

Group 6

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Intelligent Agents

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COVID-19 Planner Ontology

Activity

We have defined three different types of activities with many instances. We did not really know how we should use the duration and the number of participants for our reasoning, so for now we have defined dynamic data properties for the maximum duration and maximum number of participants of an activity, which can be inferred from the information the user gives us.

Health

We have defined six different types of diseases. We also have defined symptoms which suggests COVID-19 contraction, all of which can be either minor or heavy (for example we included both the instances (*minor_coughing* and *heavy_coughing*). Additionally, we are looking at the user's habits – e.g. smoking - and more general parameters like age, gender, and weight which are divided in a few instances like for age: "child", "adult", and "old".

Location

We have defined seven different locations, each associated with exactly one activity using the object property *hasActivity*. Locations also have properties like floor space in square meters and maximum capacity, which can be used to find similarities between them. Furthermore, we defined a few so-called location parameters, for example "good ventilation" or "includes outdoor seating", which can be connected to locations and can be subtracted from the information the user gives us.

Time

This is our first extra main concept. It consists of a few *types of days*: workday, weekend day, and holiday. Furthermore, we have *time of day*, which can be either a busy time or a non-busy time. The combination of these two will help us assess whether it is going to be crowded at the location of the desired activity. Also, it is relevant for our second extra main concept, which we will explain now:

Transportation

For every desired activity, the user will be asked to give the mode of transport (s)he will be using to get to the location. The class is divided in a subclass called transportation method and a subclass called transportation type. Transportation method consists of different types of vehicles: bus, car, walking etc. Transportation type can be either individual or group, representing whether you will travel alone or with others, and public or personal.

User

This is our central concept. Everything starts and ends with the user. We have defined many parameters, namely the current and previous health conditions, living situation, obligations and preferences of the user. We also defined a parameter called “protective gear”, which gives us information about whether the user will, for example, wear a mask or gloves to the activity.

Concept Relations

- hasActivity – Location / Activity
- hasDoneActivity – User / Activity
- hasHealth – User_health_current / Health
- hasLocationParameter – Location / Location_parameters
- hasLocationType – Location / Location_type
- hasObligation – User_obligations / Activity
- hasPreviousHealth – User_health_previous / Health
- hasProtectiveGear – User / User_protective_gear
- hasTravelledVia – User / Transportation
- isBusy – Transportation / Public_holiday or Weekend_day
- isDoingActivity – User / Activity
- isSimilarTo – Activity / Activity
- isTravellingVia – User / Transportation
- livesWith – User / User

Disclaimer - We haven't focused on the different types of object properties yet. There is a transitive (in our context) symmetric livesWith and a symmetric isSimilarTo but that is currently the extent of it.

