



Task 3 – Prompt Engineering

Saqib Razzaq, Joey Hieronimy

Outline

- Task description
- Our approach
- Current progress
- Next steps

Task description

- Prompt Engineering
 - Prompt a LLM to get desired output
 - Refine prompt
 - Correct false outputs
 - Improve output format
- Different techniques
 - Zero-Shot
 - One-Shot
 - Few-Shot
 - Chain-Of-Thought
 - Self-Consistency
 - General-Knowledge

Task description

■ Generating RML Mappings

```
{
  "characters": [
    {
      "id": "0",
      "firstname": "Ash",
      "lastname": "Ketchum",
      "hair": "black"
    },
    {
      "id": "1",
      "firstname": "Misty",
      "hair": "orange"
    }
  ]
}
```

```
@prefix rml: <http://semweb.mmlab.be/ns/rml#> .
@prefix rr: <http://www.w3.org/ns/r2rml#> .
@prefix ql: <http://semweb.mmlab.be/ns/ql#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix : <http://example.org/rules/> .
@prefix schema: <http://schema.org/> .
@prefix dbo: <http://dbpedia.org/ontology/> .

:TriplesMap a rr:TriplesMap;
  rml:logicalSource [
    rml:source "characters.json";
    rml:referenceFormulation ql:JSONPath;
    rml:iterator "$.characters[*]"
  ].

:TriplesMap rr:subjectMap [
  rr:template "http://example.org/character/{id}"
].

:TriplesMap rr:predicateObjectMap [
  rr:predicate rdf:type;
  rr:objectMap [
    rr:constant schema:Person
  ]
].

:TriplesMap rr:predicateObjectMap [
  rr:predicate schema:givenName;
  rr:objectMap [
    rml:reference "firstname"
  ]
].

:TriplesMap rr:predicateObjectMap [
  rr:predicate schema:lastName;
  rr:objectMap [
    rml:reference "lastname"
  ]
].

:TriplesMap rr:predicateObjectMap [
  rr:predicate dbo:hairColor;
  rr:objectMap [
    rml:reference "hair"
  ]
].
```

```
@prefix dbo: <http://dbpedia.org/ontology/> .
@prefix schema: <http://schema.org/> .

<http://example.org/character/0> a schema:Person;
  dbo:hairColor "black";
  schema:givenName "Ash";
  schema:lastName "Ketchum" .

<http://example.org/character/1> a schema:Person;
  dbo:hairColor "orange";
  schema:givenName "Misty" .
```

Task description

■ Generating RML Mappings

```
{
  "characters": [
    {
      "id": "0",
      "firstname": "Ash",
      "lastname": "Ketchum",
      "hair": "black"
    },
    {
      "id": "1",
      "firstname": "Misty",
      "hair": "orange"
    }
  ]
}
```

```
@prefix rml: <http://semweb.mmlab.be/ns/rml#> .
@prefix rr: <http://www.w3.org/ns/r2rml#> .
@prefix ql: <http://semweb.mmlab.be/ns/ql#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix : <http://example.org/rules/> .
@prefix schema: <http://schema.org/> .
@prefix dbo: <http://dbpedia.org/ontology/> .

:TriplesMap a rr:TriplesMap;
  rml:logicalSource [
    rml:source "characters.json";
    rml:referenceFormulation ql:JSONPath;
    rml:iterator "$.characters[*]"
  ].

:TriplesMap rr:subjectMap [
  rr:template "http://example.org/character/{id}"
].

:TriplesMap rr:predicateObjectMap [
  rr:predicate rdf:type;
  rr:objectMap [
    rr:constant schema:Person
  ]
].

:TriplesMap rr:predicateObjectMap [
  rr:predicate schema:givenName;
  rr:objectMap [
    rml:reference "firstname"
  ]
].

:TriplesMap rr:predicateObjectMap [
  rr:predicate schema:lastName;
  rr:objectMap [
    rml:reference "lastname"
  ]
].

:TriplesMap rr:predicateObjectMap [
  rr:predicate dbo:hairColor;
  rr:objectMap [
    rml:reference "hair"
  ]
].
```

```
@prefix dbo: <http://dbpedia.org/ontology/> .
@prefix schema: <http://schema.org/> .

<http://example.org/character/0> a schema:Person;
  dbo:hairColor "black";
  schema:givenName "Ash";
  schema:lastName "Ketchum" .

<http://example.org/character/1> a schema:Person;
  dbo:hairColor "orange";
  schema:givenName "Misty" .
```

