

Cash Registers

TYPES , RISKS & CHALLENGES

Different types of cash registers, challenges, problems, fraud types

Practical Exercise

1. When conducting audits or investigations, what different types of cash registers do you encounter?
2. What problems, challenges, types of fraudulent activities do you recognize / experience from the use of the different types of cash registers in your country?
3. Have you or your country experienced electronic sales suppression through the use of certain types of cash registers?

Open cash register



Different types of cash registers

- Open cash register / open cash box
- Electronic cash register
- PC cash register system / proprietary cash register system

Open cash register

- Cash register without technical elements
- Cash receipts are stored in a cashbox , drawer or shoe box
- Turnovers are determined retroactively on the basis of cash holdings – means by counting the cash money
- Even the wallet of the businessman can be an open cash register

Electronic cash register



Electronic cash register

- Cash register system with a mechanical /
electronical recording of the business transactions
- Data storage on the device – new versions with
data export option
- Amount of daily turnover on a daily receipt =
printout

PC cash register system



PC cash register system

- Modern cash register systems - store every single transaction in a data collection log - even program changes with date/time/user...information
- Based on a standard operating system (e.g. Windows or Linux)
- They work much like a normal computer

Electronic Cash Register and PC Cash Register – Data system

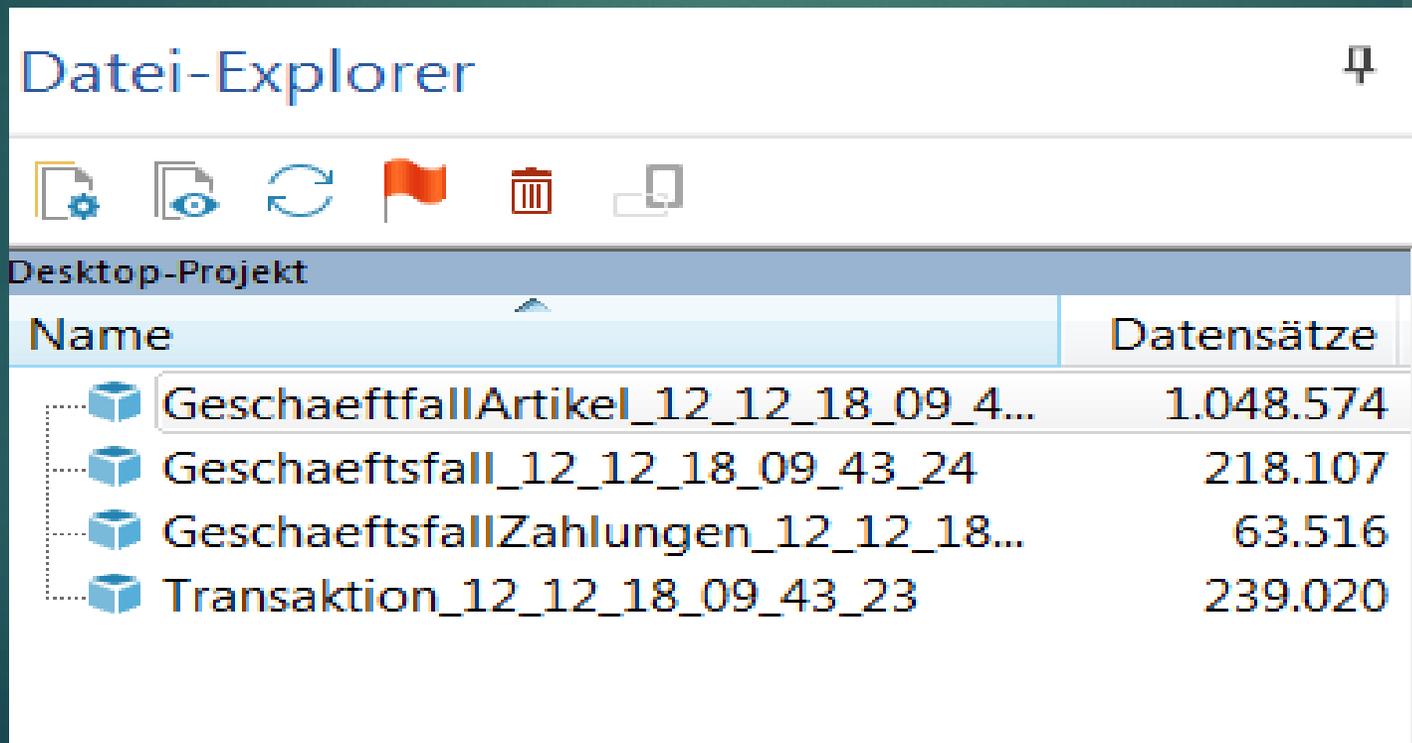
- Data storage based on idea of multiple database structures
- All data stored in various different databases
- Journal, Articles, Users, Clients,...anything is possible
- challenge is to understand the structure

Electronic Cash Register and PC Cash Register – Data system

- Essential for understanding “database description” = explanation of each field and content
- Databases initially have to be linked to each other
- Finally the result is the complete overview with investigation possibility

