

Homework 7

58119125 蒋卓洋

1. In the Wikipedia article page of “Tim Berners-Lee”, the categories are as follows. Please extract facts from them in turtle using YAGO **category** maps and the following prefixes **without domain and range checking**, and clarify the **subsequent validation steps** on the extracted fact.

@prefix expr: <http://www.example.org/resource/>
@prefix exp: <http://www.example.org/property/>

YAGO category maps

Number	Regular Expression	Target Relation
1	$([0-9]\{3,4\})$ births	<i>bornOnDate</i>
2	$([0-9]\{3,4\})$ deaths	<i>diedOnDate</i>
3	$([0-9]\{3,4\})$ establishments	<i>establishedOnDate</i>
4	. * established in $([0-9]\{3,4\})$	<i>establishedOnDate</i>
5	$([0-9]\{3,4\})$ books novels	<i>writtenOnDate</i>
6	Mountains Rivers etc. in (.*)	<i>locatedIn</i>
7	Presidents Governors of (.*)	<i>politicianOf</i>
8	(.*) winners laureates	<i>hasWonPrize</i>
9	[A-Za-z]+ (.*) winners	<i>hasWonPrize</i>

Tim Berners-Lee

From Wikipedia, the free encyclopedia

Sir Timothy John Berners-Lee OM KBE FRS FREng FRSA FBCS (born 8 June 1955),^[1] also known as **TimBL**, is an English computer scientist best known as the inventor of the *World Wide Web*. He is a Professorial Fellow of Computer Science at the University of Oxford^[2] and a professor at the Massachusetts Institute of Technology (MIT).^{[3][4]} Berners-Lee proposed an information management system on 12 March 1989,^{[5][6]} then implemented the first successful communication between a Hypertext Transfer Protocol (HTTP) client and server via the Internet in mid-November.^{[7][8][9][10][11]} Berners-Lee is the director of the *World Wide Web Consortium* (W3C), which oversees the continued development of the Web. He co-founded (with his then wife-to-be Rosemary Leith) the *World Wide Web Foundation*. He is a senior researcher and holder of the 3Com founder's chair at the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL).^[12] He is a director of the *Web Science Research Initiative* (WSRI)^[13] and a member of the advisory board of the MIT Center for Collective Intelligence.^{[14][15]} In 2011, he was named as a member of the board of trustees of the *Ford Foundation*.^[16] He is a founder and president of the *Open Data Institute* and is currently an advisor at social network MeWe.^[17] In 2004, Berners-Lee was knighted by Queen Elizabeth II for his pioneering work.^{[18][19]}

Categories: Tim Berners-Lee | 1955 births | Living people | People from Barnes, London | People educated at Emanuel School | Alumni of The Queen's College, Oxford | Academics of the University of Southampton | Fellows of Christ Church, Oxford | Members of the Department of Computer Science, University of Oxford | People associated with CERN | English computer scientists | English expatriates in the United States | English inventors | English Unitarians | Fellows of the American Academy of Arts and Sciences | Fellows of the British Computer Society | Fellows of The Queen's College, Oxford | Fellows of the Royal Academy of Engineering | Fellows of the Royal Society | Hypertext Transfer Protocol | Internet pioneers | Knights Commander of the Order of the British Empire | MacArthur Fellows | Massachusetts Institute of Technology faculty | Members of the Order of Merit | Foreign associates of the National Academy of Engineering | Turing Award laureates | Foreign associates of the National Academy of Sciences | Royal Medal winners | Semantic Web people | UNESCO Niels Bohr Medal recipients | Unitarian Universalists | Former Anglicans | Webby Award winners | World Wide Web Consortium | Recipients of the Order of the Cross of Terra Mariana, 1st Class | Fellows of the Royal Society of Arts | English atheists | MIT Computer Science and Artificial Intelligence Laboratory people | Members of the American Philosophical Society | Honorary Fellows of the British Academy

Solution:

- (1) Fact Turtles:

```
expr:Tim_Berners-Lee exp:bornOnDate "1955";  
  
exp:hasWonPrize "Turing Award";  
  
exp:hasWonPrize "Award";  
  
exp:hasWonPrize "Royal Medal";  
  
exp:hasWonPrize "Medal";  
  
exp:hasWonPrize "Webby Award";
```

- (2) Subsequent validation steps:

- ① Check if “expr:Tim_Berners-Lee” is in the Domain of “exp:bornOnDate”.
Check if “1955” is in the Range of “exp:bornOnDate”.

- ② Check if “expr:Tim_Berners-Lee” is in the Domain of “exp:hasWonPrize”.

Check if “Turing Award” is in the Range of “exp:hasWonPrize”.

Check if “Award” is in the Range of “exp:hasWonPrize”.

Check if “Royal Medal” is in the Range of “exp:hasWonPrize”.

Check if “Medal” is in the Range of “exp:hasWonPrize”.

Check if “Webby Award” is in the Range of “exp:hasWonPrize”.

2. Given the Wikipedia article page of “NumPy”, including the first sentence, categories, and the infobox. Please write correct types from them (directly use plain strings).

NumPy

From Wikipedia, the free encyclopedia

NumPy (pronounced /ˈnʌmpi/ (*NUM-py*) or sometimes /ˈnʌmpi/ (*NUM-pee*)) is a library for the Python programming language, adding support for large, multi-dimensional arrays and matrices, along with a large collection of high-level mathematical functions to operate on these arrays.^[a] The ancestor of NumPy, Numeric, was originally created by Jim Hugunin with contributions from several other developers. In 2005, Travis Oliphant created NumPy by incorporating features of the competing Numarray into Numeric, with extensive modifications. NumPy is open-source software and has many contributors. NumPy is a NumFOCUS fiscally sponsored project.^[a]

Categories: Array programming languages | Free mathematics software | Free science software | Numerical analysis software for Linux | Numerical analysis software for MacOS | Numerical analysis software for Windows | Numerical programming languages | Python (programming language) scientific libraries | Software using the BSD license

```
{{Infobox software
| title =
| name = NumPy
| logo = NumPy logo 2020.svg
| screenshot = <!-- [[File:]] -->
| caption = NumPy logo
| collapsible =
| author = [[Travis Oliphant]]
| developer = Community project
| released = As Numeric, {{Start date|1995}}; as NumPy, {{Start date|2006}}
| discontinued =
| latest release version = 1.21.1
| latest release date = {{Start date and age|2021|07|18|df=yes}}<ref name="github-releases">
| latest preview version =
| latest preview date =
| programming language = [[Python (programming language)|Python]], [[C (programming language)|C]]
| operating system = [[Cross-platform]]
| platform =
| size =
| language =
| genre = [[Numerical analysis]]
| license = [[BSD licenses|BSD]]<ref name="numpy_org">{{cite web |title=NumPy - NumPy |url=|
}}
```

Solution:(not for sure)

1. From first sentence:

- (1) library.
- (2) open-source software
- (3) NumFOCUS fiscally sponsored project

2. From categories:

- (1) language
- (2) software
- (3) library

3. From infoBox: