**Setting   
  
data** – All **servicing** repayments after 1.10.2023   
\* filter out repayments showing balance < amount, because of the bug that didn’t check balance for two straight payments but 1 (30 rows with 8 R01s).

**Solution approach** – Creating features to be used by a decision tree to make policy for preventing R01s.

**Names and Definitions**

**days since failed payment** – amount of days since the latest user got failed status in repayment.

**balance amount ratio:** balance / amount (rounded 0.05/0.00)**.**

**days since NSF**: amount of days since latest NSF of user in repayment .

**Is on demand**: not scheduled payment

**User R01 prop**: (count R01s) / (count distinct repayments ids) - prior to "this" repayment

**Rent R01 prop**: (count R01s) / (count distinct repayments ids) - prior to "this" repayment

**days from previous repayment:** amount of days since latest user repayment.

**Capital One:** institution name is Capital One.

**days since rent date:** days diffrance with repayment collection and rent transaction rent date (usually the 1st in each loan month)

**appfolio:** Tennent portal is appfolio

**Policy Rules**

**Case 1:**   
IF:   
User have a **Failed** Payment less ( < ) then 5 days ago

& Is **NOT** Cpital One customer

& balance is less then ( < ) 17,923 (cents)

& **User** NSF proportion is greater ( > ) then 0.5

**Then: don’t attempt to charge   
R01s amount: 6   
R01s propotion: 0.85**

**case 2:**   
IF:   
User have a **Failed** Payment less ( < ) then 5 days ago

& **Is a Capital One** customer

& More than 28 days since **rent date** ( > 28th)  
  
**then don’t attempt to charge  
R01s amount: 12   
R01s propotion: 0.8**

**case 3:**   
IF:   
User have a **Failed** Payment less ( < ) then 5 days ago

& **Is a Capital One** customer

& Less than 28 days since rent date ( <= 28th)

& [ [ Is appfolio customer ] **OR** [ age is less then ( <= ) 34 ] ]  
  
**then don’t attempt to charge**  
**R01s amount: 10   
R01s proportion: 0.5**

**case 4:**   
If days since failed payment > 4.5 days

**&** days\_from\_previous\_repayment <= 2.5

**&** amount\_balance\_ratio <= 1.459

**& Rent** NSF proportion less then 0.1

**&** amount\_balance\_ratio <= 1.061

& amount\_balance\_ratio > 1.035

**then don’t attempt to charge**  
**R01s amount: 8   
R01s proportion: 1.0**

**case 5:**  
If days since failed payment > 4.5 days

**&** days\_from\_previous\_repayment <= 2.5

**&** amount\_balance\_ratio <= 1.459

**& Rent** NSF proportion less then 0.1

**&** amount\_balance\_ratio > 1.061

& **User** NSF proportion >= 0.15

**then don’t attempt to charge**  
**R01s amount: 4**

**R01s proportion: 0.66**

**case 6:**   
If days since failed payment > 4.5 days

**&** days\_from\_previous\_repayment <= 2.5

**&** amount\_balance\_ratio <= 1.459

**& Rent** NSF proportion > 0.1

**&** repayment time created and collected are in the same day (within the date on created)

& weekday is 1,2 (Monday and Tuesday )

**then don’t attempt to charge**  
**R01s amount: 7   
R01s propotion: 0.58**

**Optional data for further investigation -   
  
with plaid transaction data on all January repayments users (not just R01) we could create features based on this data such as:**   
  
ratio money in / money out ,   
ratio monthly spent / monthly rent amount ,   
amount and count of in between accounts transactions ( how much money user "bounces" between different accounts),  
days since income ,   
other loan payment ratio – other loan payments amount / our amount ,   
amount of other R01 gotten ,