

PROJECT NAME : CUSTOMER DATA ANALYSIS

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OBJECTIVE

- Understand customer behavior and spending
- Analyze agent performance across different regions
- Derive business insights using SQL queries
- Suggest data-driven strategies

PROBLEM STATEMENT

The purpose of this project is -

“To analyze the structured data provided and gather insights on the agents and customer behavior and their relations in MySQL.”

DATASET

Inconsistent or Missing Values

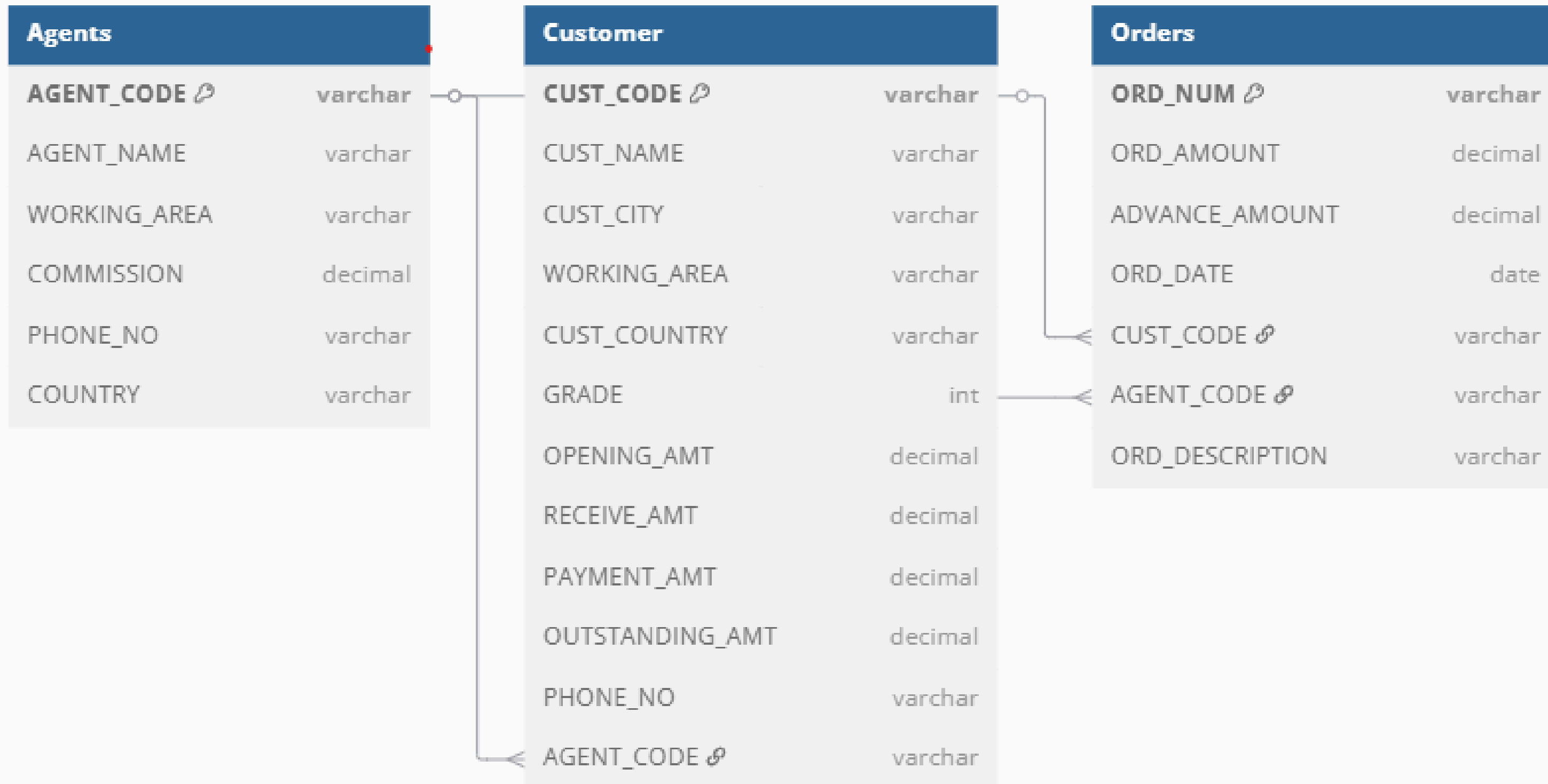
The dataset provided was filled with inconsistencies, the dataset was corrected by updating the inconsistent values and updating the missing values.

