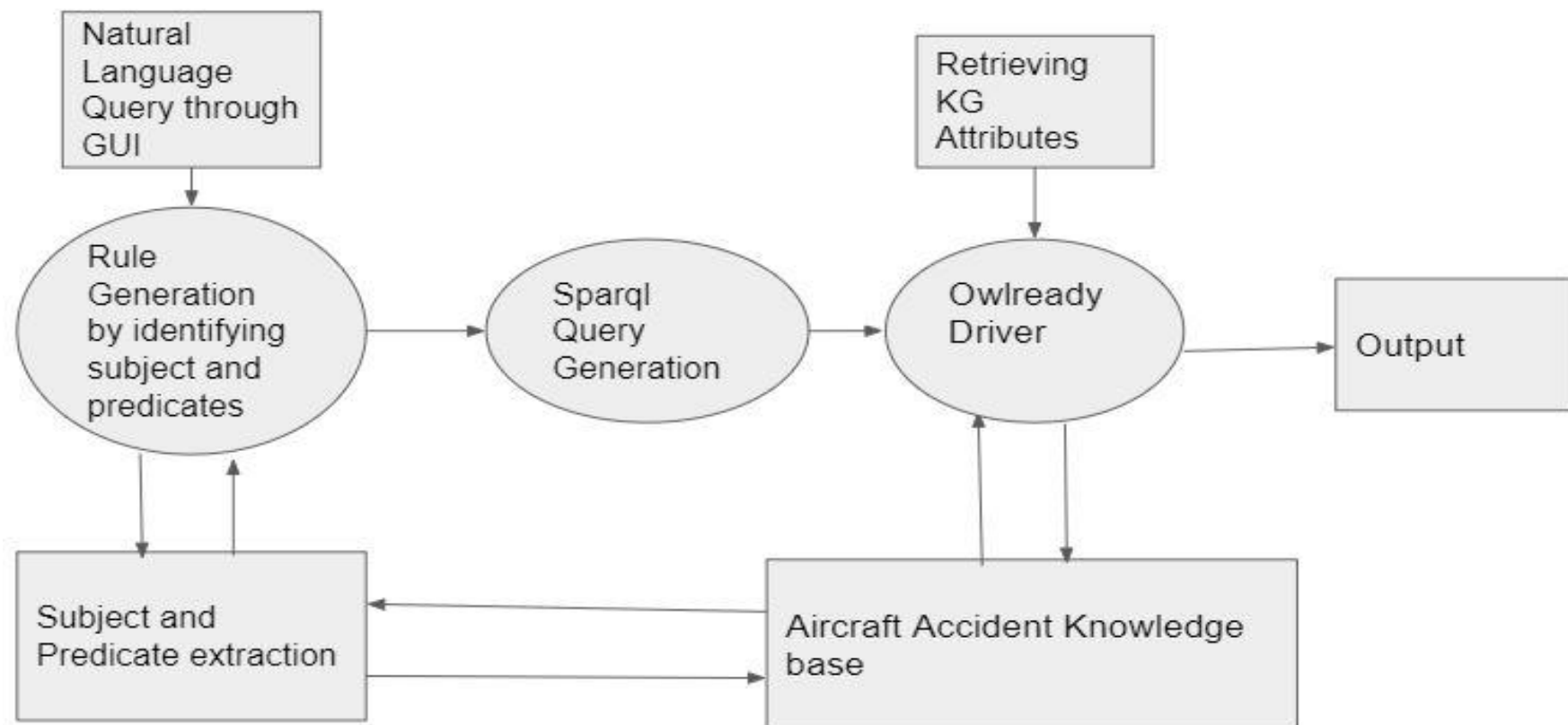


Natural language to SPARQL

IMPRINT 2 KNOWLEDGE GRAPH
04-06-2020

Kumar Ibrahim

Data Flow Diagram



Here you can access the information regarding Aircraft Accidents...

Please Enter your Query:

list all accidents having honeywell engine

- [Submit](#) [List of Instances](#) [List of SubClasses](#) [List of classes](#) [List of SuperClasses](#)

```
[{'s': 'AccidentNumber_DEN04FA027B'}, {'s': '2TurboProp'}, {'s': 'AccidentNumber_DEN04LA020'}, {'s': '2TurboProp'}]
```

Here you can access the information regarding Aircraft Accidents...

