

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

Sixian Chen

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LinkedIn: <http://linkedin.com/in/seashane-sixian-chen> (<http://linkedin.com/in/seashane-sixian-chen>)

## 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]:091619.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[35]: remit_filename      object
sequence_no      int64
batch_no         int64
remit_number     int64
invoice          int64
line_no         int64
account         float64
first_name      object
last_name       object
mi              object
patient_name    object
reference_no     int64
check_no        int64
company_code    float64
payor_id        float64
insurance_id     object
remit_code      float64
remit_code_desc object
remit_status    object
transaction_date object
transaction_type int64
amount          float64
tot_charge_paid float64
tot_charge_deny float64
tot_charge_pend int64
claim_paid      int64
claim_deny      int64
claim_pend      int64
amount_paid     float64
amount_adj      float64
approved_amount int64
coinsurance_amount int64
coinsurance_code float64
deductible_amount int64
posted          object
proc_code       int64
date_of_service object
date_of_service_thru object
provider_id     float64
locator_code    float64
medicaid_specialty_code float64
remit_receipt_date object
remit_posting_date object
claim_processor object
remark_code     object
remark_code_desc object
provider_code   float64
provider_name   float64
remark_code_2   float64
remark_code_3   float64
remark_code_4   float64
remark_code_5   float64
remark_code_all object
office_location float64
inv_line        object
remit_set_number int64

```

check_amount	int64
tot_charge_adj	int64
auto_xover_payor	float64
auto_xover_payor_id	float64
date_of_service_yyyymm	int64
location_class	float64
service_name	float64
service_class	float64
pos_code	float64
accept_assignment	object
adjustment_amount	float64
adjustment_reason	float64
adjustment_ref_no	float64
adjustment_amount_2	float64
adjustment_reason_2	float64
adjustment_ref_no_2	float64
adjustment_amount_3	float64
adjustment_reason_3	float64
adjustment_ref_no_3	float64
adjustment_amount_4	float64
adjustment_reason_4	float64
adjustment_ref_no_4	float64
adjustment_amount_5	float64
adjustment_reason_5	float64
adjustment_ref_no_5	float64
adjustment_amount_6	float64
adjustment_reason_6	float64
adjustment_ref_no_6	float64
grpamt	float64
adj_group_code	object
group_reason_code	object
authorization_number	float64
ssno	float64
pat_responsibility_amount	int64
is_first_line	int64
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

9/16/2019 8:43:32 AM was the remit posting time.

