OE8\_Report

\*See breakdown of group work below

**The modifications to the OWL ontology - at a high level, not in great detail, just a summary of the kinds of things you added, what you found you had to change, etc. - highlight the changes you made that impact the reasoning/ semantics**

After adding individuals to our ontology and considering our focus competency questions, we identified gaps in our existing ontology that needed to be fixed. For our reasoner to be able to infer the nutrient content of food individuals, we added the properties hasCarbohydratePercent, hasCalorieValue, hasProteinPercent, and hasFatPercent which would be used by a reasoner to ‘choose’ certain individuals. For the exercise portion, we changed many concept names, definitions, and labels to properly match what we are trying to do. We also added a bunch of injuries that were missing to link injuries, exercises, and muscles together.

**Something you learned from doing this week’s homework**

We realized that having a specific goal made it a lot easier to work efficiently. When we chose specific competency questions, choosing 10 individuals that were required for this week’s assignment was much easier. Once we had our individuals, defining the properties that were required to answer our competency question felt easier than if we were to try doing that portion first. Our method followed the bottom up method of Ontology development and for this case worked well. We will look to use the same or similar development heuristics in future development.

**Any issues you found in doing this - what was hard, and what modeling / logic constructs were the most challenging to understand, or what things were hard to do as a group**

We are still a little confused on how to properly get what we want done with the ontology. For example, we have Goals and specific goals as a subclass, but if the user has one of the goals, they would be connected to their goals with a “hasGoal”. We do not know how to link, (in logic) having a goal to doing this specific type of training and having a specific kind of diet without doing a bunch of and/or statements. We have decided not to create an individual -> user class as we deemed it not necessary for this class since we are not making an app. It was really difficult to work together on the ontology and divide and conquer since it caused issues using git. It wouldn’t let us conflict merge and would just completely overwrite people’s work when someone pushed for no reason. If you have a fix for this, please let us know. Also, in terms of individuals we have decided to use specific exercises and how strenuous they are and how many calories they burn. We need help on our concepts, since we have an object property called targets, which given an exercise tells you what muscle it targets. However targets are an object property and muscles are concepts, so should we make them both individuals and concepts or just individuals? We have decided to not put that in yet and wait for your input. Thank you.

**Make sure to describe how the individuals are being used or are planned to be used in the question answering. (If you are not using individuals in the question answering, tell us that too.)**

The individuals we defined for this assignment were types of food and specific exercises. With these individuals we hoped to be able to answer one of our competency questions. With this, we added properties for each of the individuals that would allow their use with a reasoner or in a query. In the case of food, we added the properties hasCarbohydratePercent, hasCalorieValue, hasProteinPercent, and hasFatPercent. With these parameters on each individual and the fact that they are individuals of a specific class, we have enough information to properly search for a food item and filter them by certain parameters. In the case of exercise, we created individual exercises that show the strain level for each exercise and how many calories it burns. These will be used to answer the question. As stated above, we have held out on what it targets as we want guidance on how we should approach it. This is the same with how injuries affect muscles, since we want to know whether or not we should put muscles as individuals or keep it in classes or both. We also added lightCalories, moderateCalories, significantCalories, light, moderate, and strenuous to showcase how many calories we are burning and how much strain the exercise puts on your body(joints, ligaments, tendons, and muscles).

**Include a statement about who did what in this assignment**

**Abhi**: Worked on making sure the individuals that were added had proper definitions and labels. Looked into the data type properties we have set up and worked on renaming individuals that had erroneous naming schemes. To remedy this added a data type property called hasMassGrams for foods. Also worked on planning what individuals were going to be added for the exercise portion of the ontology and helped Johnny add them.

**Dominick**: Worked on the revision of artifacts. Updated our term list to fix some circular and lacking definitions. Also worked on ensuring that the formatting and case of all categories in the term list was consistent and correct. Assisted with DL creation. Also worked on getting the serializer script working with .git/hooks. There seems to be an error with rdf-toolkit.jar, we ran an altered serialization script for this week's submission. Also worked on making sure definitions for classes and properties were consistent and correct.

**Johnny:**  Worked on the use case, fixed up all the terminology concepts/labels/definitions, ensured the concept map was up to date and took all ideas from our presentation. Added more injuries and links from the concept map and displayed them on the terms list and ontology. Worked on ontology to change names, definitions, and labels. Helped with individual creation for exercise portion and DL creation.

**Anirban:** Experimented with DLs to make inferences for our recommendation task. Worked on adding 6 individuals for ingredients and tested out the ontology by creating DLs that support the competency question. Added concepts & DLs to infer protein-rich, carbohydrate-rich & fat-rich ingredients which will form the basis for recommending appropriate recipes based on caloric budget. One major challenge was adding object properties from the FitMeIndividuals.rdf ontology did not preserve the properties in the parent i.e., FitMe.rdf ontology. Also worked on fixing commit overwrites