CUST_CODE	CUST_NAME	CUST_CITY	WORKING_AREA	CUST_COUNTRY	GRADE	OPENING_AMT	RECEIVE_AMT	PAYMENT_AMT	OUTSTANDING_AMT	PHONE_NO	AGENT_CODE
C00001	Micheal	New York	New York	USA	2	3000	5000	2000	6000	CCCCCCC	A008
C00002	Bolt	New York	New York	USA	3	5000	7000	9000	3000	DDNRDRH	A008
C00003	Martin	Torento	Torento	Canada	2	8000	7000	7000	8000	MJYURFD	A004
C00004	Winston	Brisban	Brisban	Australia	1	5000	8000	7000	6000	AAAAAAA	A005
C00005	Sasikant	Mumbai	Mumbai	India	1	7000	11000	7000	11000	147-25896312	A002
C00006	Shilton	Torento	Torento	Canada	1	10000	7000	6000	11000	DDDDDDD	A004

TABLE OVERVIEW

Table	Description	Primary Key	Foreign Keys	No. of Records	Key Columns
Agents	Stores information about sales agents	AGENT_CODE	-	12	AGENT_NAME, WORKING_AREA, COMMISSION
Customer	Stores details of customers assigned to agents	CUST_CODE	AGENT_CODE → Agents.AGENT_CODE	25	CUST_NAME, GRADE, OUTSTANDING_AMOUNT
Orders	Contains order transactions made by customers	ORD_NUM	CUST_CODE → Customer.CUST_CODE, AGENT_CODE → Agents.AGENT_CODE	31	ORD_AMOUNT, ADVANCE_AMOUNT, ORD_DATE

RELATIONAL DATABASE



UPDATES ADDED

```
# updated country which were null in dataset #  
DELIMITER //
```

```
create procedure UpdateAgentCountries()  
begin
```

```
    update agents set COUNTRY = 'India' where trim(WORKING_AREA) in ('Bangalore', 'Mumbai', 'Chennai');  
    update agents set COUNTRY = 'UK' where TRIM(WORKING_AREA) in ('London', 'Hampshair');  
    update agents set COUNTRY = 'Canada' where trim(WORKING_AREA) = 'Torento';  
    update agents set COUNTRY = 'Australia' where trim(WORKING_AREA) = 'Brisban';  
    update agents set COUNTRY = 'USA' where trim(WORKING_AREA) in ('New York', 'San Jose');
```

```
end //
```

```
DELIMITER ;
```

```
call UpdateAgentCountries();
```

	AGENT_CODE	AGENT_NAME	WORKING_AREA	COMMISSION	PHONE_NO	COUNTRY
▶	A001	Subbarao	Bangalore	0.14	077-12346674	India
	A002	Mukesh	Mumbai	0.11	029-12358964	India
	A003	Alex	London	0.13	075-12458969	UK
	A004	Ivan	Torento	0.15	008-22544166	Canada
	A005	Anderson	Brisban	0.13	045-21447739	Australia
	A006	Suresh	Chennai	0.12	078-22255588	India
	A007	Ramasundar	Bangalore	0.15	077-25814763	India
	A008	Alford	New York	0.12	044-25874365	USA
	A009	Benjamin	Hampshair	0.11	008-22536178	UK
	A010	Santakumar	Chennai	0.14	007-22388644	India
	A011	Ravi Kumar	Bangalore	0.15	044-52981425	India
	A012	Lucida	San Jose	0.12	084-12358964	USA

UPDATION OF INVALID PHONE NO ANY RANDOM IN CUTOMER TABLE

```
• select CUST_CODE, CUST_NAME, PHONE_NO from customer
  where PHONE_NO is null or PHONE_NO = '' or PHONE_NO like '%[A-Za-z]%' or PHONE_NO not regexp '^[+0-9() . -]';

# updated wrong phone no #
DELIMITER //

• create procedure UpdateInvalidPhoneNumbersUnique()
begin
  declare done INT DEFAULT FALSE;
  declare custCode VARCHAR(10);
  declare counter INT DEFAULT 1;

  declare cur cursor for
    select CUST_CODE from Customer where PHONE_NO regexp '[A-Za-z]' or PHONE_NO like '%Phone No%';

  declare continue handler for not found set done = TRUE;

  open cur;

  read_loop: loop
    fetch cur into custCode;
    if done then
      leave read_loop;
    end if;

    update customer
    set PHONE_NO = concat('123-', lpad(counter, 7, '0'))
    where CUST_CODE = custCode;
```

	CUST_CODE	CUST_NAME	CUST_CITY	WORKING_AREA	CUST_COUNTRY	GRADE	OPENING_AMT	RECEIVE_AMT	PAYMENT_AMT	OUTSTANDING_AMT	PHONE_NO	AGE
▶	C00001	Micheal	New York	New York	USA	2	3000.00	5000.00	2000.00	6000.00	123-0000001	A008
	C00002	Bolt	New York	New York	USA	3	5000.00	7000.00	9000.00	3000.00	123-0000002	A008
	C00003	Martin	Torento	Torento	Canada	2	8000.00	7000.00	7000.00	8000.00	123-0000003	A004
	C00004	Winston	Brisban	Brisban	Australia	1	5000.00	8000.00	7000.00	6000.00	123-0000004	A005
	C00005	Sasikant	Mumbai	Mumbai	India	1	7000.00	11000.00	7000.00	11000.00	147-25896312	A002
	C00006	Shilton	Torento	Torento	Canada	1	10000.00	7000.00	6000.00	11000.00	123-0000005	A004
	C00007	Ramanath	Chennai	Chennai	India	1	7000.00	11000.00	9000.00	9000.00	123-0000006	A010
	C00008	Karolina	Torento	Torento	Canada	1	7000.00	7000.00	9000.00	5000.00	123-0000007	A004
	C00009	Ramesh	Mumbai	Mumbai	India	3	8000.00	7000.00	3000.00	12000.00	123-0000008	A002
	C00010	Charles	Hampshair	Hampshair	UK	3	6000.00	4000.00	5000.00	5000.00	123-0000009	A009
	C00011	Sundariya	Chennai	Chennai	India	3	7000.00	11000.00	7000.00	11000.00	123-0000010	A010
	C00012	Steven	San Jose	San Jose	USA	1	5000.00	7000.00	9000.00	3000.00	123-0000011	A012
	C00013	Holmes	London	London	UK	2	6000.00	5000.00	7000.00	4000.00	123-0000012	A003
	C00014	Rangarappa	Bangalore	Bangalore	India	2	8000.00	11000.00	7000.00	12000.00	123-0000013	A001
	C00015	Stuart	London	London	UK	1	6000.00	8000.00	3000.00	11000.00	123-0000014	A003
	C00016	Venkatpati	Bangalore	Bangalore	India	2	8000.00	11000.00	7000.00	12000.00	123-0000015	A007
	C00017	Srinivas	Bangalore	Bangalore	India	2	8000.00	4000.00	3000.00	9000.00	123-0000016	A007
	C00018	Fleming	Brisban	Brisban	Australia	2	7000.00	7000.00	9000.00	5000.00	123-0000017	A005
	C00019	Yearannaidu	Chennai	Chennai	India	1	8000.00	7000.00	7000.00	8000.00	123-0000018	A010
	C00020	Albert	New York	New York	USA	3	5000.00	7000.00	6000.00	6000.00	123-0000019	A008
	C00021	Jacks	Brisban	Brisban	Australia	1	7000.00	7000.00	7000.00	7000.00	123-0000020	A005
	C00022	Avinash	Mumbai	Mumbai	India	2	7000.00	11000.00	9000.00	9000.00	113-12345678	A002
	C00023	Karl	London	London	UK	0	4000.00	6000.00	7000.00	3000.00	123-0000021	A006
	C00024	Cook	London	London	UK	2	4000.00	9000.00	7000.00	6000.00	123-0000022	A006

UPDATES ADDED

```
select CUST_CODE, AGENT_CODE  
from customer  
where AGENT_CODE not in (select AGENT_CODE from Agents);
```

updated the customer row with existing agent code

```
update customer set AGENT_CODE = 'A010' where CUST_CODE = 'C00011';
```

Chennai	Chennai	India	3	7000.00	11000.00	7000.00	11000.00
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INSIGHTS GENERATED

CUSTOMER & ORDER RELATIONSHIPS

Tracking customers who haven't placed any orders, which helps in identifying inactive customers for re-engagement.

```
126 • SELECT customer.CUST_CODE, customer.CUST_NAME, orders.ORD_NUM
127 FROM customer
128 LEFT JOIN orders ON customer.CUST_CODE = orders.CUST_CODE;
129
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	CUST_CODE	CUST_NAME	ORD_NUM
▶	C00001	Micheal	200101
	C00002	Bolt	200114
	C00003	Martin	200122
	C00004	Winston	200134
	C00005	Sasikant	NULL
	C00006	Shilton	200104
	C00007	Ramanath	200135
	C00007	Ramanath	200119
	C00007	Ramanath	200107
	C00007	Ramanath	200106
	C00008	Kanaka	200121

TOP-PERFORMING CITIES

Comparing the number of customers and total outstanding amounts.

