ITESM CCM | **TC1014**
**Programming fundamentals**
Aug – Dec 2018

Tecnológico de Monterrey

## Integrative practice

Create a program that helps teachers to manage the grades of assignments and projects within their classes. Among other things, the program will allow the teacher to perform and know the following:

- Enter student data (up to 20 students).
- Enter the grades of the students for their assignments (4), partial exams (2), final project (1) and final exam (1).
- Obtain reports to show: final average of each student, final average of the group, average per activity (assignment, exam, project, etc.).
- Know the performance of the group: variance, standard deviation, number of failed and approved.

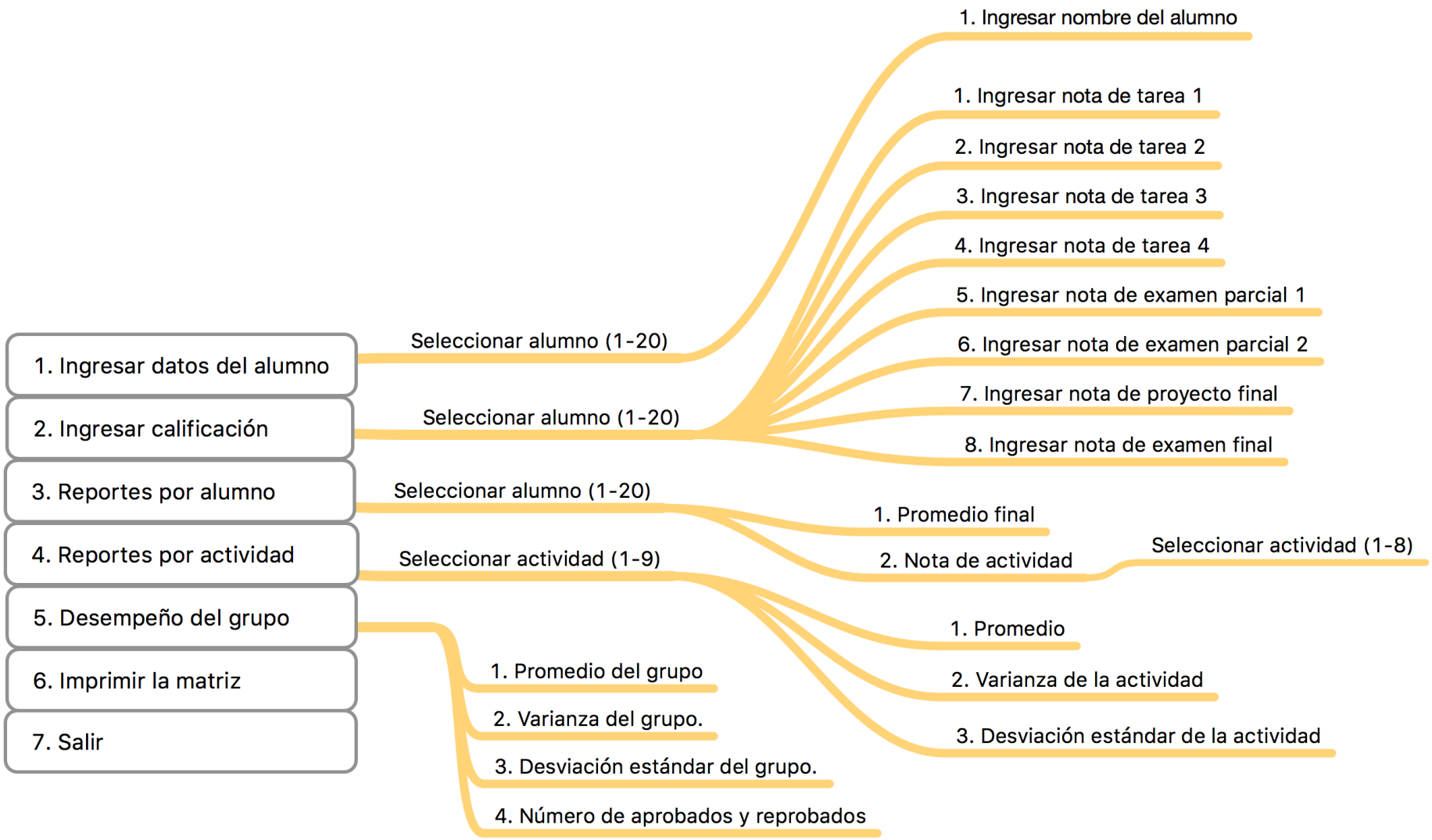
When you start the program, you should create a matrix similar to the following:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Alumno1 | Tarea1 | … | Tarea4 | ExPar1 | ExPar2 | ProyFinal | ExFinal | Final |
| Alumno2 | Tarea1 | … | Tarea4 | ExPar1 | ExPar2 | ProyFinal | ExFinal | Final |
| Alumno3 | Tarea1 | … | Tarea4 | ExPar1 | ExPar2 | ProyFinal | ExFinal | Final |
| … | | | | | | | | |
| Alumno20 | Tarea1 | … | Tarea4 | ExPar1 | ExPar2 | ProyFinal | ExFinal | Final |

The matrix should be pre-filled with random numbers between 50 - 100 :

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Student1 | 78 | 87 | 98 | 67 | 87 | 89 | 90 | 76 |
| Student2 | 89 | 97 | 65 | 47 | 67 | 87 | 90 | 76 |
| Student3 | 78 | 87 | 98 | 67 | 87 | 89 | 90 | 76 |
| Student4 | 89 | 97 | 65 | 47 | 67 | 87 | 90 | 76 |
| Student5 | 78 | 87 | 98 | 67 | 87 | 89 | 90 | 76 |

In this diagram you can find the main menu options and their corresponding submenus. The image is in spanish but your texts should be in english:



Considerations:

1. If a student's data is entered, the information in that student's data should be overwritten. That is, if you enter student 1 with name "Juan" and then re-enter student 1 with name "Luis" you must overwrite the previous name.

2. The same goes for all the homework notes, exercises, exams, etc. Each time a note is added, you should overwrite the previous note.

3. To calculate the final grade of each student (last column) consider: Tasks 40%, Partial exams 15%, Final project 25% and final exam 20%;