Total line read is 3534

Total payment will be received of the week is \$ 2169187.28

Total denial amount is \$ 78679.79

Total claimed amount is \$ 2247867.07

## PAYMENT ANALYSIS

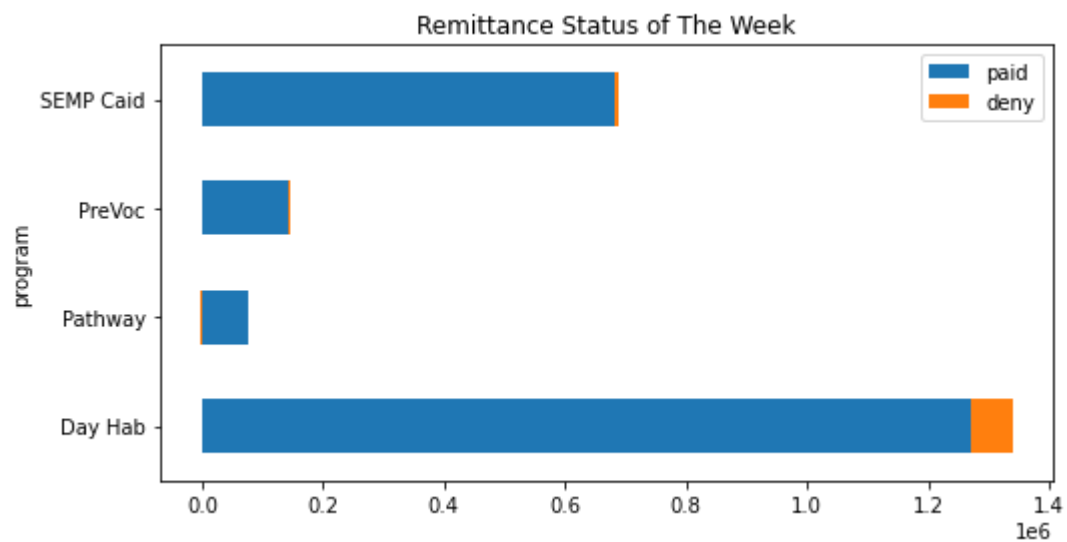
### 1.Summary

	claimed	paid	deny
program			
Day Hab	1339074.53	1268926.58	70147.94
Pathway	74679.35	77661.67	-2982.32
PreVoc	144835.17	142248.93	2586.24
SEMP Caidd	689278.02	680350.10	8927.92

### 2.Detail

program	month	claimed	paid	deny	paid %
Day Hab	201801	2856.70	0.00	2856.70	0.00
	201802	5119.30	0.00	5119.30	0.00
	201803	5850.63	0.00	5850.63	0.00
	201804	5850.63	0.00	5850.63	0.00
	201805	16089.24	8181.00	7908.24	50.85
	201806	16733.86	10040.32	6693.54	60.00
	201807	17849.45	12477.66	5371.79	69.91
	201808	9668.45	9541.74	126.71	98.69
	201809	7065.41	6972.81	92.60	98.69
	201810	18221.32	17982.52	238.80	98.69
	201811	15046.60	15046.60	0.00	100.00
	201812	7706.79	7706.79	0.00	100.00
	201901	12477.66	12659.00	-181.33	101.45
	201902	12110.67	12286.63	-175.95	101.45
	201903	9174.75	9308.05	-133.30	101.45
	201904	11914.18	11914.18	0.00	100.00
	201905	8935.80	8935.80	0.00	100.00
	201906	14147.85	0.00	14147.85	0.00
	201907	1137042.86	1120661.13	16381.72	98.56
	201908	5212.37	5212.37	0.00	100.00
Pathway	201907	74679.35	77661.67	-2982.32	103.99
PreVoc	201907	144835.17	142248.93	2586.24	98.21
SEMP Caidd	201903	1756.31	0.00	1756.31	0.00
	201907	687521.71	680350.10	7171.61	98.96

Out[39]: 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 %
A**m	Day Hab	201809	5206.09	5137.86	68.23	98.69
		201810	5949.82	5871.84	77.98	98.69
		201808	6693.54	6605.82	87.72	98.69
		201801	2856.70	0.00	2856.70	0.00
		201802	5119.30	0.00	5119.30	0.00
		201805	5119.30	0.00	5119.30	0.00
		201807	6693.54	1467.96	5225.58	21.93
		201803	5850.63	0.00	5850.63	0.00
		201804	5850.63	0.00	5850.63	0.00
		201806	6693.54	0.00	6693.54	0.00
A*str**	Day Hab	201906	13403.23	0.00	13403.23	0.00
Ahm*d	Day Hab	201907	744.62	0.00	744.62	0.00
	PreVoc	201907	2586.24	0.00	2586.24	0.00
B*kk*r	Day Hab	201907	15637.10	0.00	15637.10	0.00
D****	SEMP Caid	201907	7171.61	0.00	7171.61	0.00
D**m***	Day Hab	201810	11155.91	11009.70	146.20	98.69
M**t*s	Day Hab	201906	744.62	0.00	744.62	0.00
M*tch***r	SEMP Caid	201903	1756.31	0.00	1756.31	0.00
S*rt*r*	Day Hab	201810	1115.59	1100.97	14.62	98.69
		201809	1859.32	1834.95	24.37	98.69
		201808	2974.91	2935.92	38.99	98.69
		201807	11155.91	11009.70	146.20	98.69
		201805	10969.94	8181.00	2788.94	74.58

## REMARK AND REMIT CODE REPORT

## 1. REMARK CODE BY PROGRAMS:

			claimed	paid	deny
program	remark #	name			
Day Hab	N30	Ahm*d	744.62	0.0	744.62
		B*kk*r	15637.10	0.0	15637.10
