TECH VAULT

COLUMNAR DATABASES

PART (2)

Product	
ID	Value
1	Beer
2	Beer
3	Vod
4	Whisk
5	Wh
6	

ID	Cu
	Th
	Tho
3	Thomas
	Chri
5	Christian
6	exei

ID	Da
3	2011-11-25
4	2011-11-25
5	2011-11-25
6	2011-11-25
7	2011-11-25

Sale	
ID	Sale
2	2 GBP
3	10 GBP
4	5 GBP
5	5 GBP
6	10 GBP
7	10 GBP

AMR ELHELW

id	first_name	last_name	phone	hire_date	title	dept	salary
1	John	Doe	555-1234	2020-01-15	Soft Eng	Eng	80000.00
2	Jane	Smith	555-5678	2019-02-20	Proj Mgr	Ops	90000.00
3	Alice	Johnson	555-8765	2018-03-05	Data Anl	Mkt	75000.00
4	Bob	Brown	555-4321	2021-04-22	UI/UX Des	Des	72000.00
5	Charlie	Davis	555-6543	2020-06-30	DevOps Eng	IT	85000.00
6	Eve	Miller	555-3456	2019-07-18	HR Spec	HR	65000.00
7	Frank	Wilson	555-9876	2017-08-21	Acct	Fin	70000.00
8	Grace	Lee	555-6789	2021-09-10	Prod Mgr	Prod	88000.00
9	Hank	King	555-7890	2018-10-12	Tech Writer	Doc	59000.00
10	Ivy	Young	555-8901	2019-11-23	Sales Exec	Sales	93000.00

Amr Elhelw's
TECH
VAULT

1	2	3	4	5	6	7	8	9	10

John	Jane	Alice	Bob	Charlie	Eve	Frank	Grace	Hank	Ivy

Doe	Smith	Johnson	Brown	Davis	Miller	Wilson	Lee	King	Young

555-1234	555-5678	555-8765	555-4321	555-6543	555-3456	555-9876
555-6789	555-7890	555-8901				

2020-01-15	2019-02-20	2018-03-05	2021-04-22	2020-06-30	2019-07-18
2017-08-21	2021-09-10	2018-10-12	2019-11-23		

Soft Eng	Proj Mgr	Data Anl	UI/UX Des	DevOps Eng	HR Spec	Acct	Prod Mgr
Tech Writer	Sales Exec						

Eng	Ops	Mkt	Des	IT	HR	Fin	Prod	Doc	Sales

80000.00	90000.00	75000.00	72000.00	85000.00	65000.00	70000.00
88000.00	59000.00	93000.00				

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10	Ivy	Young	555-8901	2019-11-23	Sales Exec	Sales	93000.00