Electronic Cash Register and PC Cash Register – Data system

- Example of data base structure – different datasets



The screenshot shows a Windows File Explorer window titled 'Datei-Explorer'. The address bar displays 'Desktop-Projekt'. Below the address bar is a toolbar with icons for file operations. The main area shows a table of files and folders. The table has two columns: 'Name' and 'Datensätze'. The files listed are:

Name	Datensätze
GeschaefftfallArtikel_12_12_18_09_4...	1.048.574
Geschaefftsfall_12_12_18_09_43_24	218.107
GeschaefftsfallZahlungen_12_12_18...	63.516
Transaktion_12_12_18_09_43_23	239.020

Electronic Cash Register and PC Cash Register – Data system

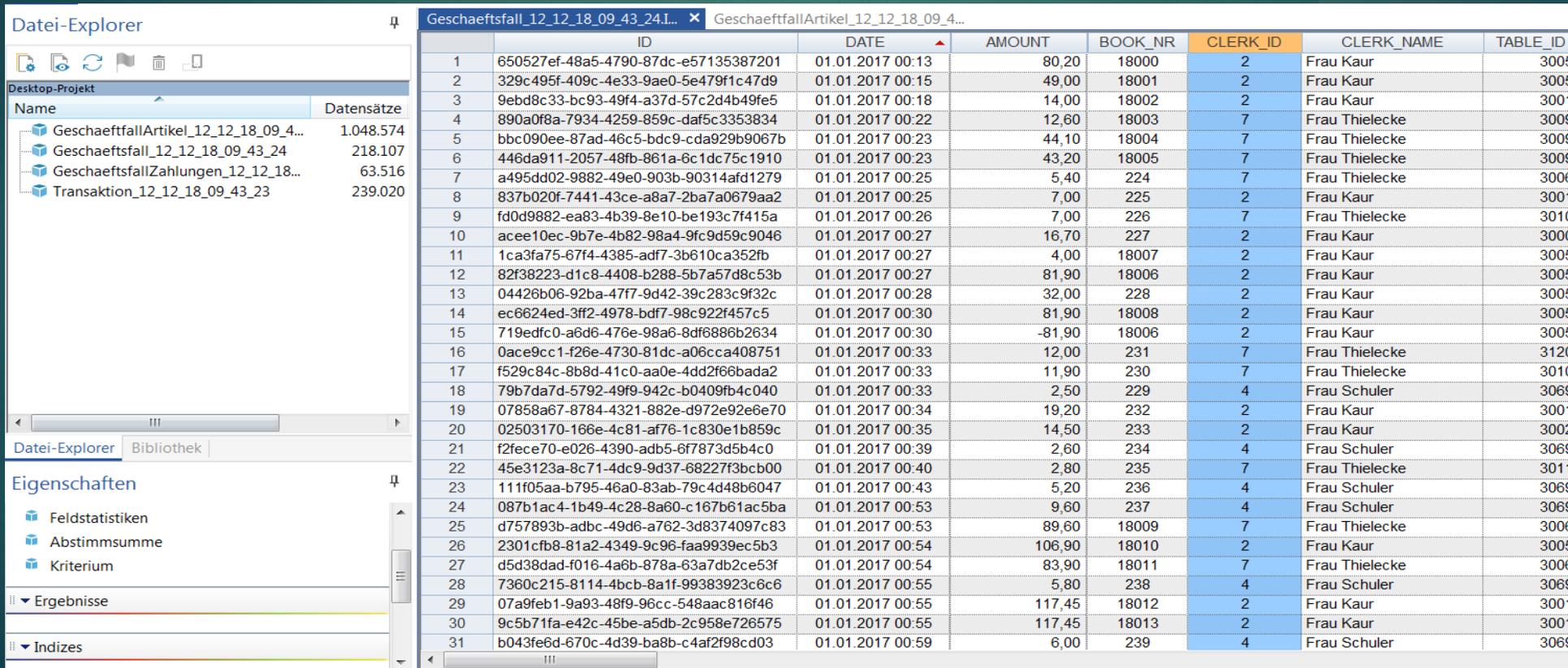
- Example each dataset has a different structure

The screenshot displays a Microsoft Access database window titled 'GeschaeftfallArtikel_12_12_18_09_4...'. The main area shows a table with the following columns: ID, ARTICLE_NR, ARTICLE, QUANTITY, SINGLE_PRICE, TAX_RATE, TAX_ID, and SIDE_DISH. The table contains 31 rows of transaction data. On the left, the 'Datei-Explorer' pane shows a folder structure with files like 'GeschaeftfallArtikel_12_12_18_09_4...', 'Geschaeftfall_12_12_18_09_43_24', 'GeschaeftfallZahlungen_12_12_18...', and 'Transaktion_12_12_18_09_43_23'. Below the explorer, the 'Eigenschaften' pane shows properties like 'Feldstatistiken', 'Abstimmsumme', and 'Kriterium'. The 'Ergebnisse' and 'Indizes' panes are also visible at the bottom left.

