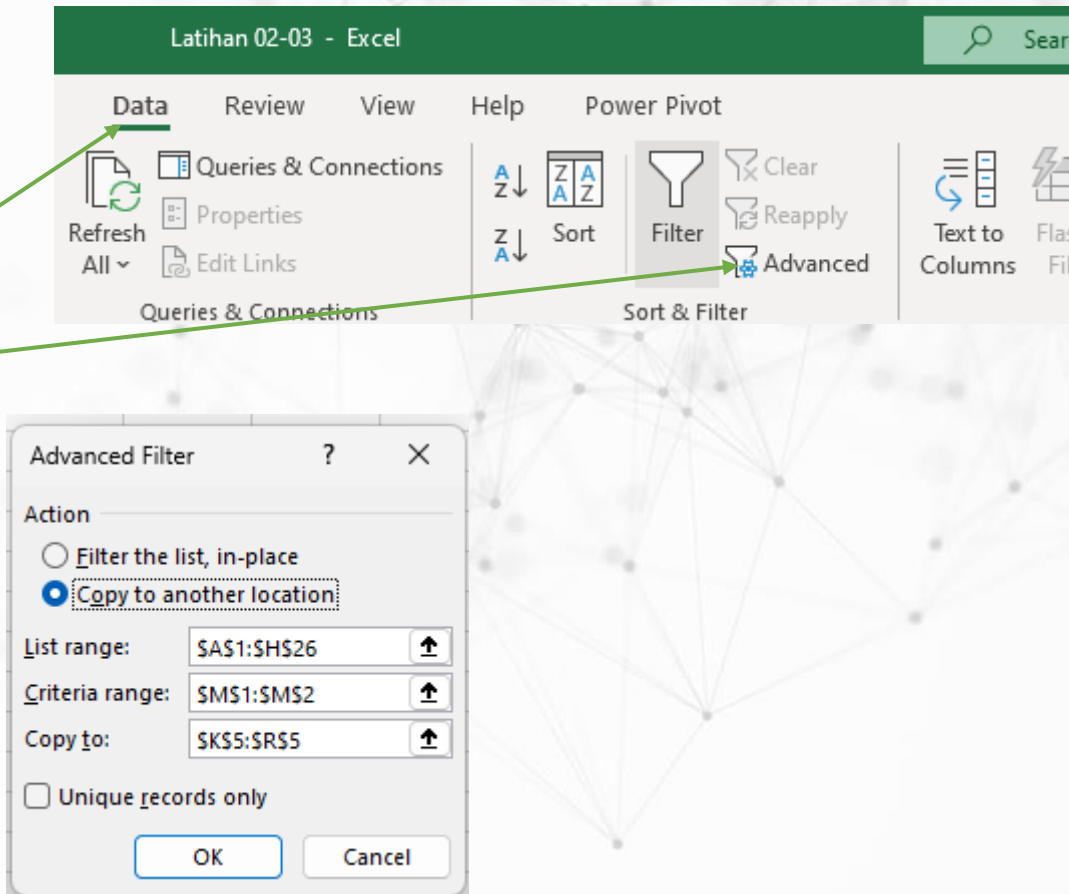
3. Pilih kolom yang akan dilakukan Filter