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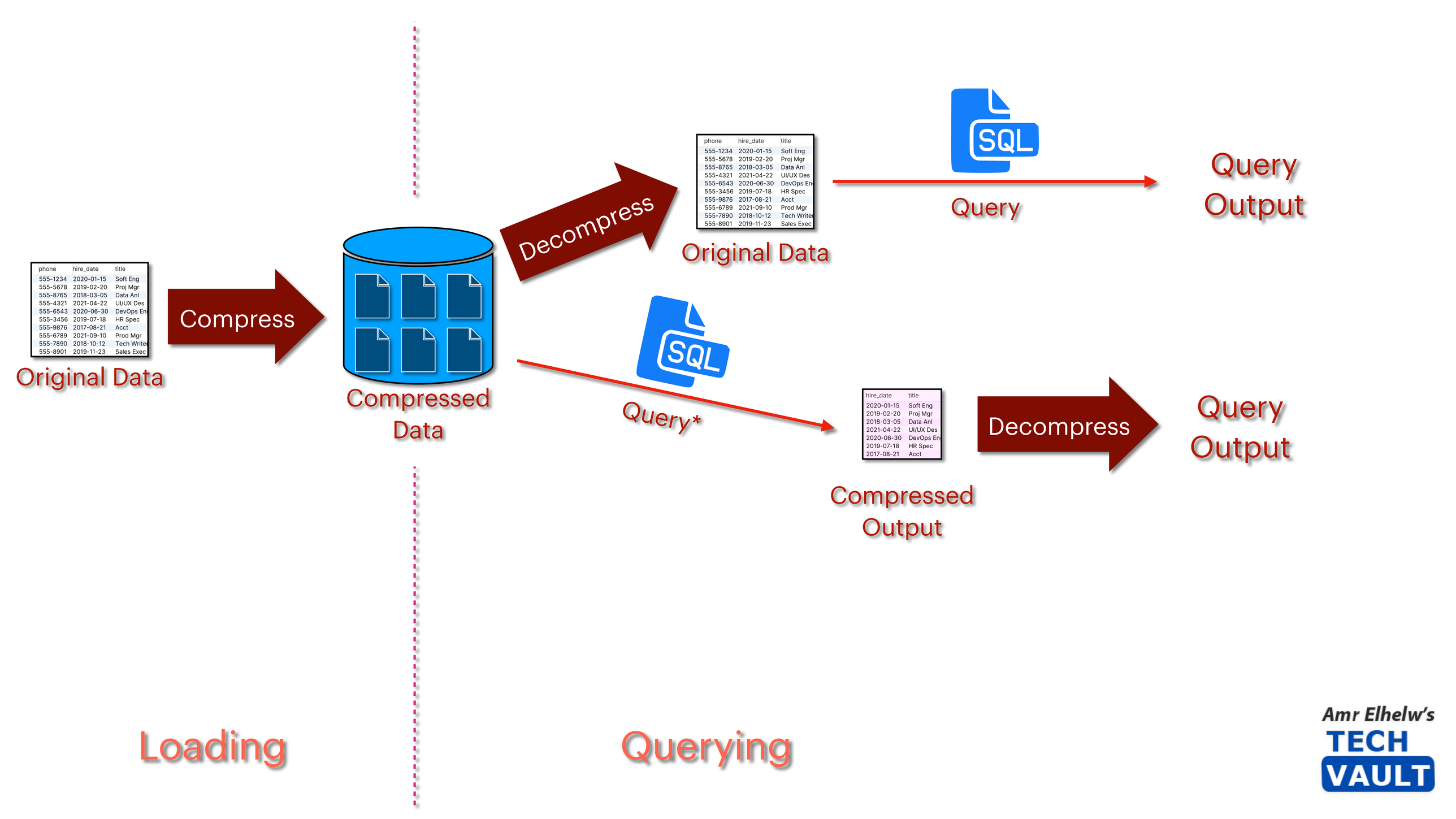
phone hire_date title
555-1234 2020-01-15 Soft Eng
555-5678 2019-02-20 Proj Mgr
555-8765 2018-03-05 Data Anl
555-4321 2021-04-22 UI/UX Des
555-6543 2020-06-30 DevOps En
555-3456 2019-07-18 HR Spec
555-9876 2017-08-21 Acct
555-6789 2021-09-10 Prod Mgr
555-7890 2018-10-12 Tech Write
555-8901 2019-11-23 Sales Exec
Original Data
Compress
Compressed Data
Decompress
Original Data
SQL
Query
Query Output
SQL
Query*
hire_date title
2020-01-15 Soft Eng
2019-02-20 Proj Mgr
2018-03-05 Data Anl
2021-04-22 UI/UX Des
2020-06-30 DevOps En
2019-07-18 HR Spec
2017-08-21 Acct
Compressed Output
Decompress
Query Output
Loading
Querying
