

CSC2001F

Assignment 4



APRIL 12, 2018

NKSNKO010

NKOSINATHI NKOSI

Section A

a) Acct - id

CodeCategoryMap - code

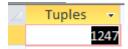
Spending – merchant

b) Spending.id Spending.code

Section B

1. Output the number of tuples in each of your 3 relations.

Acct- SELECT count(*) As Tuples FROM Acct;



Spending - SELECT count(*) As Tuples
FROM Spending;



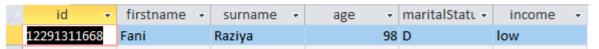
CodeCategoryMap - SELECT count(*) As Tuples
FROM CodeCategoryMap;



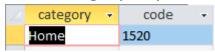
2.

Show any one complete tuple (just 1, no more) from each of your 3 relations

Acct -



CodeCategoryMap -



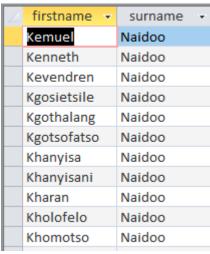
Spending -



3. List first name and surname of everyone with surname "Naidoo", in alphabetical order of first name.

SELECT firstname, surname

from Acct where surname="Naidoo" order by firstname ASC;



4. For each code 5511 transaction, give the transactionDate along with the VAT on that transition, where the VAT was 15% of the amount spent.

SELECT transactionDate,amount,ABS(amount*0.15) as VAT From Spending where code="5511";

| | | | <u> </u> |
|-----|----------------|----------|----------|
| 4 | transaction[🔻 | amount 🕝 | VAT - |
| | 2018/02/01 14: | -115 | 17,25 |
| | 2018/02/02 13: | -360 | 54 |
| | 2018/02/04 10: | -459,95 | 68,9925 |
| | 2018/02/05 6:4 | -550 | 82,5 |
| | 2018/02/06 8:1 | -84 | 12,6 |
| | 2018/02/06 11: | -2500 | 375 |
| ste | | | |

5. Show the firstname, surname, age, marital-status and income category of everyone who has any missing data in any of these fields.

SELECT firstname, surname, age, maritalStatus,income From Acct where firstname IS NULL or age=0 or maritalStatus IS NULL or income IS NULL or surname IS NULL;



6. Give the names of merchants who have had transactions of both codes 5111 and 2741.

SELECT Distinct merchant
FROM Spending
WHERE merchant IN (Select merchant from Spending where code="5111")
and merchant IN (Select merchant from Spending where code="2741");

merchant
m

7. Find the transactionDate and merchant associated with the highest amount in the database, along with that amount.

SELECT transactionDate,merchant,amount
FROM Spending where amount in(SELECT min(amount) from Spending);

transactionDate - merchant - amount - amo

8. How many people (ids) have any transaction amount that is higher than every amount ever spent by the person with id 12312870316?

SELECT DISTINCT COUNT(sp2.id) As NumberOfPeople FROM Spending AS sp1, Spending AS sp2
WHERE sp1.id="12312870316" AND sp2.amount >sp1.amount;
NumberOfPeople

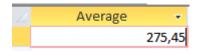
9. How many categories are there? (i.e. how many different category values?)

SELECT COUNT(DISTINCT category) AS CategoriesCount FROM CodeCategoryMap;



10. Give the average transaction amount (a single value in the answer)

Select ABS(Round(AVG(amount),2)) as Average FROM Spending;



11. Find the code range for each category (i.e. each result line will have category.

Select category, min(code) as Minimum,max(code) as Maximum From CodeCategoryMap group by category;

| 2 | category - | Minimum + | Maximum - |
|---|----------------|-----------|-----------|
| | Clothing | 5137 | 7296 |
| | Eat_Out | 5462 | 7311 |
| | Education | 2741 | 9402 |
| | Entertainment | 4899 | 7995 |
| | Gifts_Donation | 5045 | 8661 |
| | Groceries | 2000 | 5451 |
| | Health_Fitness | 5310 | 8699 |
| | Holiday_Trave | 3000 | 7991 |
| | Home | 1520 | 9399 |
| | Medical | 5047 | 8099 |
| | Pets | 4225 | 7998 |
| | Transport | 4784 | 7549 |