Please Enter your Query:

Which Aircraft have Helicopter Aircraft Category ?

- Submit
- List of Instances
- List of SubClasses
- List of classes
- List of SuperClasses

```
[{'s': 'Registration_N106LN'}, {'s': 'Registration_N127RB'}, {'s': 'Registration_N135NW'}, {'s': 'Registration_N15SA'}, {'s': 'Registration_N20840'}, {'s': 'Registration_N21901'}, {'s': 'Registration_N220CK'}, {'s': 'Registration_N233TR'}, {'s': 'Registration_N25GH'}, {'s': 'Registration_N2616B'}, {'s': 'Registration_N317LC'}, {'s': 'Registration_N37731'}, {'s': 'Registration_N383MA'}, {'s': 'Registration_N3895D'}, {'s': 'Registration_N440TJ'}, {'s': 'Registration_N457PH'}, {'s': 'Registration_N46TP'}, {'s': 'Registration_N4759R'}, {'s': 'Registration_N48020'}, {'s': 'Registration_N513TS'}, {'s': 'Registration_N5205F'}, {'s': 'Registration_N5226'}, {'s': 'Registration_N528EE'}, {'s': 'Registration_N56SM'}, {'s': 'Registration_N59MB'}, {'s': 'Registration_N62269'}, {'s': 'Registration_N64580'}, {'s': 'Registration_N7059F'}, {'s': 'Registration_N8356F'}, {'s': 'Registration_N8393F'}, {'s': 'Registration_N8885F'}, {'s': 'Registration_N89FB'}, {'s': 'Registration_N911KH'}, {'s': 'Registration_N94LW'}, {'s': 'Registration_N968YC'}, {'s': 'Registration_N985SA'}, {'s': 'Registration_N991RW'}, {'s': 'Registration_N997SA'}, {'s': 'Registration_N9HE'}]
```

Here you can access the information regarding Aircraft Accidents...

Please Enter your Query:

what are different aircraft models

- Submit
- List of Instances
- List of SubClasses
- List of classes
- List of SuperClasses

```
[{'o': 'T210M'}, {'o': '172M'}, {'o': '747-400'}, {'o': 'G-IV'}, {'o': 'M-7-235B'}, {'o': '7KCAB'}, {'o': 'AirCam'}, {'o': 'LA4-200'}, {'o': 'B75N1'}, {'o': 'SkyraiderII'}, {'o': 'AS350B3'}, {'o': 'M20J'}, {'o': 'PA-18'}, {'o': '411'}, {'o': '172K'}, {'o': 'L-23'}, {'o': 'Moni'}, {'o': '172'}, {'o': 'T210L'}, {'o': 'R172-K'}, {'o': 'R22'}, {'o': '58P'}, {'o': 'PA-31P-350'}, {'o': 'EC135T1'}, {'o': 'A36'}, {'o': 'TornadoII'}, {'o': 'T-41B'}, {'o': 'ParakeetA-1'}, {'o': '182P'}, {'o': '1900D'}, {'o': 'AT-402'}, {'o': '152'}, {'o': 'PA-34-200'}, {'o': '340A'}, {'o': 'F-28C'}, {'o': '170A'}, {'o': 'STDLibelle2018'}, {'o': 'T207'}, {'o': 'PA-22-20'}, {'o': 'CL-600-2A12'}, {'o': 'MU-2B-40'}, {'o': 'PA-28R-201'}, {'o': 'C-3'}, {'o': '7AC'}, {'o': 'PA-22-150'}, {'o': 'A185F'}, {'o': '185F'}, {'o': '120'}, {'o': '58'}, {'o': '747-422'}, {'o': 'TitanTornado'}, {'o': 'T182T'}, {'o': '185'}, {'o': 'HS.125-700A'}, {'o': 'Hornet'}, {'o': '8A'}, {'o': '195'}, {'o': '195B'}, {'o': '500-B'}, {'o': 'GlasairSuperII-S'}, {'o': 'MU-2B-35'}, {'o': '182H'}, {'o': 'QuickieQ-200'}, {'o': 'Legacy'}, {'o': '208'}, {'o': 'AS-350BA'}, {'o': 'PA-32-300'}, {'o': '1900C'}, {'o': 'E2'}, {'o': 'PA-28-161'}, {'o': '177RG'}, {'o': 'WoodstockI'}, {'o': 'M20S'}, {'o': 'Exec165F'}, {'o': 'PA-32RT-300'}, {'o': 'R-22'}, {'o': 'UltraPup'}, {'o': '170B'}, {'o': '150H'}, {'o': 'PA-31T'}, {'o': 'R-44II'}, {'o': 'CozyMKIII'}, {'o': 'PA-18-150'}, {'o': '182S'}, {'o': 'Thornley2000'}, {'o': '182K'}, {'o': 'PA-38-112'}, {'o': 'KE-1-A'}, {'o': 'PA-12'}, {'o': 'M20K'}, {'o': 'Firefly8B-15'}, {'o': '502B'}, {'o': 'H-391B'}, {'o': '206L-1'}, {'o': '47G-2'}, {'o': '727-200'}, {'o': '140'}, {'o': 'M20C'}, {'o': '340'}, {'o': 'A-1A'}, {'o': 'HatzCB-1'}, {'o': 'T1'}, {'o': 'J5A'}, {'o': '172N'}, {'o': 'BN2A-26'}, {'o': 'PA-28-181'}, {'o': 'PA-22/20'}, {'o': 'RV-8F'}, {'o': 'SGS2-33A'}, {'o': '150G'}, {'o': 'Dragonfly'}, {'o': '414'}, {'o': 'PittsS-2B'}, {'o': 'S-2B'}, {'o': 'AirCommand582Dual'}, {'o': 'SwearingenSX300'}, {'o': '11AC'}, {'o': '182-K'}, {'o': '310J'}, {'o': 'S2R-T34'}, {'o': 'BE-200'}, {'o': 'S2RHG-
```

