**Chatbot using Knowledge Graph**

**Source Code Details:**

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| Serial No. | File Name | Type of Language | Type of File (or File Extension) | Functionality | Dependency |
| 1 | DSAI\_Knowledge\_Graph\_Visualize.ipynb | Python | .ipynb  Implemented using OOP concepts | Used to creates knowledge graph from DSAI\_KG\_Input\_Data\_Text.csv' and just plots the entire knowledge graph created as well as graph based on relations like "is", 'let', 'plays', 'Let', 'are', 'use'. | Input: DSAI\_KG\_Input\_Data\_Text.csv |
| 2 | DSAI\_SPARQL\_For\_Knowledge\_Graph.py | Python | .py | Parses DSAI\_Graph.ttl file and prints outputs in the console like students’ name, projects done etc.. | Input: DSAI\_Graph.ttl |
| 3 | DSAI\_Knowledge\_Base\_RDF.ipynb | Python | .ipynb | Generates knowledge graph from DSAI\_Knowledge\_Graph\_Input.txt and populates the knowledge graph into DSAI\_Graph.ttl file. | Input: DSAI\_Knowledge\_Graph\_Input.txt  Output:  DSAI\_Graph.ttl |
| 4 | DSAI\_Knowledge\_Graph\_Chatbot.py | Python | .py  Implemented using OOP concepts | Used to run Command Line Interface chatbot that inputs from the DSAI\_Graph.ttl file. | Input:  DSAI\_Graph.ttl |

**Run Instructions:**

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| Step Number | Run Command | Run Dependency | Run Instruction |
| 1 | Run DSAI\_Knowledge\_Base\_RDF.ipynb |  | This creates knowledge graph based on DSAI\_Knowledge\_Graph\_Input.txt and store as DSAI\_Graph.ttl  (Run only once) |
| 2 | Run ‘python DSAI\_Knowledge\_Graph\_Chatbot.py’ |  | This runs Command line interface Chatbot |

**Source Code Steps:**

1. DSAI\_Knowledge\_Graph\_Visualize.ipynb
   1. Import DSAI\_KG\_Input\_Data\_Text.csv (Input Data)
   2. Find entity pairs from the data
   3. Extract subject and object from the entity pairs and create a data frame with subject as ‘source’ and object as ‘target’
   4. Plot the entire knowledge graph obtained from the entire dataset and knowledge graph based on some relations
2. DSAI\_SPARQL\_For\_Knowledge\_Graph.py

Parses DSAI\_Graph.ttl and prints the following query outputs in the console

* + 1. Total number of triples in the knowledge base
    2. Total number of students
    3. Total number of teachers
    4. Total number of people working in DeepSphere
    5. Students’ name
    6. Mike’s interest
    7. Everyone’s interest
    8. Mike’s age
    9. Everyone’s age etc…

1. DSAI\_Knowledge\_Base\_RDF.ipynb
   1. Inputs DSAI\_Knowledge\_Graph\_Input.txt
   2. Create Knowledge Graph
   3. Serialize the Knowledge graph into DSAI\_Graph.ttl
2. DSAI\_Knowledge\_Graph\_Chatbot.py
   1. Inputs DSAI\_Graph.ttl file
   2. Get input from user
   3. Parse through DSAI\_Graph.ttl to find relevant response for user input
   4. Print the relevant response in the console