Using Python to improve the efficiency on generating report for the program team and the accounting team

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Background of this project

A non-for-profit organization operates programs for intellectual developmental disability patients. Every week the fiscal team receives the remittance data from Medicaid, and the team needs to analyze the data, and reports it to the bookkeeping team and the program operation team. Before using Python, the accounting team needs to spend about one hour to organize and analyze the data using Excel. Also, the report generated by Excel has limited insight to the program operation team to improve the billing process. In order to improve the efficiency and optimize the usage of remittance data, the accounting team decides to use Python script to generate remittance report.
Data used in this project has been manipulated and randomized.

To start, please enter the csv file name below.

```
Please enter the csv file name, and end with [.csv]:010620.csv
```

The following table shows the column names and their data types. However, not all the columns would be used by the accounting team for analyzing the remittance.

```
Out[103]:  remit_filename              object
           sequence_no                  int64
           batch_no                     int64
           remit_number                 int64
           invoice                      int64
                                        ...
           group_reason_code           object
           authorization_number       float64
           ssno                       float64
           pat_responsiblity_amount     int64
           is_first_line                int64
           Length: 91, dtype: object
```

WEEKLY REMITTANCE REPORT - TO EXECUTIVES AND PROGRAM DIRECTORS

> This section gives basic information of the weekly remittance summary of different programs, by showing the amounts that were claimed, paid, and denied, with denial percentage. It also shows the list of clients that were not fully paid, with corresponding claim adjustment reason codes (the remit codes) and the remark codes. The billing specialist can contact the insurance company and rebill the clients based on their codes.

BASIC INFO

```
1/6/2020 8:51:55 AM was the remit posting time.
Total line read is 83

Total payment will be received of the week is $ 1372.5
Total denial amount is $ 1681.2
Total claimed amount is $ 3053.71
```

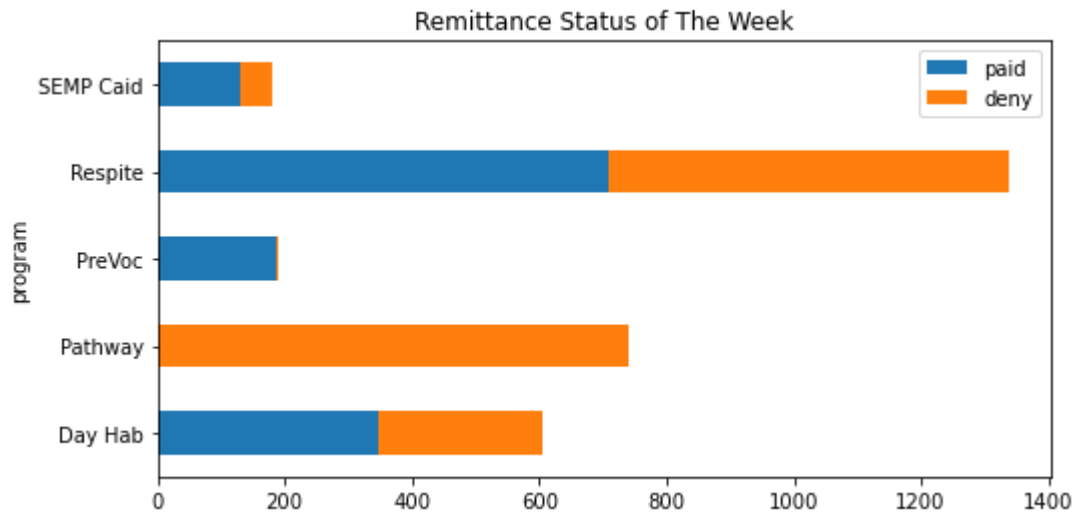## PAYMENT ANALYSIS

```
1.Summary
          claimed    paid    deny
program
Day Hab    605.93  348.38  257.55
Pathway    741.37    0.00  741.37
PreVoc     189.07  186.55    2.52
Respite   1337.60  709.19  628.41
SEMP Caid  179.75  128.39   51.36
```

```
2.Detail
                  claimed    paid    deny   paid %
program    month
Day Hab    201902   257.55    0.00  257.55    0.00
           201912   348.38  348.38    0.00  100.00
Pathway    201901   741.37    0.00  741.37    0.00
PreVoc     201908     2.52    0.00    2.52    0.00
           201910   186.55  186.55    0.00  100.00
Respite    201907   908.85  481.87  426.98   53.02
           201908   428.75  227.32  201.43   53.02
SEMP Caid  201910   179.75  128.39   51.36   71.43
```

Out[107]: Text(0.5, 1.0, 'Remittance Status of The Week')

CLIENT ANALYSIS

Client that were denied (by programs):

name	program	month	claimed	paid	deny	paid %
Ahm*d	PreVoc	201908	2.52	0.00	2.52	0.00
B*kk*r	Respite	201907	205.39	108.90	96.49	53.02
		201908	207.96	110.26	97.70	53.02
D****	SEMP Caid	201910	51.36	0.00	51.36	0.00
	Pathway	201901	741.37	0.00	741.37	0.00
J*h*s**	Respite	201907	179.72	95.28	84.43	53.02
M**t*s	Respite	201908	220.79	117.06	103.73	53.02
		201907	302.95	160.62	142.33	53.02
O**	Day Hab	201902	257.55	0.00	257.55	0.00
Th*m*sch*k	Respite	201907	220.79	117.06	103.73	53.02

REMARK AND REMIT CODE REPORT

1. REMARK CODE BY PROGRAMS:

program	remark #	name	claimed	paid	deny
Pathway	N30	D****	741.37	0.0	741.37
PreVoc	N30	Ahm*d	2.52	0.0	2.52
Respite	M86	B*kk*r	206.67	0.0	206.67
		J*h*s**	89.86	0.0	89.86
		M**t*s	261.87	0.0	261.87
		Th*m*sch*k	110.40	0.0	110.40
SEMP Caid	N30	D****	51.36	0.0	51.36

2. REMIT CODE BY PROGRAMS:

program	remit #	name	claimed	paid	deny
Day Hab	200.0	O**	257.55	0.00	257.55
Pathway	96.0	D****	741.37	0.00	741.37
PreVoc	96.0	Ahm*d	2.52	0.00	2.52
Respite	45.0	B*kk*r	206.67	219.15	-12.48
		J*h*s**	89.86	95.28	-5.43
		M**t*s	261.87	277.69	-15.81
		Th*m*sch*k	110.40	117.06	-6.67
	97.0	B*kk*r	206.67	0.00	206.67
		J*h*s**	89.86	0.00	89.86
		M**t*s	261.87	0.00	261.87
		Th*m*sch*k	110.40	0.00	110.40
SEMP Caid	96.0	D****	51.36	0.00	51.36

References

Claim Adjustment Reason Codes:

B1 Non-covered visits.

15 Payment adjusted because the submitted authorization number is missing

16 Claim/service lacks information which is needed for adjudication.

24 Payment for charges adjusted. Charges are covered under a capitation agreement/managed care plan.

29 The time limit for filing has expired.

45 Charges exceed your contracted/ legislated fee arrangement.

96 Non-covered charge(s).

97 Payment is included in the allowance for another service/procedure.

200 no description found

Remark Codes:

MA39 Missing/incomplete/invalid gender.

M49 Missing/incomplete/invalid value code(s) or amount(s).

M62 Missing/incomplete/invalid treatment authorization code.

M86 Service denied because payment already made for same/similar procedure within set time frame.

N216 Patient is not enrolled in this portion of our benefit package.

N30 Patient ineligible for this service.

N340 Missing/incomplete/invalid subscriber birth date.

PAYMENTS SUMMARY BY DATE OF SERVICES

```
Showing payment summary by date of service? (yes/no): yes

                        paid
program    date
Day Hab    12/12/2019    87.09
           12/13/2019    43.55
           12/16/2019    43.55
           12/17/2019   130.64
           12/18/2019    43.55
PreVoc     10/23/2019    30.23
           10/24/2019    30.26
           10/28/2019    40.31
           10/29/2019    30.26
           10/30/2019    25.22
           10/31/2019    30.26
Respite    7/13/2019    123.87
           7/20/2019    127.95
           7/27/2019     98.01
           7/6/2019     132.04
           8/10/2019     68.06
           8/17/2019     27.22
           8/24/2019     66.70
           8/3/2019      65.34
SEMP Caid 10/10/2019     47.08
           10/15/2019    64.20
           10/29/2019    17.12
```

PAYMENTS SUMMARY BY NAME THEN DATE OF SERVICES

```
Showing payment summary by name then date of service? (yes/no): no
```

WEEKLY REMITTANCE REPORT - TO ACCOUNTING AND BOOKKEEPING TEAM

> This section gives basic information of the weekly remittance summary of different programs, by showing the amounts that were claimed, paid, and denied, with denial percentage. Since some of the programs have different cost centers, the fiscal team need to allocate the payments into different cost centers before sending the report to the bookkeeping team. On the report, the fiscals need to write down the descriptions for the bookkeepers to post on the general ledger system.

BASIC INFO

```
Total payment will be received of the week is $ 1372.5
```

PREVIEW DETAILS

```
                  claimed    paid    deny   paid %
program    month
Day Hab    201912    348.38  348.38    0.00  100.00
PreVoc     201910    186.55  186.55    0.00  100.00
Respite    201907    908.85  481.87  426.98   53.02
           201908    428.75  227.32  201.43   53.02
SEMP Caid 201910    179.75  128.39   51.36   71.43
```

> The preview details section shows the remittance payment received at this week. According to the billing circle, when some programs receive big payments at a certain month, the programs would need to allocate the payments to different cost centers. In this remittance, we received the Medicaid payments from 5 programs: Day Hab, Pathway, PreVoc, Respite, and SEMP(Caid). Among these programs, Day Hab, Pathway, and SEMP have multiple cost centers. Therefore, in the Python script below, we enable an option for payment allocation for these 3 programs. The payment allocation amount depends on the estimated revenue given by the program operation staff, and the revenue is booked before we received the actual payment.

NOTICE TO BOOKKEEPING TEAM

```
Payment allocation for monthly billing needed? (yes/no): no

      program  fy   month    cc              description      paid
0     Day Hab  20  201912  DHCC1    Day Hab 20 P7 201912    348.38
1      PreVoc  20  201910  PVCC1     PreVoc 20 P7 201910    186.55
2     Respite  20  201907  RPCC1    Respite 20 P7 201907    481.87
3     Respite  20  201908  RPCC1    Respite 20 P7 201908    227.32
4   SEMP Caid  20  201910  SCCC1  SEMP Caid 20 P7 201910    128.39
```