ID	ARTICLE_NR	ARTICLE	QUANTITY	SINGLE_PRICE	TAX_RATE	TAX_ID	SIDE_DISH	
1	00001119-dc03-4987-9399-76dc6150ac39	942	kl.Beilagensalat	1,0	0,00	19	2	False
2	00002d04-7bdf-4fe4-8336-9d95e28b0443	162	Espresso	1,0	-2,60	19	2	False
3	00004820-814c-45d3-87c4-27c8507f4287	587	Beilagensalat	1,0	0,00	19	2	False
4	000055c8-f97e-44e9-ac37-b21fba036ece	176	Tasse Kaffee Hag	1,0	-2,50	19	2	False
5	00005dd5-94af-4d50-a6f9-6146bf884b59	32	Fl.Medium Sprudel0,75	1,0	4,00	19	2	False
6	000061d9-b4a9-4962-9a5a-06db483f6a01	4	Apfelschorle trüb 0,4	1,0	4,00	19	2	False
7	00006a75-8f49-487c-bb80-6f12dc38da70	943	Rote Beete Salat	1,0	0,00	19	2	False
8	00006deb-2908-447c-be00-fa172a2fd92c	558	Schnitzel,Pommes,Sa.	1,0	12,80	19	2	False
9	00009069-7e46-490c-ae7b-603836d8d44b	942	kl.Beilagensalat	1,0	0,00	19	2	False
10	00009155-40e5-482a-a577-480c58c3ae9e	120	alk.freies Weizen 0,5	1,0	3,50	19	2	False
11	0000a340-b18a-4963-9540-cdb895c0f5b4	7	Joh.beerschorle 0,25	1,0	2,70	19	2	False
12	0000a531-714d-4293-bb2a-fcb455f4f3bf	676	Menü 4 Lachs	1,0	33,50	19	2	False
13	0000aa66-30b2-4d26-a6e0-5699b8dd5f00	2	Apfelschorle 0,4	15,0	4,00	19	2	False
14	0000b2da-45d6-4592-9c88-cf891bdbb206	577	Gemüseteller	1,0	12,00	19	2	False
15	0000b83a-d2f0-4634-9c9f-6fd817376893	881	Kinderpommes	1,0	3,00	19	2	False
16	0000b59-5fe5-4215-ae15-303bb40425e0	3	Apfelschorle trüb 0,25	1,0	2,60	19	2	False
17	0000f163-af0f-42b0-b35b-b432c38098eb	20	Cola 0.4	1,0	4,00	19	2	False
18	0000f461-9a4f-448b-b6e6-3c53fe73fad6	27	Fl.Mineralwasser 0,7	1,0	4,50	19	2	False
19	00010f9b-ea5e-43c9-a49f-5eb97500941c	208	Rieslingsekt 0,1l	1,0	3,50	19	2	False
20	00013763-e6b7-49a8-87fa-99bdd5d48605	1211	Pommes	1,0	6,00	19	2	True
21	00013763-e6b7-49a8-87fa-99bdd5d48605	1211	Pommes	1,0	6,00	19	2	True
22	00015ac5-b6fe-4790-9c55-942be6670131	29	Fl.Stilles Wasser0,75	1,0	5,50	19	2	False
23	000160ad-a250-4a5d-b85e-f8baefc450b	120	alk.freies Weizen 0,5	1,0	3,60	19	2	False
24	0001660e-3eb0-4652-9c65-8cdc7f09e95b	564	Rinderzunge,Spätz,Sa	1,0	20,30	19	2	False
25	00016d13-d56a-45ad-9539-0e1406479934	119	Radler 0,3	1,0	2,90	19	2	False
26	00017238-8026-4a72-b5e0-690ba68a5538	1257	Zwiebeln	1,0	1,40	19	2	True
27	00017238-8026-4a72-b5e0-690ba68a5538	1257	Zwiebeln	1,0	1,40	19	2	True
28	00017238-8026-4a72-b5e0-690ba68a5538	1257	Zwiebeln	1,0	-1,40	19	2	True
29	00017238-8026-4a72-b5e0-690ba68a5538	1257	Zwiebeln	1,0	1,40	19	2	True
30	00018155-40fb-4e23-889a-f754ad08da1f	22	Fanta 0.4	1,0	4,00	19	2	False
31	0001869f-ec3c-408b-905c-2b245f4d6c7a	304	Durb.Spätb tr.1/4	1,0	6,20	19	2	False

Electronic Cash Register and PC Cash Register – Data system

➤ Example each dataset has a different structure



The screenshot shows a Windows File Explorer window with a folder structure on the left and a table of transaction data on the right. The folder structure includes 'Desktop-Projekt' with subfolders for 'GeschaeftfallArtikel_12_12_18_09_4...', 'Geschaeftsfall_12_12_18_09_43_24', 'GeschaeftsfallZahlungen_12_12_18...', and 'Transaktion_12_12_18_09_43_23'. The table displays transaction details with columns for ID, DATE, AMOUNT, BOOK_NR, CLERK_ID, CLERK_NAME, and TABLE_ID.