Here you can access the information regarding Aircraft Accidents...

Please Enter your Query:

list all aircraft categories

-

```
[{'o': 'Airplane'}, {'o': 'Helicopter'}, {'o': 'Glider'}, {'o': 'Gyroplane'}, {'o': 'Balloon'}]
```


Here you can access the information regarding Aircraft Accidents...

Please Enter your Query:

- Submit
- List of Instances
- List of SubClasses
- List of classes
- List of SuperClasses

```
[{'o': 'Pilot_ANC01LA028'}, {'o': 'Pilot_ANC01LA039'}, {'o': 'Pilot_ANC01LA053'}, {'o': 'Pilot_ANC01LA063'}, {'o': 'Pilot_ANC01LA066'}, {'o': 'Pilot_ANC01LA079'}, {'o': 'Pilot_ANC01LA080'}, {'o': 'Pilot_ANC01LA081'}, {'o': 'Pilot_ANC01LA097'}, {'o': 'Pilot_ANC01LA099'}, {'o': 'Pilot_ANC01LA131'}, {'o': 'Pilot_ANC01LA136'}, {'o': 'Pilot_ANC01LA141'}, {'o': 'Pilot_ANC02FA042'}, {'o': 'Pilot_ANC02LA012'}, {'o': 'Pilot_ANC02LA019'}, {'o': 'Pilot_ANC02LA067'}, {'o': 'Pilot_ANC02LA088'}, {'o': 'Pilot_ANC02LA089'}, {'o': 'Pilot_ANC02LA110'}, {'o': 'Pilot_ANC02LA112'}, {'o': 'Pilot_ANC02LA113'}, {'o': 'Pilot_ANC02LA126'}, {'o': 'Pilot_ANC03FA106'}, {'o': 'Pilot_ANC03LA009'}, {'o': 'Pilot_ANC03LA010'}, {'o': 'Pilot_ANC03LA011'}, {'o': 'Pilot_ANC03LA016'}, {'o': 'Pilot_ANC03LA017'}, {'o': 'Pilot_ANC03LA025'}, {'o': 'Pilot_ANC03LA029'}, {'o': 'Pilot_ANC03LA048'}, {'o': 'Pilot_ANC03LA087'}, {'o': 'Pilot_ANC04LA018'}, {'o': 'Pilot_ANC04LA034'}, {'o': 'Pilot_ANC04LA050'}, {'o': 'Pilot_ANC04LA060'}, {'o': 'Pilot_ANC05CA040'}, {'o': 'Pilot_ANC05CA054'}, {'o': 'Pilot_ANC05CA115'}, {'o': 'Pilot_ANC05FA039'}, {'o': 'Pilot_ANC05FA090'}, {'o': 'Pilot_ANC05LA021'}, {'o': 'Pilot_ANC05LA093'}, {'o': 'Pilot_ATL01LA029'}, {'o': 'Pilot_ATL01LA043'}, {'o': 'Pilot_ATL01LA045'}, {'o': 'Pilot_ATL01LA046'}, {'o': 'Pilot_ATL01LA050'}, {'o': 'Pilot_ATL01LA051'}, {'o': 'Pilot_ATL01LA063A'}, {'o': 'Pilot_ATL01LA063B'}, {'o': 'Pilot_ATL01LA086'}, {'o': 'Pilot_ATL01LA101'}, {'o': 'Pilot_ATL02FA008'}, {'o': 'Pilot_ATL02FA058'}, {'o': 'Pilot_ATL02FA072'}, {'o': 'Pilot_ATL02FA113'}, {'o': 'Pilot_ATL02FA162'}, {'o': 'Pilot_ATL02LA009'}, {'o': 'Pilot_ATL02LA029'}, {'o': 'Pilot_ATL02LA148'}, {'o': 'Pilot_ATL02LA149'}, {'o': 'Pilot_ATL02TA030'}, {'o': 'Pilot_ATL03FA052'}, {'o': 'Pilot_ATL03FA115'}, {'o': 'Pilot_ATL03LA022'}, {'o': 'Pilot_ATL03LA029'}, {'o': 'Pilot_ATL03LA039'}, {'o': 'Pilot_ATL03LA040'}, {'o': 'Pilot_ATL03LA050'}, {'o': 'Pilot_ATL03LA051'}, {'o': 'Pilot_ATL03LA086'}, {'o': 'Pilot_ATL03LA091'}, {'o': 'Pilot_ATL03LA101'}, {'o': 'Pilot_ATL03LA101'}
```