4. Filter akan menyesuaikan dengan tipe data

1. Text
2. Number
3. Date



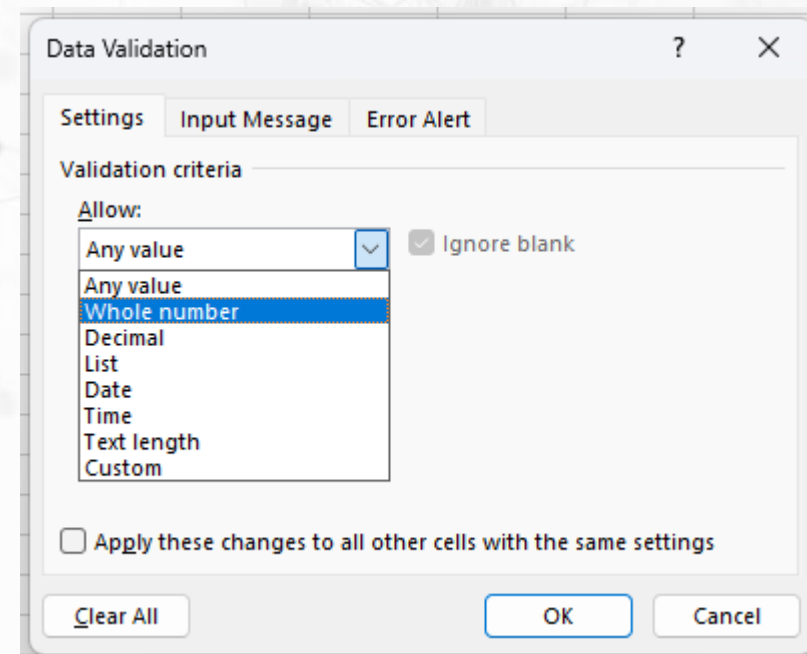
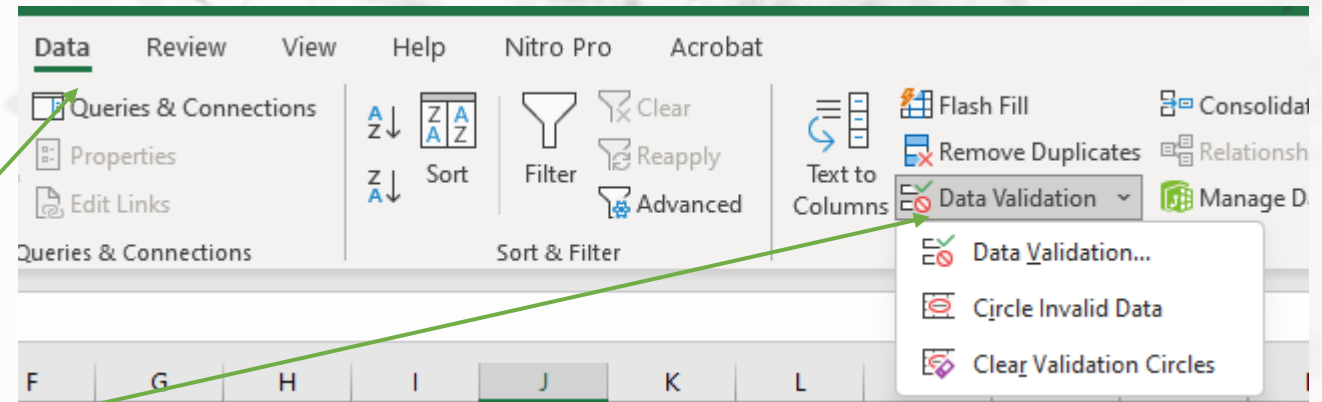
1. Siapkan Kriteria
2. Blok range data atau letakkan kursor pada salah satu sel data
3. Klik menu Data ➔ Advances
4. Pilih Area data sumber, Kriteria, dan Hasil Filter



Data Validation



1. Pilih Sel
2. Blok range data atau letakkan kursor pada salah satu sel data
3. Klik menu Data → Data Validation
4. Pilih Data Validation...



