

CS 4395, Homework 6

Spring 2023, Section 001

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Due March 11, 2023 at 6:00pm

Part 1: Knowledge base creation

The knowledge base was created using a hybrid method of sourcing data from my domain knowledge and utilizing external APIs to provide data that would be continuously updated regarding the subject matter.

First, I determined the top 10 terms manually using a mix of frequency analysis and domain knowledge:

skin
champion
player
team
attack
ad
ap
rift
effect
esports

I then wrote definitions for each of these terms in JSON format:

```
{
  "skin": "A non-functional, cosmetic modification to a character model in-game. Serves
  ↪ as the primary form of microtransactions in League of Legends.",
  "champion": "A playable character in League of Legends. Each champion has its own
  ↪ lore, abilities, mechanics, skins, itemization, and role in the game.",
  "player": "A user of League of Legends. There are 10 players in a standard game of
  ↪ League. There are approximately 150 million monthly active players.",
  "team": "A group of (currently) five players, each playing distinct champions, who
  ↪ are partnered together in a game.",
  "attack": "Any action of a character that deals damage to another champion, neutral
  ↪ objective, or jungle monster.",
  "ad": "Standing for Attack Damage, is a stat of characters that determines how much
  ↪ damage is dealt via basic attacks (and in some cases, abilities too).",
```

```

    "ap": "Standing for Ability Power, is a stat of characters that determines how much
    ↪ damage is dealt via abilities.",
    "rift": "Short for 'Summoner's Rift,' this corresponds to one of the two permanent
    ↪ maps where League is played. The Rift is a three-lane map separated by the jungle
    ↪ and split between two teams via a river.",
    "effect": "Could refer to a status effect in League of Legends. Most status effects
    ↪ fall into the buff or debuff categories. For instance, destroying the red
    ↪ brambleback provides you the 'red buff,' while claiming the Dragon Soul provides
    ↪ you various other buffs. Debuffs are usually in the form of crowd control.",
    "esports": "League of Legends has a massive esports scene, driven by its large player
    ↪ base. LoL Esports is split into multiple levels, with the highest being the
    ↪ professional teams in each geographic region (e.g. LCS, LCK, LPL, LEC).",
}

```

I used JSON over pickling because it provided ease in adding new terms to the knowledge base as needed.

Additionally, I augmented a lot of this data using LoL API data on champions, skins, and AD/AP ratios for each champion in the game.

Using their Data Dragon API: https://developer.riotgames.com/docs/lol#data-dragon_champions I was able to put together a simple test prototype in which a user can enter a champion and see the information stored by Riot about the champion, and even view each skin:

```
$ python kb_test.py
```

```
LoL Knowledge Base Tester
```

```
-----
```

```
Pick an option:
```

- [1] Get top 10 term definition
- [2] Get champion data
- [3] Get champion skins

```
Option [type 'q' to quit]: 2
```

```
Champion Data Resolver
```

```
-----
```

```
Enter a champion ID to get its data
```

```
Champion ID: Belveth
```

```
Data:
```

```

{'type': 'champion', 'format': 'standAloneComplex', 'version': '13.5.1', 'data':
↪ {'Belveth': {'id': 'Belveth', 'key': '200', 'name': "Bel'Veth", 'title': 'the Empress
↪ of the Void', 'image': {'full': 'Belveth.png', 'sprite': 'champion0.png', 'group':
↪ 'champion', 'x': 144, 'y': 48, 'w': 48, 'h': 48}, <output truncated...> }}

```

```
-----
```

```
Option [type 'q' to quit]: 3
```

Champion Skins Resolver

Enter a champion ID to get its skins.

Champion ID: Belveth

Skins:

```
['default', "Battle Boss Bel'Veth"]
```

Option [type 'q' to quit]: q

Part 2: Future knowledge base usage

In the future, I would like to use this knowledge base to ask the following questions. Note the unclear nature of the user input.

User: Can I get the lore for Aatrox?

Bot: Sure, here's a bit about Aatrox:

Once honored defenders of Shurima against the Void, Aatrox and his brethren would eventually become an

User: aatrox passive what does it do

Bot: Aatrox's passive, called Deathbringer Stance, does this:

Periodically, Aatrox's next basic attack deals bonus physical damage and heals him, based on the target

User: How many champions in game

Bot: There are 162 champions in the game right now.