	ID	DATE	AMOUNT	BOOK_NR	CLERK_ID	CLERK_NAME	TABLE_ID
1	650527ef-48a5-4790-87dc-e57135387201	01.01.2017 00:13	80,20	18000	2	Frau Kaur	3005
2	329c495f-409c-4e33-9ae0-5e479f1c47d9	01.01.2017 00:15	49,00	18001	2	Frau Kaur	3005
3	9ebd8c33-bc93-49f4-a37d-57c2d4b49fe5	01.01.2017 00:18	14,00	18002	2	Frau Kaur	3001
4	890a0f8a-7934-4259-859c-daf5c3353834	01.01.2017 00:22	12,60	18003	7	Frau Thielecke	3009
5	bbc090ee-87ad-46c5-bdc9-cda929b9067b	01.01.2017 00:23	44,10	18004	7	Frau Thielecke	3009
6	446da911-2057-48fb-861a-6c1dc75c1910	01.01.2017 00:23	43,20	18005	7	Frau Thielecke	3009
7	a495dd02-9882-49e0-903b-90314afd1279	01.01.2017 00:25	5,40	224	7	Frau Thielecke	3006
8	837b020f-7441-43ce-a8a7-2ba7a0679aa2	01.01.2017 00:25	7,00	225	2	Frau Kaur	3001
9	fd0d9882-ea83-4b39-8e10-be193c7f415a	01.01.2017 00:26	7,00	226	7	Frau Thielecke	3010
10	acee10ec-9b7e-4b82-98a4-9fc9d59c9046	01.01.2017 00:27	16,70	227	2	Frau Kaur	3000
11	1ca3fa75-67f4-4385-adf7-3b610ca352fb	01.01.2017 00:27	4,00	18007	2	Frau Kaur	3005
12	82f38223-d1c8-4408-b288-5b7a57d8c53b	01.01.2017 00:27	81,90	18006	2	Frau Kaur	3005
13	04426b06-92ba-47f7-9d42-39c283c9f32c	01.01.2017 00:28	32,00	228	2	Frau Kaur	3005
14	ec6624ed-3ff2-4978-bdf7-98c922f457c5	01.01.2017 00:30	81,90	18008	2	Frau Kaur	3005
15	719edfc0-a6d6-476e-98a6-8df6886b2634	01.01.2017 00:30	-81,90	18006	2	Frau Kaur	3005
16	0ace9cc1-f26e-4730-81dc-a06cca408751	01.01.2017 00:33	12,00	231	7	Frau Thielecke	3120
17	f529c84c-8b8d-41c0-aa0e-4dd2f66bada2	01.01.2017 00:33	11,90	230	7	Frau Thielecke	3010
18	79b7da7d-5792-49f9-942c-b0409fb4c040	01.01.2017 00:33	2,50	229	4	Frau Schuler	3069
19	07858a67-8784-4321-882e-d972e92e6e70	01.01.2017 00:34	19,20	232	2	Frau Kaur	3001
20	02503170-166e-4c81-af76-1c830e1b859c	01.01.2017 00:35	14,50	233	2	Frau Kaur	3002
21	f2fece70-e026-4390-adb5-6f7873d5b4c0	01.01.2017 00:39	2,60	234	4	Frau Schuler	3069
22	45e3123a-8c71-4dc9-9d37-68227f3bcb00	01.01.2017 00:40	2,80	235	7	Frau Thielecke	3011
23	111f05aa-b795-46a0-83ab-79c4d48b6047	01.01.2017 00:43	5,20	236	4	Frau Schuler	3069
24	087b1ac4-1b49-4c28-8a60-c167b61ac5ba	01.01.2017 00:53	9,60	237	4	Frau Schuler	3069
25	d757893b-adbc-49d6-a762-3d8374097c83	01.01.2017 00:53	89,60	18009	7	Frau Thielecke	3006
26	2301cfb8-81a2-4349-9c96-faa9939ec5b3	01.01.2017 00:54	106,90	18010	2	Frau Kaur	3005
27	d5d38dad-f016-4a6b-878a-63a7db2ce53f	01.01.2017 00:54	83,90	18011	7	Frau Thielecke	3006
28	7360c215-8114-4bcb-8a1f-99383923c6c6	01.01.2017 00:55	5,80	238	4	Frau Schuler	3069
29	07a9feb1-9a93-48f9-96cc-548aac816f46	01.01.2017 00:55	117,45	18012	2	Frau Kaur	3001
30	9c5b71fa-e42c-45be-a5db-2c958e726575	01.01.2017 00:55	117,45	18013	2	Frau Kaur	3001
31	b043fe6d-670c-4d39-ba8b-c4af2f98cd03	01.01.2017 00:59	6,00	239	4	Frau Schuler	3069

Electronic Cash Register and PC Cash Register – Data system

- Example each dataset has a different structure

The screenshot shows a Windows File Explorer window on the left with a folder structure under 'Desktop-Projekt':

- GeschaeftefallArtikel_12_12_18_09_4... (1.048.574 Datensätze)
- Geschaeftefall_12_12_18_09_43_24 (218.107 Datensätze)
- GeschaeftefallZahlungen_12_12_18... (63.516 Datensätze)
- Transaktion_12_12_18_09_43_23 (239.020 Datensätze)

The main window displays a data table with the following columns: ID, PAYMENT_ID, PAYMENT_TYPE, and COUPON_VALUE. The table contains 32 rows of data, with row 15 highlighted in yellow.

