**ARTIFICIAL**

**INTELLIGENCE**

**PRACTICAL WORK 2:**

**Knowledge**

**Based**

**System**

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6. **Identification of Problem**

The proposed problem asks for a **system for a gym chain** “*No pain, no gain”* able to make a recommendation of **exercises** for a week depending on several features of an individual.

The first step is to identify why a knowledge based system is necessary to solve the problem. The reasons for this are that the system has to offer flexibility with a lot of information, simulating a rational behaviour based on the observations. In the same way, the system should suit to the individual and learn about it: his profile, interests or goals, problems, weight, height… in order to give the proper program for him.

The ideal ‘expert’ for this system would be a trainer or a physical educator that could explain us the set of restrictions and relations among the physical features of people and their exercises. However, we used our knowledge about this issue and our doubts have been solved by looking for them in internet and by professors. Thus, these three have been the experts for this system.

**Description:**

The problem can be described as 3 general steps: asking and obtaining knowledge of the individual, analyse the individual and the exercises appropriated for him and mount the schedule for a week depending on his daily time of dedication.

* 1. Asking and obtaining knowledge of the individual

In this step, two kinds of data can be differentiated.

**Non-informative data:** The data which is asked by intuition or complete the data, but don’t give information to be treated by KBS.

* Some personal data like the name or last name.

**Informative data:** The data will be treated by the KBS to make the next steps. These data will give information about the constraints for the individual to assign or reject the set of exercises which the gym provides.

* Rest of personal data like the age, which give us information about if the individual is young or old.
* Goals or motivations of the individual to go to the gym.
* Routine or habits that the individual has and their characteristics which can cover some of the exercises and give us an idea of the initial difficulty or intensity for the individual.
* Physical features like the height, weight.
* Maximum and minimum pressure and information about the individual problems with his diet.
* Temporal or fixed incapacity of the individual to do some exercises: lesions, mobility problems…
* Results of a mandatory test which the individual has to do, asking for his tiredness sensation, dizziness, muscular tension and his pulsations per minute that are calculated by a machine.
* Daily dedication of the individual in the gym.
  1. Analyse the individual and the exercises appropriated for him
* Calculation of the difficulty/intensity that the individual can endure from his habits. This factor may be altered by an excess or lack of the body mass of the individual or by negative results from the mandatory test, and it will be compared with the difficulty of the set of exercises to filter them.
* The next filtering to apply will be through the goal that the individual wants to achieve with the exercise.
* Incapacity of the individual and his muscular problems are other filtering … :o sueño..
  1. Mount the schedule for a week

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