12. Find the largest transaction amount for each code that is associated with more than 50 transactions.

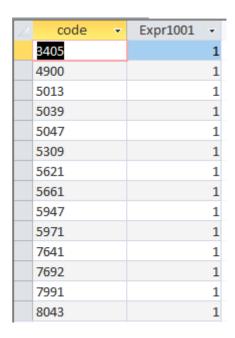
Select code, ABS (min(amount)) as AmountMax from Spending

group by code having count(amount)>50;

| 4 | code | v | AmountMax + |
|---|------|---|-------------|
| | 5111 | | 617,8 |
| | 5499 | | 3410 |
| | 5541 | | 2000,1 |
| | 5712 | | 6000 |
| | 5719 | | 18385,09 |
| | 5812 | | 3690 |
| | 5912 | | 7000 |
| | 5943 | | 1910,5 |
| | 7011 | | 2876,4 |
| | | | |

13. Which code(s) have the least number of transactions i.e. which code(s) have the fewest transactions?

Select code, count(*) from
(Select min(code1) as minCode from (Select count(code) as Code1 from
Spending
GROUP BY code)),Spending
group by code
having count(*) =min(minCode);



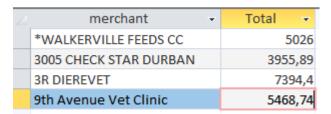
14. Show all information on all large transactions including the category involved. A large transaction is one with an amount that exceeds ten times the average transaction amount (e.g. if the average transaction amount is R100, a large transaction has an amount above R1000).

SELECT Spending.id, Spending.transactionDate, Spending.amount, Spending.merchant, CodeCategoryMap.category
FROM Spending INNER JOIN CodeCategoryMap ON Spending.code = CodeCategoryMap.code
where amount < (Select 10*avg(amount) from Spending);

| id → | transactionDate - | amount 👻 | merchant | × | category | * |
|-------------|-------------------|-----------|------------------------|---|-----------------|---|
| 12291743683 | 2018/02/01 20:10 | -3690 | 5TH AVE | | Gifts_Donations | |
| 12314566711 | 2018/02/02 11:09 | -3410 | 382522 ULTRA CITY PIET | | Gifts_Donations | |
| 12376294619 | 2018/02/08 6:07 | -7000 | *NETCARE HOLDINGS (PTY | | Health_Fitness | |
| 12328755357 | 2018/02/03 10:04 | -6000 | 4 D BEDDING CC | | Eat_Out | |
| 12314550122 | 2018/02/02 11:08 | -5299,9 | 849 - BT GAMES ILANGA | | Entertainment | |
| 12313442532 | 2018/02/02 9:30 | -3999,9 | 849 - BT GAMES CLEARWA | | Entertainment | |
| 12359393961 | 2018/02/06 11:11 | -6299,8 | 849 - BT GAMES MIMOSA | | Entertainment | |
| 12315064423 | 2018/02/02 11:52 | -2999,7 | 849 - BT GAMES MIMOSA | | Entertainment | |
| 12297034299 | 2018/02/01 10:09 | -5000 | 200 Baviaanspoortweg{# | | Entertainment | |
| 12299530095 | 2018/02/01 14:04 | -2876,4 | 54 ON BATH | | Holiday_Travel | |
| 12312298975 | 2018/02/02 7:43 | -2770 | 4 YOU HARDWARE NQAMAKW | | Home | |
| 12349843967 | 2018/02/05 11:02 | -4511 | 3 START HARDWARE OLIVE | | Home | |
| 12330362338 | 2018/02/03 12:22 | -5900 | 4 YOU HARDWARE WILLOWV | | Home | |
| 12312870316 | 2018/02/02 8:41 | -5000 | 4 YOU HARDWARE NQAMAKW | | Home | |
| 12327008160 | 2018/02/03 7:32 | -8152,44 | 000702 PENNY PINCHERS | | Home | |
| 12326817964 | 2018/02/03 7:13 | -18385,09 | @Home Secunda Mall | | Home | |
| 12379967451 | 2018/02/08 15:38 | -5999 | @Home Centurion 2 | | Home | |
| 12359703132 | 2018/02/06 11:55 | -8000 | *KK ROOFSHEETING CC | | Home | |
| 12349286107 | 2018/02/05 9:56 | -3000 | 5 STAR FURNITURE PTA | | Home | |
| 12297272968 | 2018/02/01 10:33 | -3545 | 1 STOP MOTOR SPARES | | Transport | |
| 12329107529 | 2018/02/03 9:32 | -4310,56 | 24 LADYMEAD | | Holiday Travel | |

15. Find the total amount spent on Pets for each merchant where there have been more than 10 transactions in the Pets category.

Select merchant, ABS(sum(amount)) as Total From Spending inner join CodeCategoryMap on CodeCategoryMap.code = Spending.code where category="pets" group by merchant having count(category)>10;



16. For each category, show how many such transactions there are in the database along with the total Rand amount of those transactions.

Select category,count(category) as Number_of_categories ,Round(sum(amount),2) as Total From Spending inner join CodeCategoryMap on CodeCategoryMap.code = Spending.code group by category;

| 0 | |) = 17 | |
|---|----------------|--------------------------|-------------|
| 4 | category - | Number_of _. - | Total - |
| | Clothing | 12 | -7000 |
| | Eat_Out | 122 | -67420,8 |
| | Education | 237 | -36653,09 |
| | Entertainment | 51 | -43350,61 |
| | Gifts_Donation | 599 | -49849,72 |
| | Groceries | 3 | -765,1 |
| | Health_Fitness | 4340 | -1123170,87 |
| | Holiday_Trave | 135 | -72976,86 |
| | Home | 237 | -167686,19 |
| | Medical | 31 | -8101,91 |
| | Pets | 101 | -31514,48 |
| | Transport | 38 | -18316,83 |
| | | | |

Section C

This query is meant to output the total sales in each category which are more than R1000.

This query does not need to be tested for correctness because all the absolute values of the output are more than 10000.

Select category, Total from

(select category, round(sum(amount),2) as Total

From Spending inner join CodeCategoryMap on CodeCategoryMap.code = Spending.code group by category order by sum(amount)) where abs(total) >=10000;

| 4 | category - | Total → |
|---|----------------|-------------|
| | Health_Fitness | -1123170,87 |
| | Home | -167686,19 |
| | Holiday_Trave | -72976,86 |
| | Eat_Out | -67420,8 |
| | Gifts_Donation | -49849,72 |
| | Entertainment | -43350,61 |
| | Education | -36653,09 |
| | Pets | -31514,48 |
| | Transport | -18316,83 |
| | | |

Section D

Delete all transactions from merchant 3@1 (however it may be spelt).

DELETE

FROM Spending where merchant like "%3@1%";

II. Insert a new transaction for id 12393560590 that took place at midnight on New Years Eve 2018 for an amount of R448. The code is 5251 but the merchant and description are not known

INSERT INTO Spending values("12393560590","2018/12/31 00:00","-448",Null,"5251")

III. Code 5211 purchases should have been coded 5221, so change 5211 to 5221

UPDATE Spending SET code ="5221" where code="5211";

| IV. | For everyone who is not M(married), add another row for them, which has their maritalStatus as U (unmarried) and has the values in all the other columns of their new extra row the same as in their original row. |
|-----|--|
| | Insert into account(select id,firstname,surname,age,"U",income From account Where maritalStatus!="M"); |
| | |
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