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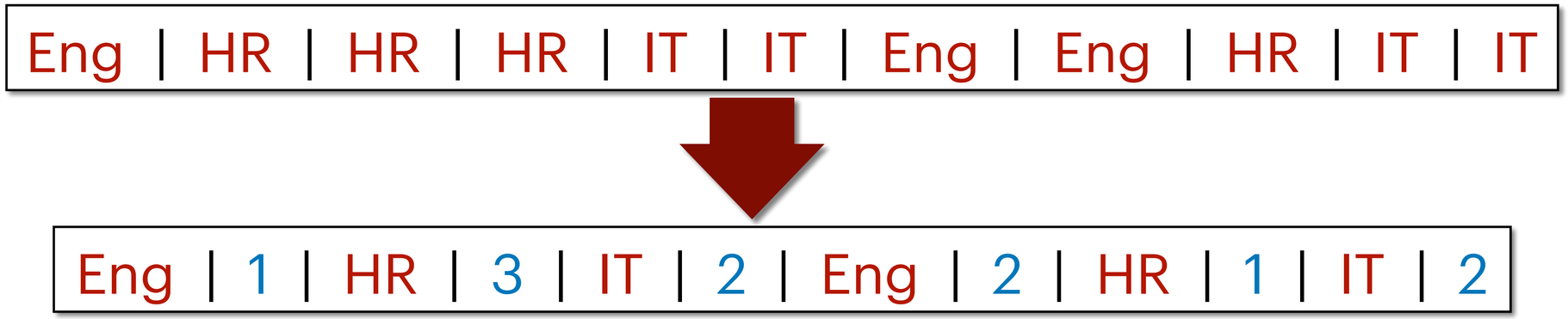
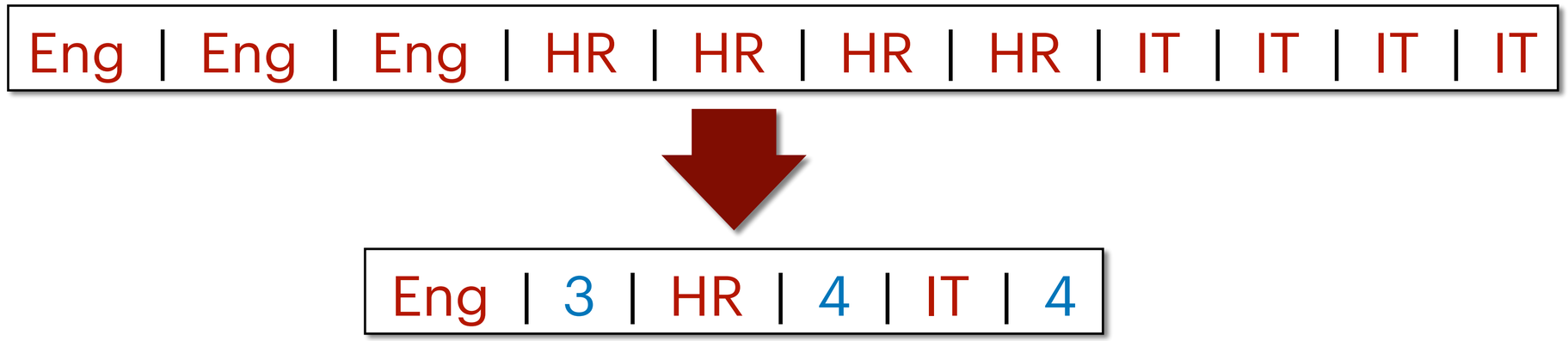
Run Length Encoding (RLE)



Sorted:



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Run Length Encoding (RLE)

Eng	1	HR	3	IT	2	Eng	2	HR	1	IT	2

```
SELECT dept, count(*)
FROM employees
GROUP BY dept
```

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Dictionary Encoding

Red | Red | White | Black | Blue | Red | Blue | Black | Black

Code	Value
0	Red
1	White
2	Black
3	Blue

Dictionary

0 | 0 | 1 | 2 | 3 | 0 | 3 | 2 | 2

```
SELECT *
FROM products
WHERE color = 'Blue'
```

```
SELECT *
FROM products
WHERE color = 3
```

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