A university monitors the academic careers of its students using an application that tracks data related to completed exams. Specifically, the data is recorded in a file named **"exams.log"**, which stores the information about exams taken in the following format:

$$id,date\_of\_exam,exam\_code,grade$$

Where:

- **id**: is unique for each student and follows the format s+6-digit number.
- **date_of_exam**: is a string in the format DD/MM/YYYY.
- **exam_code**: is a 3-character alphanumeric string uniquely identifying an exam (e.g., "in1" for Informatics or "am1" for Mathematical Analysis).
- **grade**: can have any value between 18 and 30L (18, 19, … 30, 30L) or be the letter **"R"** (indicating a failed student) or **"A"** (indicating an absent student).

Since an exam can be retaken multiple times, a student might appear in multiple rows with the same exam code; in such cases, only the <u>last grade is considered</u> for calculating the student's grade average.

In a second file named **"cfu.dat"**, information related to each exam is stored in the following format:

$$exam\_code,CFU,mandatory$$

Where:

- **exam_code**: follows the same format described above.
- **CFU**: is an integer number of credits between 1 and 15.
- **mandatory**: is 0 (False) or 1 (True).

The program must process the two files and display **the list of student IDs eligible for the final graduation**. The eligibility conditions are: having obtained at least **30 total credits** and at least **10 mandatory CFUs**.

Of course, a student earns the credits only if the exam is passed.

The output generated by the program should include the following additional information:

1. The total credits obtained, with an indication of the mandatory ones.
2. The weighted grade average based on creditss (sum of the products of the grade and the credits for each exam, divided by the total number of credits). For the purposes of the averages:
   o   **30L** counts as **33**.
   o   **A** and **R** are excluded.

Example of Execution

Given the following content for the **exams.log** file:

```
s000001,01/01/2022,in1,A
s000001,01/01/2022,am1,30
s000001,20/01/2022,in1,30
```

```
s000001,30/01/2022,scZ,20
s000002,01/01/2022,am1,30
s000002,20/01/2022,in2,30
s000002,30/01/2022,scA,30
```

And for the **cfu.dat** file:

```
in1,10,1
in2,10,1
am1,10,1
am2,10,1
scA,6,0
scZ,15,0
```

The output should be:

```
STUDENT s000001
Student with 35 total credits; 20 mandatory credits; 25.71 average.
```