PreVoc	N30	Ahm*d	2586.24	0.0	2586.24
SEMP Caidd	N30	D****	7171.61	0.0	7171.61

## 2. REMIT CODE BY PROGRAMS:

			claimed	paid	deny
program	remit #	name			
Day Hab	29.0	A**m	36696.21	0.00	36696.21
		S*rt*r*	2925.32	0.00	2925.32
	45.0	A**m	28144.67	28018.97	125.70
		D**m***	36111.24	36327.89	-216.65
		S*rt*r*	25150.34	25062.54	87.80
	96.0	Ahm*d	744.62	0.00	744.62
		B*kk*r	15637.10	0.00	15637.10
	200.0	A*str**	13403.23	0.00	13403.23
		M**t*s	744.62	0.00	744.62
Pathway	45.0	A****	1408.54	1465.93	-57.39
		A**m	6300.04	6557.40	-257.36
		A*st**	1379.85	1465.93	-86.08
		B*ss**	2685.04	2794.44	-109.40
		F***d	4445.72	4626.85	-181.14
		F*tt*r	3169.22	3298.35	-129.13
		G*****Ort*z	4929.90	5130.77	-200.86
		Gr*ss	4225.63	4397.80	-172.17
		H***	8671.35	9024.65	-353.31
		H**r*	5067.57	5183.09	-115.52
		H*r***d*z	6998.70	7283.86	-285.16
		L**r**	4137.60	4306.18	-168.58
		M*rt***z	484.19	503.91	-19.73
		P***	8407.24	8749.79	-342.54
		R*dr*g**z	1056.41	1099.45	-43.04
		S*m****g*	748.29	778.78	-30.49
		Sm*th	2597.00	2702.81	-105.81
		T*r*d*	7967.07	8291.68	-324.61
PreVoc	96.0	Ahm*d	2586.24	0.00	2586.24
SEMP Caidd	96.0	D****	7171.61	0.00	7171.61
	200.0	M*tch***r	1756.31	0.00	1756.31

## 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

program	date	paid
Day Hab	1/10/2019	372.33
	1/11/2019	1116.96
	1/14/2019	1116.96
	1/15/2019	372.33
	1/16/2019	372.33
	1/17/2019	372.33
	1/18/2019	1116.96
	1/2/2019	372.33
	1/22/2019	372.33
	1/23/2019	372.33
	1/24/2019	372.33
	1/25/2019	1116.96
	1/28/2019	744.62
	1/29/2019	372.33
	1/3/2019	372.33
	1/30/2019	372.33

#### PAYMENTS SUMMARY BY NAME THEN DATE OF SERVICES



	7/15/2019	744.62
	7/16/2019	744.62
	7/17/2019	744.62
	7/25/2019	744.62
	7/26/2019	744.62
	7/29/2019	744.62
	7/30/2019	744.62
	7/31/2019	744.62
A**h**s*	7/1/2019	744.62
	7/12/2019	744.62
	7/15/2019	744.62
	7/22/2019	744.62
	7/26/2019	744.62
	7/29/2019	744.62
	7/5/2019	744.62
	7/8/2019	744.62
A**m	1/11/2019	744.62
	1/14/2019	744.62
	1/18/2019	744.62
	1/25/2019	744.62

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 \$ 2169187.28

PREVIEW DETAILS

		claimed	paid	deny	paid %
program	month				
Day Hab	201805	16089.24	8181.00	7908.24	50.85
	201806	16733.86	10040.32	6693.54	60.00
	201807	17849.45	12477.66	5371.79	69.91
	201808	9668.45	9541.74	126.71	98.69
	201809	7065.41	6972.81	92.60	98.69
	201810	18221.32	17982.52	238.80	98.69
	201811	15046.60	15046.60	0.00	100.00
	201812	7706.79	7706.79	0.00	100.00
	201901	12477.66	12659.00	-181.33	101.45
	201902	12110.67	12286.63	-175.95	101.45
	201903	9174.75	9308.05	-133.30	101.45
	201904	11914.18	11914.18	0.00	100.00
	201905	8935.80	8935.80	0.00	100.00
	201907	1137042.86	1120661.13	16381.72	98.56
