

SQL Challenge: You are given 2 tables: all_loans and all_loanhist, with the fields as shown in the select query.

```
select loanid,custid,approvedate,payoffdate,writeoffdate,amount from all_loans;  
select id,loanid,eowdate,totpaid,totprincpaid from all_loanhist;
```

Based on these 2 tables with their fields, provide the sql (in postgresql or other equivalent SQL):

1. Build a query to count the number of loans per customer.
2. Write a query to identify if a customer had more than one loan at the same time.
- 3a. Write a query to calculate how much payment is received from each customer in the 1st 6 months of them being a customer (across loans, if multiple loans are taken within their 1st 6 months).
- 3b. Also provide what % of principal was collected in the 1st 6 months from the customer.
4. Calculate the average rate of missing 1st payment by month of approvedate of loan.
- <Advanced> 5. Calculate the top 3 most profitable customers in the tables. Profitability is defined as percentage of total paid of loan amount.

Once you have the SQL code in github (DO NOT EMAIL BACK THE CODE, only github links), please send back the link and we can take a look.

Table and field definitions:

1. all_loans: Table containing loan level detail. One record per loan.
2. all_loanhist: Week level data of each loan - specifying by week the payments recieved and how much was controbuted to paying off the principal.

Table Name:	all_loans
Table Definition:	Table containing loan level detail. One record per loan.
Fields:	Description
loanid	Unique identifier for each loan
custid	Unique identifier for each customer (A customer could have multiple loans)
approvedate	Date on which the loan was approved/funded
payoffdate	Date on which the loan was paid off (if paid off - i.e. the customer closed the loan by paying in full the loan)

writeoffdate	Date on which the loan was written off (if writtten off - i.e. the customer could not pay the loan and thus had to be written off)				
amount	Loan amount that was issued to the customer in this loan.				
Example Values					
loanid	custid	approvedate	payoffdate	writeoffdate	amount
100	1	2016/01/01	2016/04/20		\$500
101	2	2016/01/10	2016/05/01		\$800
102	6	2016/02/07		2016/04/20	\$1,200
103	7	2016/02/07		2016/03/15	\$1,500
104	1	2016/05/01		2016/09/15	\$1,300
105	10	2016/10/25		2017/10/01	\$900

Table Name	all_loanhist				
Table Definition:	Week level data of each loan - specifying by week the payments recieved and how much was contrtributed to paying off the principal.				
Fields:	Description				
id	Unique row identifier				
loanid	Unique identifier for each loan				
eowdate	Date for this record				
amount_paid	Amount paid towards the loan during this week				
principal_paid	Of the total paid, amount that goes towards the principal payment during this week				
Example Values					
id	loanid	eowdate	amount_paid	principal_paid	
1	100	2016/01/07	50	10	
2	100	2016/01/14	50	12	
3	101	2016/01/14	75	15	
4	100	2016/01/21	50	12	
5	101	2016/01/21	75	17	