Here you can access the information regarding Aircraft Accidents...

Please Enter your Query:

list all pilots who are student

- Submit
- List of Instances
- List of SubClasses
- List of classes
- List of SuperClasses

```
[{'s': 'Pilot_ANC03LA025'}, {'s': 'Pilot_ATL01LA051'}, {'s': 'Pilot_CHI01LA060'}, {'s': 'Pilot_CHI02LA045'}, {'s': 'Pilot_CHI03LA045'}, {'s': 'Pilot_CHI03LA294'}, {'s': 'Pilot_CHI04CA132'}, {'s': 'Pilot_CHI04LA097'}, {'s': 'Pilot_CHI05LA067'}, {'s': 'Pilot_DEN01LA061'}, {'s': 'Pilot_DFW05CA097'}, {'s': 'Pilot_FTW01LA045'}, {'s': 'Pilot_FTW02LA110'}, {'s': 'Pilot_FTW02LA170'}, {'s': 'Pilot_FTW03LA002'}, {'s': 'Pilot_FTW04LA105'}, {'s': 'Pilot_IAD04CA009'}, {'s': 'Pilot_LAX01LA068'}, {'s': 'Pilot_LAX01LA137'}, {'s': 'Pilot_LAX04CA310'}, {'s': 'Pilot_LAX05CA128'}, {'s': 'Pilot_MIA02LA122'}, {'s': 'Pilot_MIA02LA163'}, {'s': 'Pilot_MIA05CA065'}, {'s': 'Pilot_NYC02LA004'}, {'s': 'Pilot_NYC02LA046'}, {'s': 'Pilot_NYC02LA091'}, {'s': 'Pilot_NYC05CA090'}, {'s': 'Pilot_SEA03LA035'}]
```


Here you can access the information regarding Aircraft Accidents...