	201908	5212.37	5212.37	0.00	100.00
Pathway	201907	74679.35	77661.67	-2982.32	103.99
PreVoc	201907	144835.17	142248.93	2586.24	98.21
SEMP Caidd	201907	687521.71	680350.10	7171.61	98.96

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): yes

	program	fy	month	cc	description			paid
0	Day Hab	18	201805	Multi	Day Hab	18 P3 201805	8181.00	
1	Day Hab	18	201806	Multi	Day Hab	18 P3 201806	10040.32	
2	Day Hab	19	201807	Multi	Day Hab	19 P3 201807	12477.66	
3	Day Hab	19	201808	Multi	Day Hab	19 P3 201808	9541.74	
4	Day Hab	19	201809	Multi	Day Hab	19 P3 201809	6972.81	
5	Day Hab	19	201810	Multi	Day Hab	19 P3 201810	17982.52	
6	Day Hab	19	201811	Multi	Day Hab	19 P3 201811	15046.60	
7	Day Hab	19	201812	Multi	Day Hab	19 P3 201812	7706.79	
8	Day Hab	19	201901	Multi	Day Hab	19 P3 201901	12659.00	
9	Day Hab	19	201902	Multi	Day Hab	19 P3 201902	12286.63	
10	Day Hab	19	201903	Multi	Day Hab	19 P3 201903	9308.05	
11	Day Hab	19	201904	Multi	Day Hab	19 P3 201904	11914.18	
12	Day Hab	19	201905	Multi	Day Hab	19 P3 201905	8935.80	
13	Day Hab	20	201907	Multi	Day Hab	20 P3 201907	1120661.13	
14	Day Hab	20	201908	Multi	Day Hab	20 P3 201908	5212.37	
15	Pathway	20	201907	Multi	Pathway	20 P3 201907	77661.67	
16	PreVoc	20	201907	PVCC1	PreVoc	20 P3 201907	142248.93	
17	SEMP Caidd	20	201907	Multi	SEMP Caidd	20 P3 201907	680350.10	

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Allocation for Day Hab? (yes/no): yes

What is the month for this payment? yyyyymm: 201907

>>Payment allocates to cost center DHCC2: 10000

>>Payment allocates to cost center DHCC3: 20000

>>Payment allocates to cost center DHCC4: 30000

>>Payment allocates to cost center DHCC5: 40000

>>Payment allocates to cost center DHCC1 (Default cost center): 1020661.13

DayHab payments other than 201907 's billing should be posted under cost center DHCC1

(if there are any).

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Allocation for SEMP? (yes/no): yes

What is the month for this payment? yyyyymm: 201907

>>Payment allocates to cost center SCCC2: 50000

>>Payment allocates to cost center DHCC1 (Default cost center): 630350.1

SEMP payments other than 201907 's billing should be posted under cost center DHCC1

(if there are any).

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Allocation for Pathway? (yes/no): yes

What is the month for this payment? yyyyymm: 201907

>>Payment allocates to cost center PWCC2: 60000

>>Payment allocates to cost center PWCC1 (Default cost center): 17661.67

Pathway payments other than 201907 's billing should be posted under cost center PWCC1

(if there are any).

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