Objective

The goal was to develop a **Lookalike Model** that recommends similar customers based on profile and transaction data. Recommendations were generated using a similarity score.

Model Development Steps

1. Feature Engineering

- o Combined data from Customers.csv and Transactions.csv to create customer profiles.
- Key features: Average transaction value, total quantity purchased, and favourite product category.

2. Cosine Similarity

- o Implemented the **Cosine Similarity** algorithm to compare customer profiles.
- Customers with similar profiles (e.g., frequent purchases or similar spending patterns) were identified as lookalikes.

3. Output

The Lookalike.csv contains a mapping for customers (C0001 to C0020) with their top 3 lookalikes and similarity scores.

Key Findings

- Customers with similar spending patterns and product preferences are identified accurately.
- Example: Customer C0001 was closely matched with C0151, C0150, and C0012 based on average transaction value and category overlap.

	Α	В	C	D	Е	F	G	Н	1	J	K
	Customerl	Recomme	endations								
	C0001	[('C0151',	0.02763248	3757417796	3), ('C0150	0, 0.020560	446885375	5772), ('C01	12', 0.0199	176972149	2743)]
	C0002	[('C0133',	0.94871829	950854319)	, ('C0097', (0.06703355	53274563)	, ('C0080', (0.06572383	684069838	3)]
	C0003	[('C0151',	0.02236232	2969799536	5), ('C0112',	0.0177997	827487081	127), ('C015	0', 0.01585	028718519	6568)]
	C0004	[('C0165',	0.03365373	3625138064	l), ('C0082',	0.0247762	350801752	263), ('C011	3', 0.02347	812050061	.6442)]
	C0005	[('C0197',	0.94623994	173655353)	, ('C0097', (0.08102237	537662009	9), ('C0080',	0.0774647	599049311	.2)]
	C0006	[('C0151',	0.02763248	3757417796	66), ('C0150	0, 0.020560	446885375	5776), ('C01	12', 0.0199	176972149	2751)]
	C0007	[('C0097',	0.05475022	2636101698	36), ('C0080	', 0.052738	575212190)52), ('C011	0', 0.05166	338880800	274)]
	C0008	[('C0109',	0.03384542	2235598833	3), ('C0156',	0.0304206	432270962	297), ('C006	5', 0.02954	605525596	6689)]
1 2 3 4 5	C0009	[('C0014',	0.06315513	328819562)	, ('C0060', (0.06315513	28819562)	, ('C0044', (0.03049740	162434908	37)]
	C0010	[('C0060',	0.03509721	1229679202	24), ('C0014	, 0.035097	212296792	2024), ('C00	44', 0.0212	428950462	(39982)]
	C0011	[('C0151',	0.02499896	52848017),	('C0112', 0.	018859943	17126448)	, ('C0150', (0.01820648	456946374	2)]
	C0012	[('C0165',	0.02493211	1507681235	66), ('C0004	, 0.019548	837738053	363), ('C008	2', 0.01954	883773805	3597)]
	C0013	[('C0165',	0.02273259	9704912866	5), ('C0004',	0.0182290	396426258	323), ('C008	32', 0.01822	903964262	578)]
	C0014	[('C0060', 0.99999999999994), ('C0151', 0.8703430689607847), ('C0097', 0.863443643592728)]									
	C0015	[('C0123', 0.9460714549126809), ('C0058', 0.06850269405043274), ('C0033', 0.06615010564556796)]									
7	C0016	[('C0107',	0.94912883	360691276)	, ('C0058', (0.04781621	178479791	l), ('C0033',	0.0471761	172941131	.1)]
3	C0017	[('C0075', 0.030562611734074766), ('C0141', 0.029559026827587653), ('C0041', 0.02547465925781885)]									
)	C0018	[('C0109',	0.02899762	2178937648	86), ('C0156	o', 0.026552	148325086	6664), ('COO	65', 0.0259	261669698	3982)]
)	C0019	[('C0014',	0.03825175	5192908651	l), ('C0060',	0.0382517	519290865	51), ('C0044	, 0.022288	413682231	.337)]
1	C0020	[('C0130',	0.95077910	002885241)	, ('C0058', (0.07185318	864959121	l), ('C0033',	0.0692203	586123078	3)]