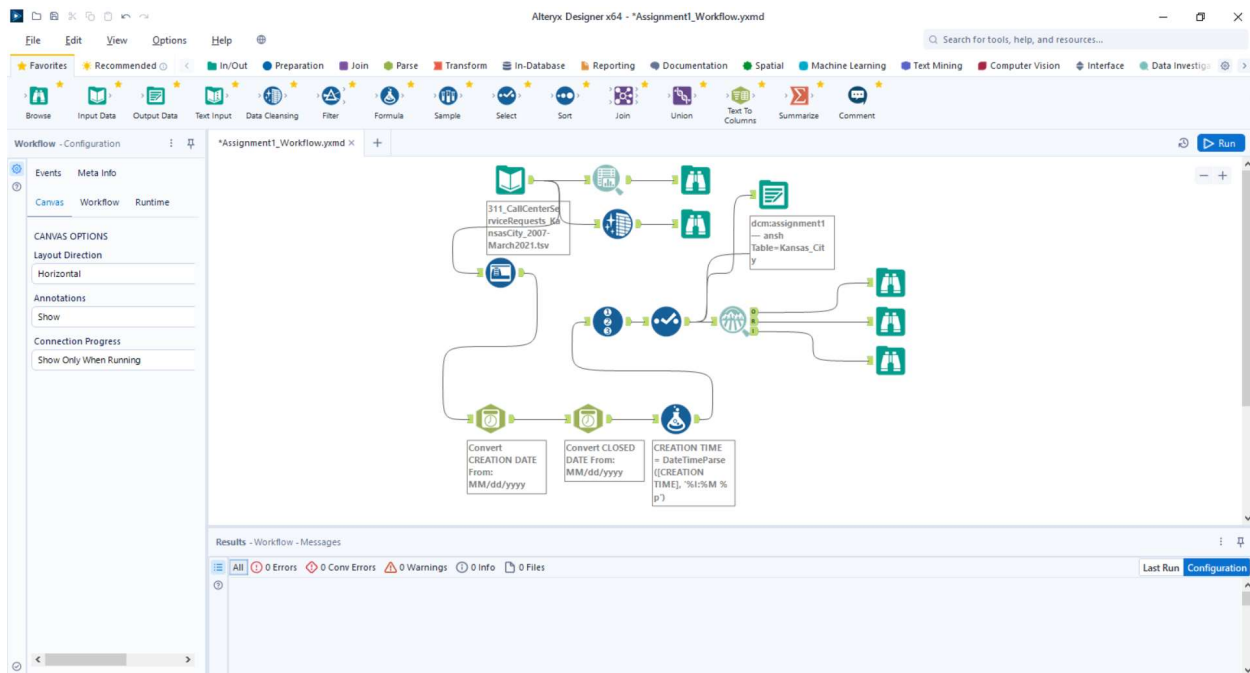


DAMG 7370 Assignment 1

Alteryx Workflow



The following inconsistencies were noted in the data:

- Date format in creation date and closed date was different, the date format was changed to MM/dd/YYYY
- All the datatypes were initially V_String, using auto field the data types were changed
- The time format was not standardized, using function the time was changed to 24 hours to drop AM and PM
- All white spaces, tabs and unwanted characters were removed in data cleansing
- RecordID was generated and auto incremented by 1 to create a unique key for our dataset

SQL Queries

1. Service Requests Over Time

```
SELECT YEAR(Creation_Date) AS Year, COUNT(*) AS Service_Request_Count
FROM Kansas_City
WHERE YEAR(Creation_Date) BETWEEN 2018 AND 2021
GROUP BY YEAR(Creation_Date)
ORDER BY Year;
```

	Year	Service_Request_Count
1	2018	124280
2	2019	166021
3	2020	125906
4	2021	19683

2. Volume of service requests received from different sources

```
SELECT SOURCE, COUNT(*) AS Service_Request_Count
FROM Kansas_City
GROUP BY SOURCE
ORDER BY Service_Request_Count DESC;
```

