Prompt XHCOME

1. Act as an ontology engineer. Your task is to build an ontology based on the data and info that I will provide you in the following prompts. You will not start generating the ontology until the moment that I will ask you. You must take in account and consider all the requirements and specifications that the ontology must meet and then produce it in the format that I will ask.

2.The ontology will be designed for managing and interpreting data related to Parkinson's Disease (PD), particularly from wearable sensors. It aims to collect movement data of PD patients through wearable sensors, analyze them in a way that enables the understanding of their semantics, and use these semantics to semantically annotate the data for interoperability and interlinkage with other related data from patients health records (PHRs.). The scope includes the development of the ontology to enable the integration and reasoning of health data from wearables and PHRs. Finally, it should demonstrate the use of SWRL rules for detecting missing doses, increase fall event and other high-level events in PD patients.

3. The key knowledge that must be represented in your ontology includes: Sensor data, Patient Health Records (PHR), and their integration for PD management, Alerting Notification, Daily Dosage Plan, Diagnosis, Dosage Time, Medical Prescription, Notify Doctor, PD Patient, PD patient Falling Event Observation, PD patient Missing Dose Event Observation, Patient, Personal Health Record, Recognized Event, Sketching Activity, Smart Watch, Walking Activity, Activities of Daily Living, Tremor, Bradykinesia of Upper Limb.

4. I will provide you ten Competency Questions (CQs). Competency Questions are a set of Natural Language Questions that must be answered correctly by the ontology that you will generate and they are crucial in the ontology development process, since they represent ontology needs. You must take into account these CQs: CQ1.What are the activities performed by specific patients? CQ2. Which patient performs a specific Sketching Activity, and what is their performance level?. CQ3. What observations have been recorded for specific patients, and what insights can be gained from analyzing the progression of the disease? CQ4. Which patient is related to which PHR, and what information can be retrieved from it? CQ5. What is the medical history and other relevant information for patients and their respective PHRs? CQ6. Which patients exhibit rigidity symptoms, and what is the severity level of their rigidity? CQ7. What is the level of the Hoehn and Yahr staging for a particular observation instance, and how can this be used to make informed decisions about treatment plans and medication dosages?
CQ8. Which observations possess both tremor and bradykinesia attributes for the upper limb? CQ9. What are the observations that encompass both tremor and bradykinesia attributes for the upper limb, along with their corresponding timestamps? CQ10. Which observations in the ontology exhibit both tremor and bradykinesia attributes for the upper limb within a specific timestamp range, and trigger a notification?

5. Develop the SWRL rules based on the above input and the generated ontology axioms

6 .Now develop the ontology based on all the above information from the prompts that I asked you. The output file must be in .ttl format and must be opened in Protégé 5.6.3.

7.Expand more the ontology above by adding more aspects of PD monitoring and alerting patients, by translating them in more classes, data and object properties. Act not only as an ontology engineer but also as a domain expert in PD

8. Add at least 10 more classes that you haven't already considered and are related with this domain. You have to cover as much knowledge as you can in order to represent it on your ontology

9.Now combine all the files that you provide in one big ontology in ttl file

10.Keep everything that you have already created but also add data from this ontology. Expand your knowledge and data and create a much more inclusive ontology with more axioms, classes, object and data properties.

11. Consult other ontologies: DAHCC,SOSA,SAREF, PMDO and enrich the ontology with more classes and object and data properties. Give me the ontology again with this enrichment.

12. Add synthetic data for tremor and bradykinesia of 10 parkinson disease patients and add it to the ontology.