PROGRAMMING 1

FIRST PRACTICE EXAM

Full name   _____

DNI   _____

Signature

Implement a program in C that generates movie showtimes. The program must ask the user to enter the time for the first showing (hour and minute), the time interval between showings, and the number of showings. If the entered time is not valid (the hour must be between 0 and 23, and the minute between 0 and 59), the program shows an error message and asks again for the input data. Otherwise, it shows the list of showing hours. For each showing, it must indicate the number of the showing ("Showing 1", "Showing 2", …), and its start time (hour and minute).

In addition to *main()*, the program must implement, at least, the following modules:
   a) A module for validating an hour. It takes as input the hour and minute, and returns whether this hour is valid or not.
   b) A module that adds an amount of minutes to an hour. It takes as input the initial time (hour and minute) and the amount of minutes to add, and returns the resulting time (hour and minute).
   c) A module that prints an hour with the format *hh:mm*. It takes as input the hour and the minute to print. The minute must always have two digits, even if it is lower than 10 (e.g. 0:05).

Once the movie showtimes have been displayed, the program asks whether to generate showtimes for another movie or not. The answer can be either 'Y' (yes) or 'N' (not), in lower or uppercase. If the user enters a different character, the program will ask again.

IMPORTANT:

- You should choose the most convenient type of module for each case, and a proper type for its parameters
- **YOU MUST NOT** use global variables
- Code must be properly **indented**
- We will consider the use of comments describing the program to evaluate the exam
- A non-compiling program will penalise a 20% of the mark

```
Enter the time of the first showing
Hour (0-23): 24
Minute (0-59): 30

Error: The entered time is not valid

Enter the time of the first showing
Hour (0-23): 18
Minute (0-59): 30
Enter the time interval between showings (minutes): 105
Enter the number of showings: 3

Showing 1: 18:30
Showing 2: 20:15
Showing 3: 22:00

Do you want to generate showtimes for another movie (Y/N): s
Do you want to generate showtimes for another movie (Y/N): y

Enter the time of the first showing
Hour (0-23): 16
Minute (0-59): 30
Enter the time interval between showings (minutes): 165
Enter the number of showings: 4

Showing 1: 16:30
Showing 2: 19:15
Showing 3: 22:00
Showing 4: 0:45

Do you want to generate showtimes for another movie (Y/N): N
```