	ID	PAYMENT_ID	PAYMENT_TYPE	COUPON_VALUE
1	427e6ae2-a5dd-4d90-8eeb-2bca77c05a0c	2	Bar	0,0
2	2c3d2f14-9795-4167-9f33-cedf98f64059	2	Bar	0,0
3	e8361965-759d-46e0-8dd6-fe2a2c6ec13a	2	Bar	0,0
4	cd45cbeb-3d6d-46ae-8fdb-5df54cce9d47	2	Bar	0,0
5	8f3f6f03-c776-4c56-93b1-3da3c1314a3d	2	Bar	0,0
6	ade819bd-f6a8-43f1-9246-1aac74555f3a	5	EC-Karte	0,0
7	76c46a4d-a01b-4201-a28b-5df56248e4e5	2	Bar	0,0
8	16d4fb36-43fb-4b96-8a39-10d7cd6ea016	2	Bar	0,0
9	1cb6e05a-0cc8-40d4-9145-6f4077aa527e	2	Bar	0,0
10	78042add-9671-40d7-a710-0ae91f651e31	2	Bar	0,0
11	14e47272-f9a6-4bb6-8ba3-f160e2c0d097	2	Bar	0,0
12	38a30d58-18e7-4b24-bc0f-a28b3d267148	2	Bar	0,0
13	5a5ff2e2-b8a0-40a9-b386-5c9c729d0831	18	Visa	0,0
14	e60a8b2d-fbb7-4808-89ff-3a2ef5150bb7	2	Bar	0,0
15	02413d35-87d7-4dea-824b-4ac8246a09be	2	Bar	0,0
16	9fcd9b97-558f-4bda-91d4-69d739095c15	2	Bar	0,0
17	371a167f-79cf-4fd2-a716-b213ce2ea746	5	EC-Karte	0,0
18	04e232a2-500c-42e0-93ba-4da4ed02ffaa	2	Bar	0,0
19	84c2ce46-6197-433f-b7a8-aaf833060f0e	2	Bar	0,0
20	d34cd89c-4fd9-4246-8065-6414cb82c165	5	EC-Karte	0,0
21	44fbbbed-9bae-4655-a561-7ad5dec9150b	2	Bar	0,0
22	8d5caf65-0016-4554-92e8-07c374478046	2	Bar	0,0
23	f7c3814d-7c5a-4df3-98e4-167e779da99a	2	Bar	0,0
24	b7f3421f-651c-4c9c-98cd-1b43f914d5fb	2	Bar	0,0
25	948cfbc6-6904-4322-8b9e-2d4e4cb5073e	2	Bar	0,0
26	c88697fd-0450-478a-8b94-65670d47e822	2	Bar	0,0
27	1c15758e-30c1-400a-8bc7-26614de4c767	2	Bar	0,0
28	2a9dfef1-304c-4994-9c38-72bafa0ed4f0	8	Storno	0,0
29	5991ae7e-929e-4387-adff-e21bccf37fc6	2	Bar	0,0
30	9a09b8e3-88a9-455f-a2ba-1d09d7037c5f	5	EC-Karte	0,0
31	670e7465-5f45-4308-82d4-51640f7de99f	5	EC-Karte	0,0
32	a1bb6049-2993-4774-9d3e-8973dfcb54b2	22	Gutschein	37,2

Electronic Cash Register and PC Cash Register – Data system

- Example each dataset has a different structure

ID	DATE	NUMBER	TRANSACTIONTYPE_ID	TRANSACTION_NAME	CASH_REGISTER_ID
1	04.03.2016 12:09	1	1	Bonieren	2
2	04.03.2016 12:11	2	1	Bonieren	2
3	04.03.2016 12:26	3	1	Bonieren	2
4	04.03.2016 12:30	4	1	Bonieren	2
5	04.03.2016 12:30	5	1	Bonieren	2
6	04.03.2016 12:32	6	3	Abrechnen	2
7	04.03.2016 12:33	7	1	Bonieren	2
8	04.03.2016 12:37	8	1	Bonieren	1
9	04.03.2016 12:38	9	3	Abrechnen	1
10	04.03.2016 12:38	10	1	Bonieren	2
11	04.03.2016 12:38	11	1	Bonieren	1
12	04.03.2016 12:38	12	3	Abrechnen	1
13	04.03.2016 12:39	13	1	Bonieren	2
14	04.03.2016 12:39	14	13	ARPreview	1
15	04.03.2016 12:39	15	14	ARAusstellen	1
16	04.03.2016 12:42	16	5	RechnungZurückholen	1
17	04.03.2016 12:42	17	13	ARPreview	1
18	04.03.2016 12:43	18	13	ARPreview	1
19	04.03.2016 12:43	19	13	ARPreview	1
20	04.03.2016 12:43	20	5	RechnungZurückholen	1
21	04.03.2016 12:43	21	5	RechnungZurückholen	1
22	04.03.2016 12:44	22	4	Stornieren	1
23	04.03.2016 12:44	23	4	Stornieren	1
24	04.03.2016 12:50	24	1	Bonieren	2
25	04.03.2016 13:03	25	1	Bonieren	2
26	04.03.2016 13:03	26	1	Bonieren	2
27	04.03.2016 13:12	27	3	Abrechnen	2
28	04.03.2016 13:21	28	1	Bonieren	2
29	04.03.2016 13:24	29	3	Abrechnen	2
30	04.03.2016 13:24	30	3	Abrechnen	2
31	04.03.2016 13:32	31	1	Bonieren	2
32	04.03.2016 13:50	32	1	Bonieren	2