	SOURCE	Service_Request_Count
1	PHONE	1204236
2	WEB	211721
3	EMAIL	80585
4	SYS	19226
5	INSPE	14690
6	BOT	13396
7	TWIR	8311
8	VOICE	6021
9	WALK	1792
10	FAX	1538
11	KCEPD	590
12	EIP	347
13	MAIL	323
14	EDC	228
15	NULL	67
16	CMO	59
17	SPNSH	24
18	CTI	23
19	BIZ	12
20	KCMPD	12
21	KCEPS	9
22	KCSPD	5

3. Volume of service requests received by Department

```
SELECT DEPARTMENT, COUNT(*) AS Service_Request_Count
FROM Kansas_City
GROUP BY DEPARTMENT
ORDER BY Service_Request_Count DESC;
```

	DEPARTMENT	Service_Request_Count
1	NHS	783094
2	Public Works	353787
3	Water Services	216852
4	Parks and Rec	87954
5	Health	39543
6	KCPD	36369
7	City Managers Office	13098
8	City Planning and Development	12575
9	Northland	8591
10	NCS	6391
11	Finance	1616
12	Parks & Rec	861
13	Fire	612
14	General Service	518
15	Municipal Court	379
16	Housing Community Dev	342
17	South	309
18	Aviation	151
19	Convention and Entertainment Center	59
20	Mayors Office	37
21	Northeast	35
22	Information Technology	24
23	Parks & Recreation	11
24	City Council	3
25	City Clerks Office	2
26	IT	1
27	Human Resources	1

5. Geographical Visualization:

```

SELECT TOP 10 [ZIP_CODE]
FROM Kansas_City
GROUP BY [ZIP_CODE]
ORDER BY [ZIP_CODE] DESC;

```

	ZIP_CODE
1	66203
2	64444
3	64167
4	64166
5	64165
6	64164
7	64163
8	64161
9	64160
10	64158

6. Departmental Workload Comparison

```
SELECT DEPARTMENT, [WORK GROUP], COUNT(*) AS Service_Request_Count
FROM Kansas_City
GROUP BY DEPARTMENT, [WORK GROUP];
```

	DEPARTMENT	WORK GROUP	Service_Request_Count
1	NHS	NHS-Solid Waste-Illegal Dumping	11817
2	Parks and Rec	Parks and Rec-South Region-	3138
3	Public Works	Public Works-Capital Projects-Traffic Control	12636
4	Health	Health-Noise Control-	4101
5	NHS	NHS-Property Preservation-	463
6	Parks & Rec	Parks & Rec-Landscape Services-ROWWeeds	38
7	Public Works	Public Works-Facilities Maintenance-	15
8	Water Services	Water Services-Industrial Waste Control-	106
9	Parks and Rec	Parks and Rec-Landscape Services-Landscaping	126
10	City Managers Office	City Managers Office-311 Call Center-Support	8106
11	Parks and Rec	Parks and Rec-Landscape Services-Forestry Tech	3492
12	Public Works	Public Works-Street and Traffic-District 1	19239
13	Water Services	Water Services-Laboratory Services-	4002
14	Public Works	Public Works-Capital Projects-	1125
15	Water Services	Water Services-Stormwater Investigations	149
16	City Managers Office	City Managers Office-311 Call Center-Administratio	397
17	NHS	NHS-Tow Services-	2016
18	Health	Health-Community Environmental Health-	1027
19	City Managers Office	City Managers Office-311 Call Center-	169
20	Northeast	Northeast-Alliance-Together	35
21	Water Services	Water Services-Leaf Brush	7
22	Parks & Rec	Parks & Rec-Landscape Services-LT List	37
23	NHS	NHS-Neighborhood Preservation-Programs	5
24	Water Services	Water Services-Line Maintenance-Restoration	8837

7. Response Time Analysis

```
SELECT DEPARTMENT, AVG(DAYS_TO_CLOSE) AS TOTAL_DAYS_TO_CLOSE
FROM Kansas_City
GROUP BY DEPARTMENT
ORDER BY AVG(DAYS_TO_CLOSE) DESC
```