CUSTOM

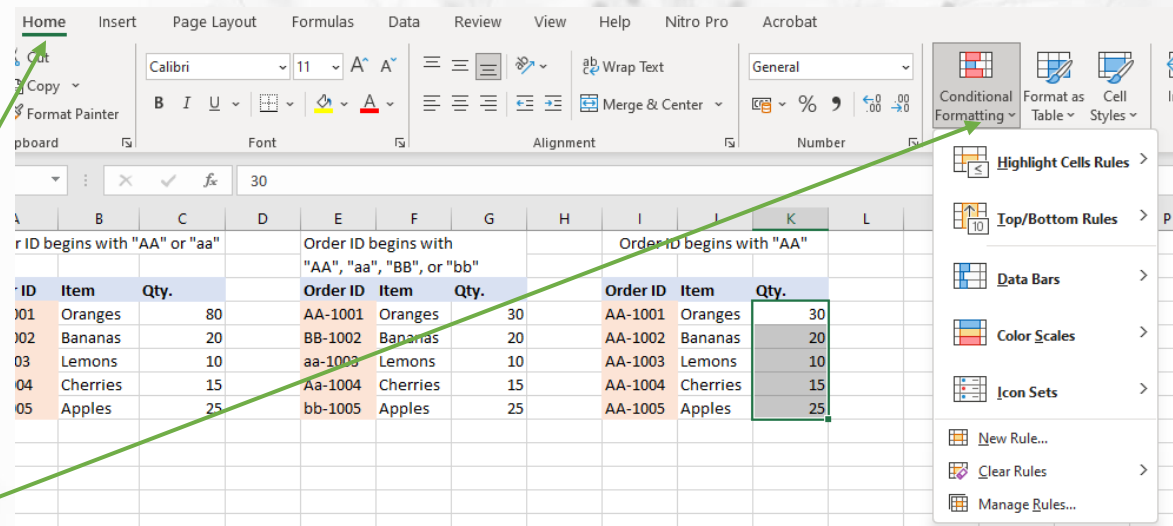
- HANYA BOLEH DIISI ANGKA
- HARUS DIAWALI HURUF TERTENTU (ex: STA-xxx)
- HARUS DIISI NILAI YANG UNIK



Conditional Formating



1. Pilih Sel
2. Blok range data atau letakkan kursor pada salah satu sel data
3. Klik menu Home ➔ Conditional Fomating
4. Pilih New Rules...



Latihan

- Cari Pelanggan yang belum pernah melakukan transaksi
- Nomor Telp Pelanggan yang tidak valid
- Jika sekarang tanggal 31 Maret 2020 Tandai transaksi yang umurnya lebih dari 30 hari



Ekspor Data



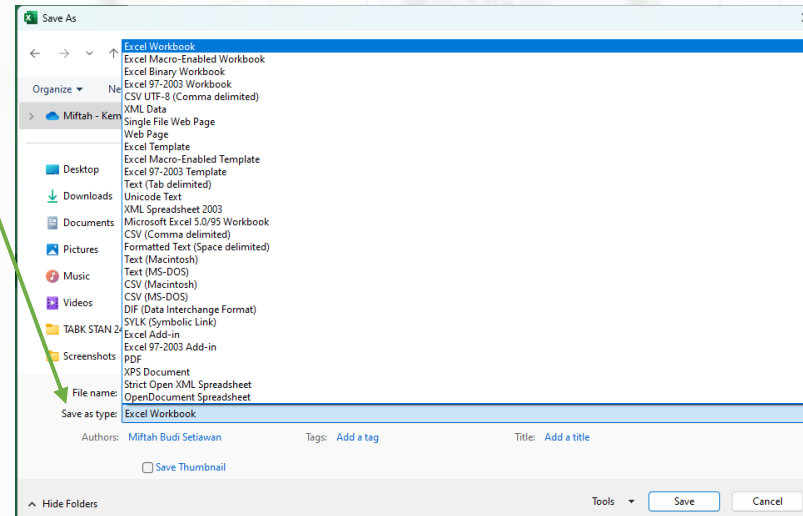
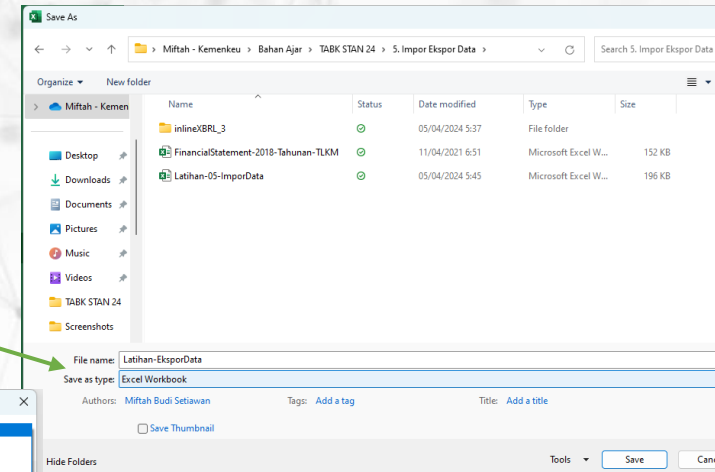
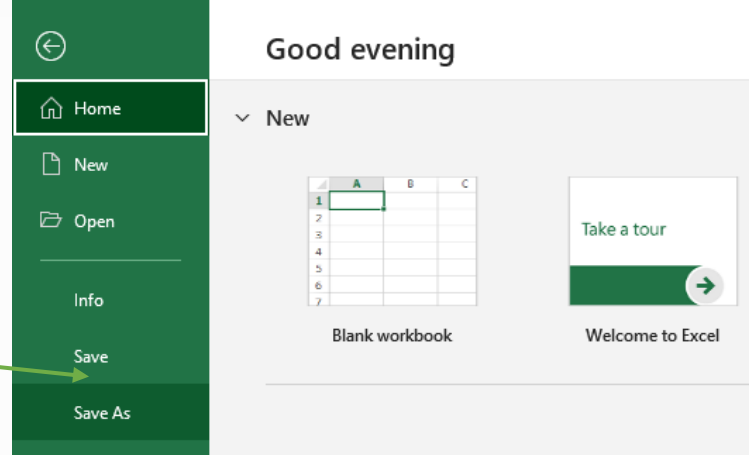
Ekspor Data