Electronic Cash Register and PC Cash Register – Data system

- Finally it is essential to understand the different sets
- Prepare them to be able to link
- Ability to explore the dataset
- Focus on what would you like to check
- Unnecessary data should be ignored but not deleted ! – maybe it is helpful in future checks

Other cash registers

Practical Exercise

- What other cash registers do you know?
 - Coffee machine?
 - Car washing machines?
 -

- Please explain why they are in your opinion also regarded as cash registers! Inclass Discussion

Examples for manipulation

Manipulations are basically possible within all cash register systems

Examples for manipulation

Reversal / Cancellation functions (single reversal / final reversal / master reversal)

- The cancel key cancels incorrect entries
- Can be abused to reduce actual turnovers
- Can be suppressed - cancellation is not visible on the daily receipt
- Especially the master reversal (often only used by the owner after the daily closing of the business)

Examples for manipulation

Reversal / Cancellation functions

- Extract of journal datas
- Extract shows the last sales entry on 29.12.2013 at 01:32 a.m.
- Turnover of 1.214,26 € (various meals and drinks)
- The sales were reversed at the end of the process
- Reversed sales are not included in the daily receipt

REG 29.12.2013(SB.) 01:32		
BED.04	MC#01	186892
GASTRONOMIE		-21.90
5X		1.50
GETRÄNKE DIVERS		-7.50
GETRÄNKE DIVERS		-1.80
4X		21.90
DIVERS		-87.60
3X		3.90
MINERALWASSER		-11.70
4X		1.50
GETRÄNKE DIVERS		-6.00
2X		1.50
GETRÄNKE DIVERS		-3.00
GASTRONOMIE		-7.90
BIER		-2.50
3X		4.90
MINERALWASSER		-14.70
10X		18.90
WEISSWEIN		-189.00
ROTWEIN		-18.90
2X		18.90
GASTRONOMIE		-37.80
2X		21.90
GASTRONOMIE		-43.80
GASTRONOMIE		-21.90
GASTRONOMIE		-24.90
9X		3.90
MINERALWASSER		-35.10
GETRÄNKE DIVERS		-1.90
GETRÄNKE DIVERS		-2.50
GASTRONOMIE		-12.80
GASTRONOMIE		-14.90
GASTRONOMIE		-8.90
GASTRONOMIE		-16.90
2X		14.90
GASTRONOMIE		-29.60
2X		12.90
GASTRONOMIE		-25.80
GASTRONOMIE		-8.90
GASTRONOMIE		-7.90
GASTRONOMIE		-8.90
GASTRONOMIE		-12.90
BONSTORNO		

Examples for manipulation

Training user generates turnover

- Almost every cash register has a training function
- Normally used to train new operators
- Normal sales/revenues/turnovers can be disguised as training sale
- Not visible on a daily receipt

Example for training modus

- Invoice of a birthday party on 29.01.2011
- Time of bill creation: 11:43 a.m.
- Total sales of 1.739,00 €
- Operator number 8

Matthias Fischer
40. Geburtstag

Zwischenrechnung
Tisch #100

10 x 15,20		
#434	Flasche Sekt	152,00
2 x 5,50		
F1.Orangeensaft 1,0l		
#319		11,00
3 x 2,20		
#307	Apfelsaft 0.25	6,60
8 x 1,80		
#271	Apfelscharle 0.25	10,80
2 x 2,80		
#272	Apfelscharle 0.4	5,60
39 x 2,60		
F1.Mineralwasser 0.7		
#315		101,40
7 x 2,80		
#308	Cola 0.4	19,60
3 x 3,00		
alk. Weizen 0,5		
#466		9,00
2 x 3,00		
#263	Radler 0,5	6,00
3 x 3,00		
#257	Weizen Dunkel 0,5	9,00
5 x 3,00		
#471	Cola-Weizen 0,5	15,00
1 x 2,80		
#312	Spezi 0.4	2,80
19 x 14,80		
F1.Hungar tr. 1,0l		
#491		281,20
3 x 14,80		
F1.Hungar 1,0l		
#430		44,40
7 x 13,20		
F1.Gutedel tr. 1,0l		
#421		92,40
1 x 13,20		
F1.Gutedel 1,0l		
#420		13,20
4 x 3,00		
#214	Kinderpannes	12,00
6 x 2,20		
Cappuccino M.schaum		
#324		13,20
35 x 1,90		
#321	Tasse Kaffee	66,50
2 x 3,20		
#328	doppelter Espresso	6,40
11 x 1,90		
#327	Espresso	20,90
1 x 40,00		
#886	Div.Küche ^{2x Hebe}	40,00
39 x 20,00	^{2x Hebe}	
#888	Div.Küche ^{2x Hebe}	780,00

