

Tugas Materi 11

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3 – D4 IT - B

Code 1

```
In [3]: dataset = pd.read_csv('transaction.csv')
dataset
```

Out[3]:

	InvoiceNo	StockCode	Qty	InvoiceDate	CustomerID	Country
0	537626	22725	830	12/7/2010 14:57	12347	Iceland
1	537626	22729	948	12/7/2010 14:57	12347	Iceland
2	537626	22195	695	12/7/2010 14:57	12347	Iceland
3	542237	22725	636	1/26/2011 14:30	12347	Iceland
4	542237	22729	536	1/26/2011 14:30	12347	Iceland
...
10541	543911	21700	455	2/14/2011 12:46	17829	United Arab Emirates
10542	543911	22111	578	2/14/2011 12:46	17829	United Arab Emirates
10543	543911	22112	163	2/14/2011 12:46	17829	United Arab Emirates
10544	564428	23296	545	8/25/2011 11:27	17844	Canada
10545	564428	23294	643	8/25/2011 11:27	17844	Canada

10546 rows x 6 columns

Membaca data csv transaction

Code 2

```
In [4]: data = dataset[dataset['Country'] == 'Portugal']  
data = data[['InvoiceNo', 'StockCode']]  
data
```

Out[4]:

	InvoiceNo	StockCode
101	541430	22195
102	541430	22435
103	541430	84378
104	541430	22646
105	541430	84987
...
7596	547444	22745
7597	547444	22747
7598	547444	22746
7599	547444	23176
7600	547444	22968

Menampilkan data country portugal

Code 3

```
In [5]: data['Jumlah'] = pd.Series(1, index=data.index)  
data
```

Out[5]:

	InvoiceNo	StockCode	Jumlah
101	541430	22195	1
102	541430	22435	1
103	541430	84378	1
104	541430	22646	1
105	541430	84987	1
...
7596	547444	22745	1
7597	547444	22747	1
7598	547444	22746	1
7599	547444	23176	1
7600	547444	22968	1

367 rows × 3 columns

Menambah kolom jumlah

Code 4

```
In [6]: transaksi = data.groupby(['InvoiceNo', 'StockCode'])['Jumlah'].sum()
transaksi = transaksi.unstack().reset_index().fillna(0).set_index('InvoiceNo')
transaksi[transaksi>0]=1
transaksi
```

Out[6]:

StockCode	16161	20713	20718	20723	20977	20981	21035	21124	21154	21164	...	47599	48184	82484	84077	84279	84378	84380	84509	84987	84
InvoiceNo																					
537246	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
537818	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	
537915	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
538311	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
539353	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
540519	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
540546	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	...	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
541430	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	1.0	
542147	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	
544495	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	...	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	
545191	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
545227	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Menampilkan stock code tiap2 invoice no

Code 5

```
In [7]: frequent_itemsets = apriori(transaksi, min_support=0.2, use_colnames=True)
rules = association_rules(frequent_itemsets, metric="confidence", min_threshold=0.7)
```

```
In [8]: rules
```

```
Out[8]:
```

	antecedents	consequents	antecedent support	consequent support	support	confidence	lift	leverage	conviction
0	(21928)	(21929)	0.232558	0.209302	0.209302	0.900000	4.300000	0.160627	7.906977
1	(21929)	(21928)	0.209302	0.232558	0.209302	1.000000	4.300000	0.160627	inf
2	(21928)	(22411)	0.232558	0.255814	0.209302	0.900000	3.518182	0.149811	7.441860
3	(22411)	(21928)	0.255814	0.232558	0.209302	0.818182	3.518182	0.149811	4.220930
4	(21929)	(22411)	0.209302	0.255814	0.209302	1.000000	3.909091	0.155760	inf
5	(22411)	(21929)	0.255814	0.209302	0.209302	0.818182	3.909091	0.155760	4.348837
6	(21928, 21929)	(22411)	0.209302	0.255814	0.209302	1.000000	3.909091	0.155760	inf
7	(21928, 22411)	(21929)	0.209302	0.209302	0.209302	1.000000	4.777778	0.165495	inf
8	(21929, 22411)	(21928)	0.209302	0.232558	0.209302	1.000000	4.300000	0.160627	inf
9	(21928)	(21929, 22411)	0.232558	0.209302	0.209302	0.900000	4.300000	0.160627	7.906977
10	(21929)	(21928, 22411)	0.209302	0.209302	0.209302	1.000000	4.777778	0.165495	inf

Menampilkan asosiasi rule min_support = 0.2 min_threshold = 0.7