University of Larbi Ben Mhidi Oum El Bouaghi
Faculty of Exact Sciences and Life and Natural Sciences
Department of Mathematics and Computer Science

Module: Information Systems, 2nd Year Bachelor's Degree in computer science

Tutorial N 4: Coding

Exercise 1

Given the file *FEMPL* containing the information of the employees in a company. Each record in this file includes the following fields:

- Employee ID.
- Service number.
- Last name.
- First name.
- Address.
- Marital status.

Considering that the number of employees does not exceed 1500 and the number of services is 15, propose a coding:

1. For the "Employee ID" data, in which the year of entry into the company and the employee's gender can be known.
2. For the service.
3. For the marital status.

Exercise 2

The construction of a city with 4 sectors, including 30,000 apartments, took some time. Each sector represents a phase in the construction process.

The first phase contains half as many housing units as the next phase.

1. Knowing that each building contains 40 apartments, find the number of buildings per sector.
2. Each building is made up of two blocks, with each block containing 5 floors. Propose a coding system that allows identifying the sector, building, block, floor, and apartment number for each sector.

Exercise 3

In the library of the Faculty of NTIC, there are three types of documents: books, dissertations, and journals. Each book is related to a specialty in computer science (databases, information systems, etc.). There are currently 9 specialties. The library

can store up to 500 books. The dissertations are final-year projects by computer science students, and their number cannot exceed 900.

The library subscribes to 10 journals, each journal containing a maximum of 3 articles, with each article corresponding to one of the computer science specialties. The total number of journals is limited to 1000.

Propose a coding system to identify:

- The nature (type) of the document, its number, and its specialty,
- The journal number, specifying the journal and its specialties,
- The dissertation number.