```
121 • SELECT CUST_CITY, COUNT(*) AS NumberOfCustomers,
122 SUM(OUTSTANDING_AMT) AS TotalOutstanding
123 FROM customer
124 GROUP BY CUST_CITY;
```

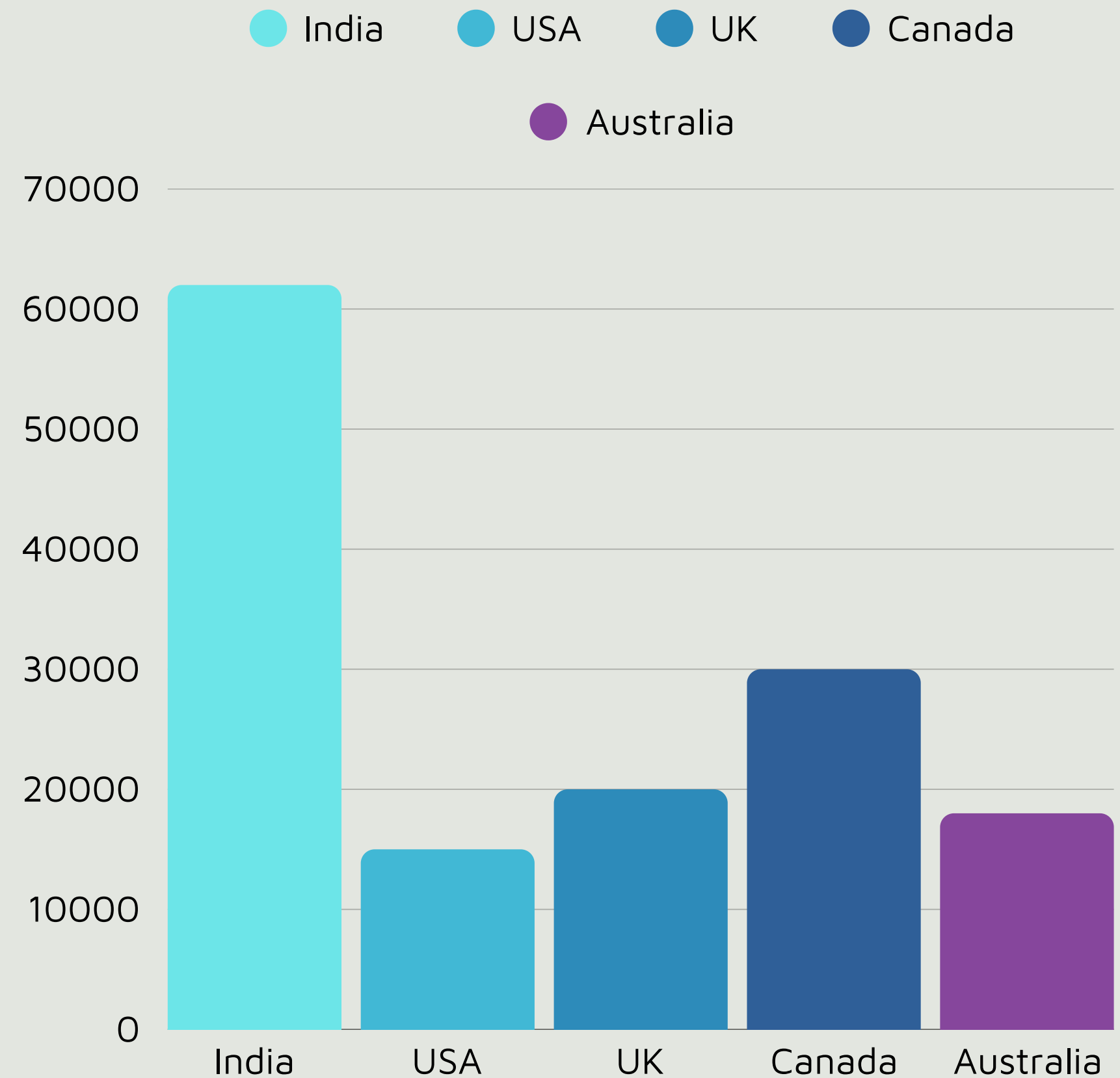
Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	CUST_CITY	NumberOfCustomers	TotalOutstanding
▶	New York	3	15000.00
	Toronto	3	24000.00
	Brisban	3	18000.00
	Mumbai	3	32000.00
	Chennai	3	28000.00