Task description

- Prompt Engineering
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Our approach

- Using Conventional ChatGPT 3.5
 - Find Dataset (CSV or JSON)
 - Starting off with simple prompts
 - More specificity
 - Refinement
 - Error identification and correction
 - Resulting RDF generation

Current Progress

- Reading through guides about prompt engineering
- First some testing on sample Data
 - Goal was to get a feel for prompting
- Zero-shot and One-shot

J You
###

Instruction:

You should act as a Bot that converts input data, given to you in CSV format, into RDF Mapping Language (RDF). Your output should include everything, including prefixes. Below, you will be provided an example CSV.

###

Example


###

id,stop,latitude,longitude

6523,25,50.901389,4.484444

###

turtle

 Copy code

```
@prefix ex: <http://example.org/> .
```

```
@prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#> .
```

```
ex:6523 a ex:Stop ;
```

```
  ex:id 6523 ;
```

```
  ex:stop 25 ;
```

```
  geo:lat 50.901389 ;
```

```
  geo:long 4.484444 .
```


Current Progress

- Dataset: IMDB Top 1000 Films Dataset
- 16 rows, 1000 columns
- Poster_Link, Series_Title, Released_Year, Certificate, Runtime, Genre, IMDB_Rating, Overview, Meta_score, Director, Star1, Star2, Star3, Star4, No_of_Votes, Gross

```
Poster_Link ,Series_Title ,Released_Year ,Certificate ,Runtime ,Genre  
,IMDB_Rating ,Overview ,Meta_score ,Director ,Star1 ,Star2 ,Star3 ,Star4  
,No_of_Votes ,Gross
```

```
"https://m.media-  
amazon.com/images/M/MV5BMDFkYTc0MGEtZmNhMC00ZDIzLWFmNTEtODM1ZmRlYWMwMWFmXkEyXkFqc  
GdeQXVyMTMxODk2OTU@._V1_UX67_CR0,0,67,98_AL_.jpg" ,The Shawshank Redemption ,1994  
,A ,142 min ,Drama , 9.3 , "Two imprisoned men bond over a number of years,  
finding solace and eventual redemption through acts of common decency." , 80  
,Frank Darabont ,Tim Robbins ,Morgan Freeman ,Bob Gunton ,William Sadler ,  
2343110 , "28,341,469"
```

Current Progress

- Tested out zero-shot and few-shot prompting
- Assignment Falsely understood
- Tried generating output RDF instead of RML
- Still great results

Current Progress

J You

Convert the following CSV file into RDF:

```
Poster_Link,Sei
,IMDB_Rating,Overview
,Meta_score,Director,Star1,Star2,Star3,Star4
"https://m.media-
amazon.com/images/M/MV5BMDFkYTc0MGEtZmNhMC00ZDIzLWFmNTetODM1ZmRI
,The Shawshank Redemption,1994,A,142 min,Drama
and eventual redemption through acts of common decency."
Darabont,Tim Robbins,Morgan Freeman,Rob Guntton,Williz
```