- Apabila terdapat keperluan untuk menyimpan data yang diolah/dikerjakan pada Ms. Excel dalam format selain *.xlsx
- Ekspor dapat dilakukan menggunakan fitur save as
- Ekspor data digunakan untuk Dokumentasi di Kertas Kerja



Export data (text file)

1. Pilih **File > Save As**.
2. Kotak dialog **Save As** akan muncul.
3. Pilih Lokasi tempat file akan disimpan lalu klik **Save**.
4. Pada Pilihan **Save as type**, Pilih format file yang tersedia.
 1. Sebagai Contoh , klik **Text (Tab delimited)** atau **CSV (Comma delimited)**.
 2. **Note:** Perbedaan format menyebabkan dukungan fitur-fitur yang berbeda . Untuk lebih lengkap [File format yang didukung di Excel](#).
5. Pilih Lokasi tempat file akan disimpan lalu klik **Save**.
6. Sebuah dialog Box akan muncul untuk mengingatkan worksheet yang sedang aktif akan disimpan dalam file baru. Jika ingin menyimpan worksheet yang lain, buka worksheet tersebut lalu lakukan Langkah seperti diatas.



Data Import Wars

Be the fastest group to successfully import, clean, and verify a "dirty" dataset.



Data Import Wars

Rules of the Game:

1.The Hunt

In their respective groups, students must find or create 5 small datasets (e.g., procurement lists, payroll logs, or travel expenses) in different formats (.csv, .txt, .json).

2.The Sabotage

Groups should intentionally "pollute" their data with 3-5 errors (e.g., text in numeric fields, wrong date formats, or duplicate rows).

3.The Swap

The Teacher randomly reassigns these datasets to different groups.

4.The Battle

Groups must use Excel or a GAS tool to clean the data and provide the **Record Count, Financial Total/Quantity Total**.

5.Winning

The first group to present a verified, clean report that matches the "secret" key held by the original creators wins the round.



Data Import Wars



Problem

<https://forms.gle/K7YYMwsG5sdw1Zto9>



Answer

<https://forms.gle/KJBdELyrtqn1Uqmq5>

Terima Kasih