NCS was noted as an outlier with maximum time taken to close a service request

	DEPARTMENT	TOTAL_DAYS_TO_CLOSE
1	NCS	767.128779570735
2	Mayors Office	129.486486486486
3	City Planning and Development	105.12525991849
4	NHS	77.7277530706217
5	City Council	77.6666666666667
6	General Service	57.5438596491228
7	IT	47
8	Northeast	45.7878787878788
9	Parks & Recreation	45.5454545454545
10	South	44.5986842105263
11	Parks & Rec	43.9059233449477
12	Water Services	32.4879225011505
13	Northland	27.5583185316755
14	Information Technology	26.5217391304348
15	City Managers Office	22.1688514357054
16	Parks and Rec	19.9493849658314
17	Convention and Entertainment Center	16.4576271186441
18	Aviation	13.0933333333333
19	Health	11.1741284683403
20	Public Works	10.9746796706317
21	Finance	10.4402476780186
22	Human Resources	10
23	Fire	7.63934426229508
24	Municipal Court	4.22955145118734

8. Service Request Status Composition

```
SELECT YEAR(Creation_Date) AS Year, STATUS, COUNT(*) AS RequestCount
FROM Kansas_City
WHERE YEAR(Creation_Date) BETWEEN 2018 AND 2021
GROUP BY YEAR(Creation_Date), STATUS
```


	Year	STATUS	RequestCount
1	2019	CANC	432
2	2020	OPEN	5820
3	2018	OPEN	1218
4	2020	ASSIG	37
5	2019	FAIL	1
6	2021	OPEN	1343
7	2019	OPEN	2229
8	2020	DUP	278
9	2020	CANC	291
10	2019	ASSIG	1
11	2018	CANC	637
12	2018	FAIL	1
13	2019	RESOL	163187
14	2021	RESOL	18259
15	2018	DUP	650
16	2020	RESOL	119480
17	2021	ASSIG	7
18	2019	DUP	171
19	2018	RESOL	121774
20	2021	CANC	73
21	2021	DUP	1

9. Time to Closure Analysis

```
SELECT TOP 10 CATEGORY1, AVG(days_to_close) AS AvgDaysToClose
FROM Kansas_City
GROUP BY CATEGORY1
ORDER BY AvgDaysToClose DESC;
```

	CATEGORY1	AvgDaysToClose
1	Data Not Available	1189.01602136182
2	Weeds	420.305371834167
3	Property & Nuisance Violations	187.382354379616
4	Property Violations	180.22246766959
5	Water Main Break	172.50505050505
6	Property	171.236130826501
7	Mowing	162.946076542258
8	Information Request	103.5
9	Water Services	99.108044429485
10	Nuisance Violations	93.2275541362019

10. Workload Efficiency

```
SELECT DEPARTMENT, COUNT(*) AS Service_Request_Count, AVG(DAYS_TO_CLOSE) AS
AvgDaysToClose
FROM Kansas_City
GROUP BY DEPARTMENT;
```

	DEPARTMENT	Service_Request_Count	AvgDaysToClose
1	Water Services	216852	32.4879225011505
2	KCPD	36369	3.62778924198652
3	Municipal Court	379	4.22955145118734
4	City Clerks Office	2	2
5	Public Works	353787	10.9746796706317
6	Human Resources	1	10
7	South	309	44.5986842105263
8	Aviation	151	13.0933333333333
9	Parks and Rec	87954	19.9493849658314
10	Mayors Office	37	129.486486486486
11	City Council	3	77.6666666666667
12	Northland	8591	27.5583185316755
13	General Service	518	57.5438596491228
14	Parks & Recreation	11	45.5454545454545
15	Finance	1616	10.4402476780186
16	NHS	783094	77.7277530706217
17	Northeast	35	45.7878787878788
18	Convention and Entertainment Center	59	16.4576271186441
19	Housing Community Dev	342	1.73391812865497
20	IT	1	47
21	Health	39543	11.1741284683403
22	Fire	612	7.63934426229508
23	Information Technology	24	26.5217391304348
24	City Managers Office	13098	22.1688514357054
25	City Planning and Development	12575	105.12525991849
26	Parks & Rec	861	43.9059233449477
27	NCS	6391	767.128779570735