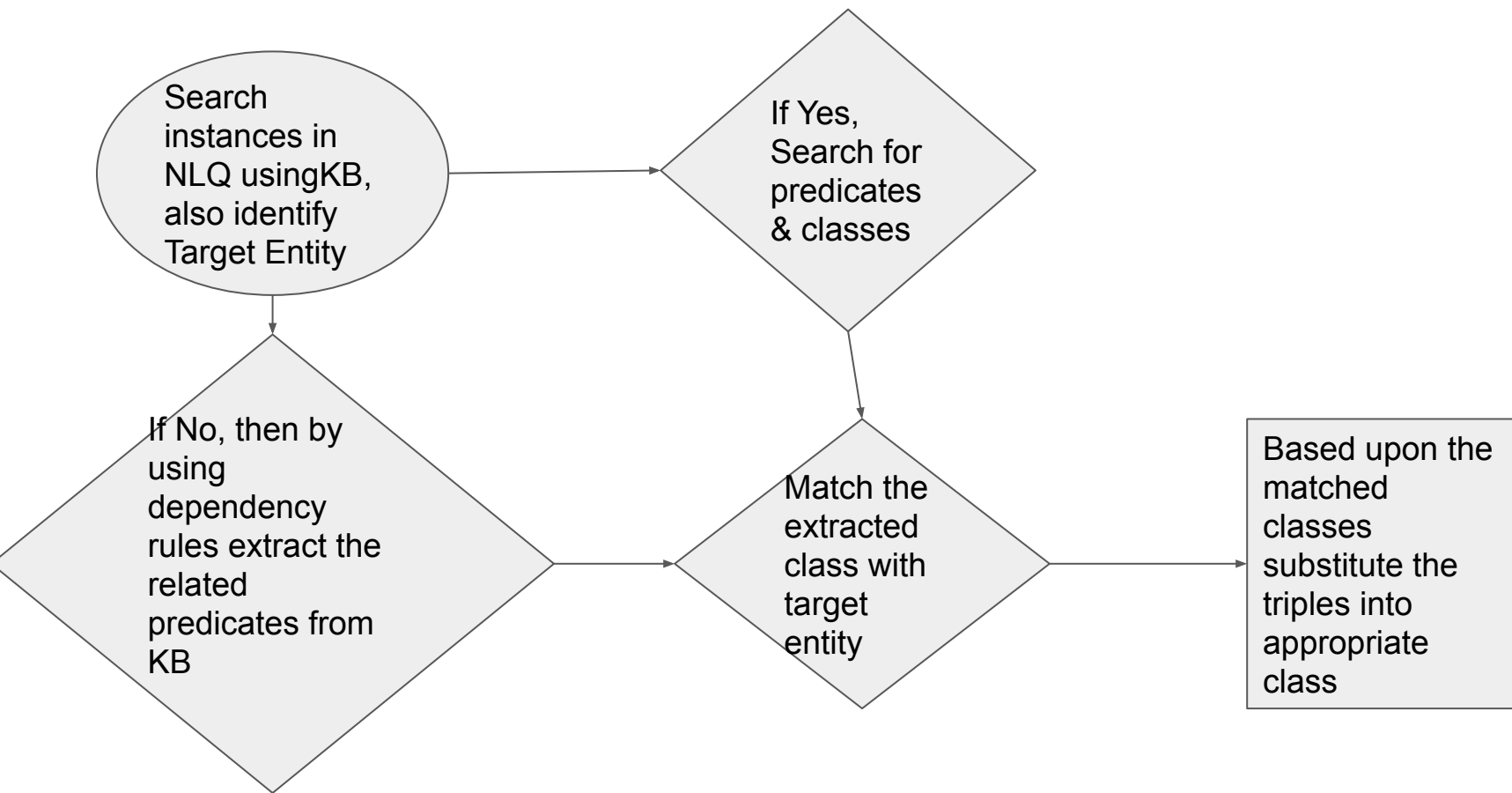
Please Enter your Query:

list all accidents having student pilot

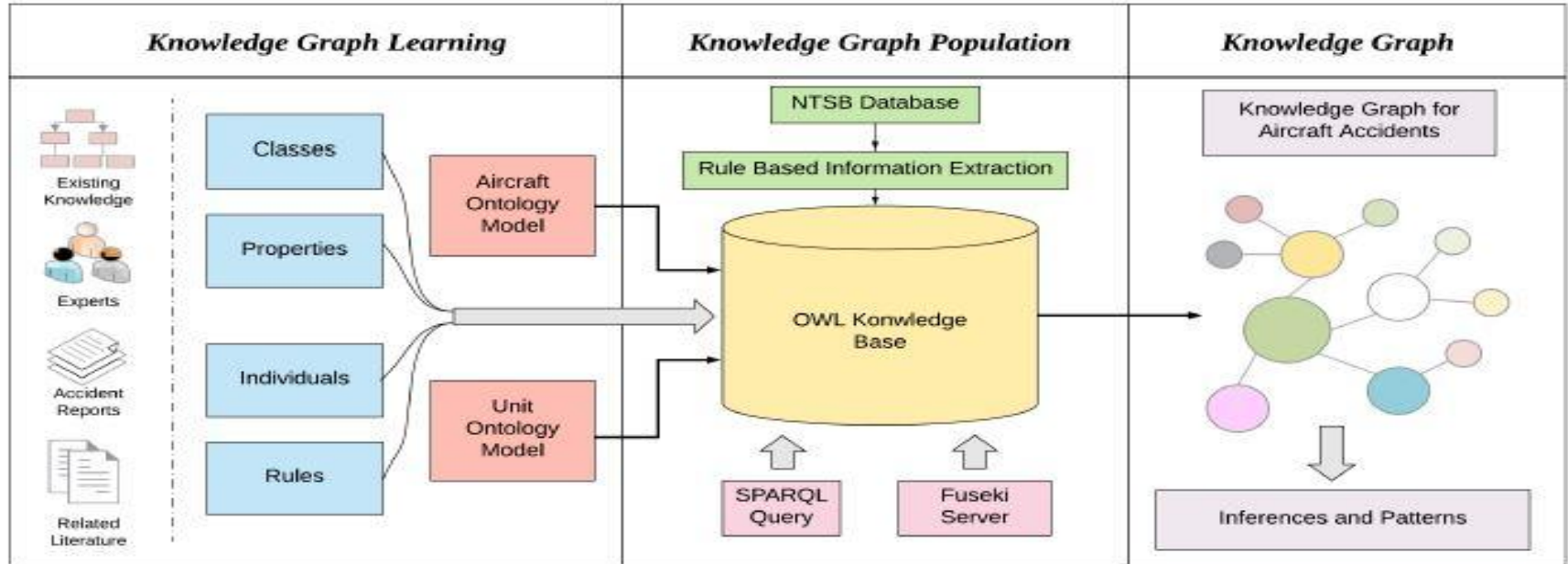
Submit List of Instances List of SubClasses List of classes List of SuperClasses

```
[{'s': 'AccidentNumber_ANC03LA025'}, {'s': 'AccidentNumber_ATL01LA051'}, {'s': 'AccidentNumber_CHI01LA060'}, {'s': 'AccidentNumber_CHI02LA045'}, {'s': 'AccidentNumber_CHI03LA045'}, {'s': 'AccidentNumber_CHI03LA294'}, {'s': 'AccidentNumber_CHI04CA132'}, {'s': 'AccidentNumber_CHI04LA097'}, {'s': 'AccidentNumber_CHI05LA067'}, {'s': 'AccidentNumber_DEN01LA061'}, {'s': 'AccidentNumber_DFW05CA097'}, {'s': 'AccidentNumber_FTW01LA045'}, {'s': 'AccidentNumber_FTW02LA110'}, {'s': 'AccidentNumber_FTW02LA170'}, {'s': 'AccidentNumber_FTW03LA002'}, {'s': 'AccidentNumber_FTW04LA105'}, {'s': 'AccidentNumber_IAD04CA009'}, {'s': 'AccidentNumber_LAX01LA068'}, {'s': 'AccidentNumber_LAX01LA137'}, {'s': 'AccidentNumber_LAX04CA310'}, {'s': 'AccidentNumber_LAX05CA128'}, {'s': 'AccidentNumber_MIA02LA122'}, {'s': 'AccidentNumber_MIA02LA163'}, {'s': 'AccidentNumber_MIA05CA065'}, {'s': 'AccidentNumber_NYC02LA004'}, {'s': 'AccidentNumber_NYC02LA046'}, {'s': 'AccidentNumber_NYC02LA091'}, {'s': 'AccidentNumber_NYC05CA090'}, {'s': 'AccidentNumber_SEA03LA035'}]
```

Working Algorithm



KG Construction Process



Reference Papers

Peter Ochieng, PAROT: Translating natural language to SPARQL, Expert Systems with Applications: X, Volume 5, 2020, 100024, ISSN 2590-1885, <https://doi.org/10.1016/j.eswax.2020.100024>.
(<http://www.sciencedirect.com/science/article/pii/S2590188520300032>)

THANK YOU