Current Progress

```
@prefix ex: <http://example.org/> .

ex:shawshankRedemption
  a ex:Movie ;
  ex:posterLink "https://m.media-amazon.com/images/M/MV5BMDFkYTc0MGEtZ
  ex:seriesTitle "The Shawshank Redemption" ;
  ex:releasedYear 1994 ;
  ex:certificate "A" ;
  ex:runtime "142 min" ;
  ex:genre "Drama" ;
  ex:imdbRating 9.3 ;
  ex:overview "Two imprisoned men bond over a number of years, finding
  ex:metaScore 80 ;
  ex:director "Frank Darabont" ;
  ex:star1 "Tim Robbins" ;
  ex:star2 "Morgan Freeman" ;
  ex:star3 "Bob Gunton" ;
  ex:star4 "William Sadler" ;
  ex:noOfVotes 2343110 ;
  ex:gross "28,341,469" .
```



Current Progress

You

Convert the following CSV into RDF:

```
Poster_Link                                ,Series_Title
,IMDB_Rating ,Overview
,Meta_score ,Director                    ,Star1            ,Star2            ,Star3            ,Star4            ,No_
"https://m.media-
amazon.com/images/M/MV5BMDFKyTc0MGEtZmNhMC00ZDZlZWVmNTetODM1ZmRIYWwMWFmX
,The Shawshank Redemption                ,1994            ,A                ,142 min ,Drama                , 9.3
and eventual redemption through acts of common decency."
Darabont                ,Tim Robbins            ,Morgan Freeman            ,Bob Gunton            ,William Sadler
```

:

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>.

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>.

@prefix ex: <http://example.org/film#>.

ex:shawshankRedemption

a ex:Movie ;

ex:posterLink "https://m.media-

amazon.com/images/M/MV5BMDFKyTc0MGEtZmNhMC00ZDZlZWVmNTetODM1ZmRIYWwMWFmX

;

ex:seriesTitle "The Shawshank Redemption" ;

ex:releasedYear 1994 ;

ex:certificate "A" ;

ex:runtime "142 min" ;

ex:genre "Drama" ;

ex:imdbRating 9.3 ;

ex:overview "Two imprisoned men bond over a number of years, finding solace and eventual redempti

ex:metaScore 80 ;

ex:director "Frank Darabont" ;

ex:star1 "Tim Robbins" ;

ex:star2 "Morgan Freeman" ;

ex:star3 "Bob Gunton" ;

ex:star4 "William Sadler" ;

ex:noOfVotes 2343110 ;

ex:gross "28,341,469" .

###

"https://m.media-

amazon.com/images/M/MV5BM2MyNjYxNmUtYTawNi00MTYxLWJmNWYtYzZiODY3ZTk3OTFIXkEyX

,The Godfather ,1972 ,A ,175 min ,"Crime, Drama" , 9.2 ,An

clandestine empire to his reluctant son.

,Marlon Brando ,Al Pacino ,James Caan ,Diane Keaton , 1620367 ,134,966

"https://m.media-amazon.com/images/M/MV5BMTMxNTMwODM0NF5BMi5BanBnXkFtZTcwODAyMT

Dark Knight ,2008 ,UA ,152 min ,"Action, Crime, Drama" , 9 , "V

people of Gotham, Batman must accept one of the greatest psychological and physical tests of his abilit

, 84 ,Christopher Nolan ,Christian Bale ,Heath Ledger ,Aaron Eckhart ,Micha

:

Current Progress

- Generated wrong header!
- Tried correcting mistake:



You

You made an error. The URI should have the following structure:

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>.

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>.

@prefix ex: <http://example.org/film#>.

Correct your mistake:

Current Progress

- Now correct output:

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>.
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>.
@prefix ex: <http://example.org/film#>.

ex:shawshankRedemption
  rdf:type ex:Movie ;
  ex:posterLink "https://m.media-amazon.com/images/M/MV5BMDFkYTc0MGEtZ
  ex:seriesTitle "The Shawshank Redemption" ;
  ex:releasedYear 1994 ;
  ex:certificate "A" ;
  ex:runtime "142 min" ;
```


Next Steps

- Do the same with RML instead of RDF
- Refine results even further