Gesamt
11:43 29.1 8 1 739,00

Example for training modus

- Daily receipt 29.01.2011
- Including sales/turnovers from 4:39 a.m. till 11:23 a.m.
- Total sales of 1.695,20 €

!!! Daily turnover is lower than the turnover of the previous bill !!!

Transaktionen «21»	
Berichtsdatum: 1	
Erster Buchung	29.01.11 04:39
Letzte Buchung	29.01.11 11:23

Grand Total	

Grand Total	
Beschiller	14
Rechnungssteller	26

Z-Dähler	
Transaktionen 1	1245
Transaktionen 2	54

Gesamtsumme	1 405,20

Rückholte: Rechte,	2 110,00
Korrekturen	21 50,00

Steuern	
Gesamt: 10% exkl.	1 405,20
MwSt: 19%	270,96
Gesamt inkl.	1 695,20

Finanzwesen	

Bar	
Gesamt Brutto	1 504,40
Soll	1 504,40

EC-Cash	
Gesamt Brutto	110,00
Soll	110,00

Währungen	

Euro Bar	1 504,40
Euro über Kreditkarten	110,00

Vertrieb PEG	
29.01.11 08:15	

Example for training modus



- Selection of Modus (normal or training)
- Selection of operator
- Operator number 5 works in training mode

Example for training modus

開桌時間	跑堂	桌號	編號	菜名	訂單	結帳	優惠	取消
Anf. Zeit	K_Nr.	T-Nr.	Sp_Nr.	Sp_Name	Bes.	Abr.	Rab.	Storn.
10:57:46	1	1		----- Gesamt Tisch_Umsatz	96,00			
			113	Huehnerf.l.n.Thai Curry	6,80	10	10	- -
			346	Hele-Weissbier 0,5l	2,80	10	10	- -
11:03:21	2	2		----- Gesamt Tisch_Umsatz	178,00			
			340	Pils 0,3l	2,40	20	20	- -
			115	Rindfl.n.Zwiebeln	6,50	20	20	- -
11:04:27	5	5		----- Gesamt Tisch_Umsatz	48,00			
			347	Weissbier Dunkel 0,5l	2,80	5	5	- -
			116	Rindfl.Bong Bao Art	6,80	5	5	- -
11:05:17	1	1		----- Gesamt Tisch_Umsatz	72,80			
			344	Cola Weizen 0,5l	2,60	8	8	- -
			117	Schweinefl.Chopsuey	6,50	8	8	- -
11:09:48	5	5		----- Gesamt Tisch_Umsatz	154,50			
			348	Weissbier Leichte 0,5l	2,80	15	15	- -
			112	Ente suess sauer	7,50	15	15	- -
11:11:28	1	1		----- Gesamt Tisch_Umsatz	79,20			
			340	Pils 0,3l	2,40	33	33	- -

Tag : 07		Monat : 03		Jahr : 2014		Fr	
Umsatz :	628,50						
Umsatz in (A):	628,50						
Umsatz in (B):	0,00						
Davon							
Bar :	628,50						
Euro-Card :	0	0,00					
Visa-Card :	0	0,00					
Amer. Ex. :	0	0,00					
Scheck :	0	0,00					
Sonstige :	0	0,00					
Kredit :	0	0,00					

跑堂當天 [營業額]			
K_1	Umsatz:	248,00	Storno: 0,00
K_2	Umsatz:	178,00	Storno: 0,00
K_3	Umsatz:	0,00	Storno: 0,00
K_4	Umsatz:	0,00	Storno: 0,00
K_5	Umsatz:	202,50	Storno: 0,00

當天所有 [外送額]			
Lieferrn_Umsatz:		0,00	

當天所有 [發票額]			
Buittung :		0,00	

上下箭頭鍵 [↑], [↓] 或 [Bild↑], [Bild↓] 翻頁, [F5] 退出, [Alt]+P 打印!