	Hampshair	1	5000.00
	San Jose	1	3000.00
	London	4	24000.00
	Bangalore	4	41000.00

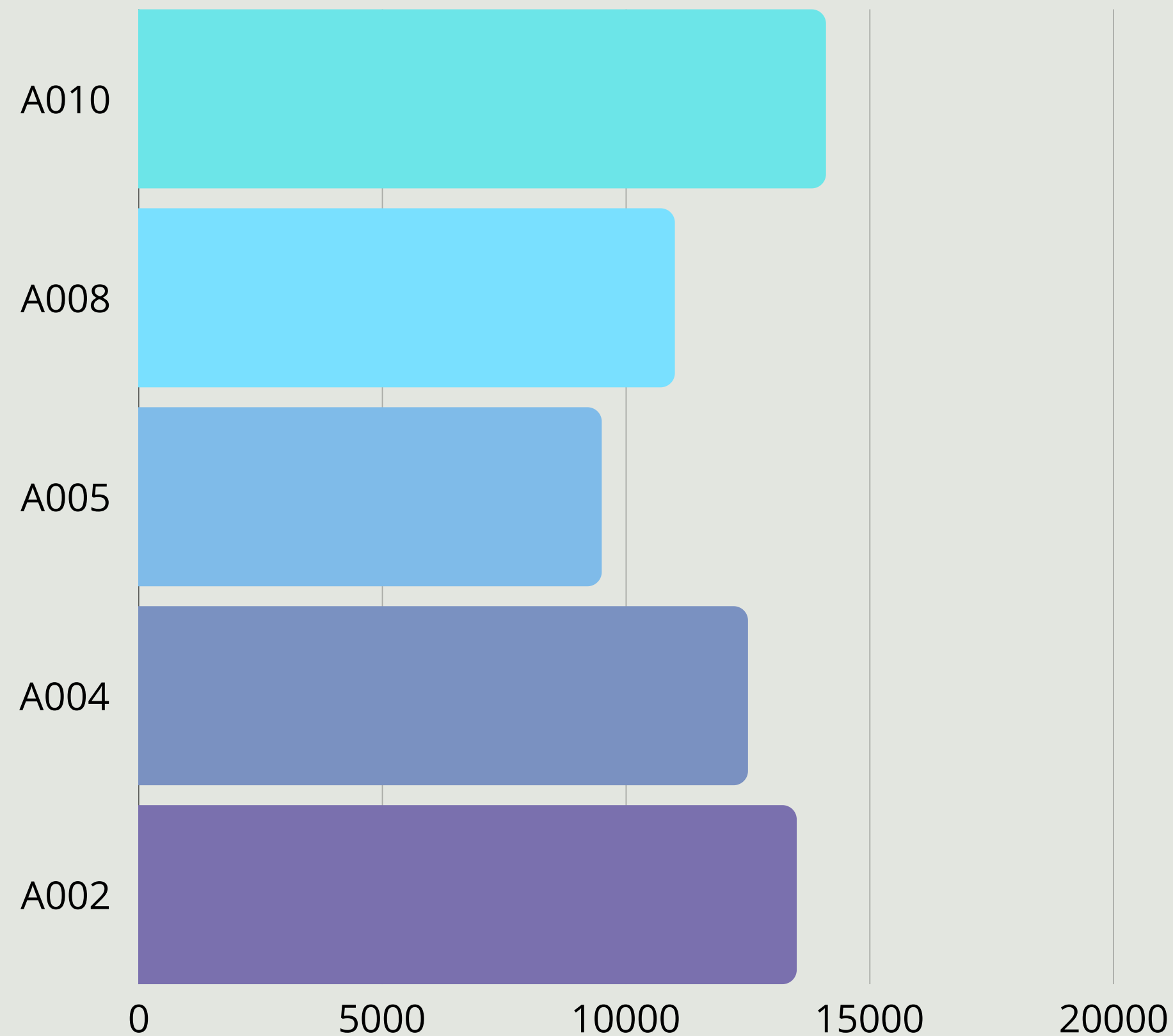
ADDITIONAL INSIGHTS

Total outstanding amount by Country

We gathered that India has the most outstanding amount while the USA has the least outstanding amount.



ADDITIONAL INSIGHTS



Top 5 agents by total sales

The top agent according to the sales made is A010



Thank You