Laboratory

Study Case

TarongISW

Software Engineering

Computer Science School

DSIC – UPV

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The cooperative TaronCoop in our city needs a software to control the harvesting process of products that are grown in the surrounding areas. To do so the company ISWSoft has been hired for the analysis and development of the App that will be used.

The cooperative is formed by a set of landowners where different products are grown. Each owner owns several plots (parcels) defined by a name, a cadastral reference and a size express in acres. In each plot only a product is cultivated (oranges, kiwis, avocados, ...).

The cooperative has several permanent employees who work on the different tasks that need to be carried out (pruning, cleaning, seeding, …) and most importantly harvesting. For each permanent employee the system needs to record the complete name, id number, social security number, bank account number to issue payrolls, the hire date and the monthly salary.

Once the harvesting starts more workers are often needed and temporary employees are hired. For these employees the system must record their name, id number, social security number, bank account number and contract start and end dates. These contracts usually don't have a known end date because they are associated to the harvesting process whose end date is variable.

The day a plot must be harvested a group of workers (permanent and temporary) is assigned to the plot. If the harvesting process takes several days, because the plot is large, each day a group is formed and one or several trucks are assigned to transport the products from the plot to the cooperative. The trucks have a plate number, MAL (maximum authorized load) and a weight (expressed in kilograms).

Each time a product crate is harvested it is weighted (kilograms) it is loaded into the truck, and it is assigned a unique identifier. The identifier allows the identification of the worker who filled the crate and the truck that transported it. The MAL of a truck must never be exceeded.

Whenever a truck leaves the plot, the date and time must be recorded. The same occurs when the truck arrives at the cooperative and when it is unloaded.

As soon as a truck is unloaded the products are cleaned and the crates are weighted again so that any possible decrease is detected.

The system should provide the following information:

- The trips that a truck has carried out between any two given dates with information of the products and transported weight on each trip.
- Given a temporary worker and a day, the number of crates and total weight of products harvested.
- Given a plot and a date, the average number of kilograms harvested per person differentiating between temporary and permanent workers.
- Given a year and an owner, the different products and total weight harvested in his/her plots.

Any person may be a plot owner, be hired as temporary or permanent worker. A permanent worker may not be simultaneously a temporary worker or vice versa.

The system must manage the functionality described above and must support administration operations (*Create, Read, Update* and *Delete*) related to owners, plots, trucks, …