[Alt]+L 刪除練習部分 [Alt]+[P] 打印, [Esc] 退出

- All operators work on normal mode
- Operator Number 1, 2 and 5 generate sales
- Total turnover amounts to 628,50 €

Example for training modus

開業時間 Anf. Zeit	桌號 K_Nr.	報號 T-Nr.	菜名 Sp_Nr.Sp_Name	訂單 Bes.	結帳 Abr.	優惠取消 Ab. Storn
10:57:46	1	1	----- Gesamt Tisch_Umsatz	96.00	-----	-----
			M3 Huehnerf.l.n.Thai Curry	6.80	10	- -
			346 Hefe-Weissbier 0,5l	2.80	10	- -
11:03:21	2	2	----- Gesamt Tisch_Umsatz	178.00	-----	-----
			340 Pils 0,3l	2.40	20	- -
			M5 Rindfl.w.Zulebeln	6.50	20	- -
11:05:17	1	1	----- Gesamt Tisch_Umsatz	72.80	-----	-----
			344 Cola Weizen 0,5l	2.60	8	- -
			M7 Schweinefl.Chopsuey	6.50	8	- -
11:11:28	1	1	----- Gesamt Tisch_Umsatz	79.20	-----	-----
			340 Pils 0,3l	2.40	33	- -

Tag : 02. Monat : 03. Jahr : 2014 Fr	
Umsatz :	426.00
Umsatz in (A) :	426.00
Umsatz in (B) :	0.00

Davon	
Bar :	426.00

Euro-Card :	0 0.00
Vi sa-Card :	0 0.00
Amer. Ek. :	0 0.00
Scheck :	0 0.00
Sonstige :	0 0.00

Kredit :	0 0.00

餐館當天結帳系統				
Tagesabrechnung für Restaurant				
經營當天 [營業額]				
K_1	Umsatz:	248.00	Storno:	0.00
K_2	Umsatz:	178.00	Storno:	0.00
K_3	Umsatz:	0.00	Storno:	0.00
K_4	Umsatz:	0.00	Storno:	0.00
K_5	Umsatz:	0.00	Storno:	0.00

當天所有 [外送額]				
Lieferrn_Umsatz:		0.00		

當天所有 [發票額]				
Quittung :		0.00		

上下箭頭鍵 [↑], [↓] 或 [Bild↑], [Bild↓] 翻頁, [ESC] 退出, [Alt]+P 打印!

Alt + L 刪除練習部分, [Alt]+[P] 打印, [Esc] 退出.

- Operator Number 5 work on training mode
- Operator Number 1, 2 and 5 generate sales
- Total turnover amounts to 426,00 € - sales of Operator number 5 are declared

Examples for manipulation

Manipulation programs – Manipulation software

➤ **„Zapper“**

External Manipulation software that subsequently changes/zap sales data of the cash register – e.g. 10/20/30/40% of turnover is zapped

➤ **„Phantomware“**

Already included/embedded manipulation program that replaces higher-priced items with lower-priced items

Examples for manipulation

Manipulation programs – Zapper

- Turnover of a waiter selected
- Amount of sales reduction can be selected individually
- Turnover reduced by 287,60 €

The screenshot shows a 'Statistik' window with a menu bar (Datei, Daten) and buttons (Drucken, Einkaufen, Ansehen, Löschen, Übernahme). A calendar for May 2011 is visible, with the 6th highlighted. A waiter selection table shows '12 MICHA' selected. A table below shows sales data for 'Gesamtbetrieb' on 06.05.2011. The bottom control panel features a slider set to 50.00% and a value of 287.60, along with buttons for 'Automatisch', 'Analyse', and 'Manuell'.

KelNr.	Name
10	SOTO
12	MICHA

Sparte	Bezeichnung
0	keine Zuordnung
1	Getränke
2	Küche
3	Pizza
4	Dessert/Eis

Res.nr.	Bezeichnung
0	Gesamtbetrieb
1	Ausser Haus

Datum	Betriebsstelle	Name	Finanz	Saldo
06.05.2011	Gesamtbetrieb	Kellner 12	Boniert	903,40
06.05.2011	Gesamtbetrieb	Kellner 12	Tische	0,00
06.05.2011	Gesamtbetrieb	Kellner 12	Storno	-14,80
06.05.2011	Gesamtbetrieb	Kellner 12	Bar gegeben	-888,60

Datum	Artnr	Bezeichnung	Anzahl	VK-Preis	VK-Saldo	Eingabe	Anzahl	Saldo	E-Preis
06.05.2011	619	PIZZA TOMATINA-MO	2	9,20	18,40	0	1	9,20	
06.05.2011	552	GERSTENSUPPE	2	8,90	17,80	0	1	8,90	
06.05.2011	545	PENNE KÜRBIS	2	14,90	29,80	0	1	14,90	
06.05.2011	514	PANNA COTTA WALD	2	4,00	8,00	0	1	4,00	
06.05.2011	451	+ SAHNE	2	0,60	1,20	0	1	0,60	

Examples for manipulation

...further simple manipulation possibilities..

- The entry of the turnover in the cash register is omitted
- Use of an equal second cash register its turnover is not declared
- Manipulation of the whole data of a electronic cash register by using a computer – deleting/changing/manipulation of data sets

Challenges

- Detecting Manipulations
- Large amount of data
- ...

Practical Exercise ML

Discuss within your group (15 min)!

- What other challenges related to Money Laundering of the usage of different types of cash registers can you find/imagine/ you are faced with?
- How can you use electronic cash registers for ML purposes?